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January 21, 2013

WTI Crude $US/B	Edmonton Light $Cdn/B	Henry Hub Gas $US/MMBtu	AECO Gas $Cdn/GJ	AECO Basis $US/MMBtu	Currency $US/$Cdn
95.56 ↑	88.18 ↑	3.53 ↑	3.01 ↑	0.33 ↑	1.0083 ↓

Chart Watch

1	Dow closed at the highest level since Dec, 2007
20	IEA raised its 2013 global oil demand forecast
22	OPEC oil production fell to a 1-year low in Dec
27	Near month gas futures closed near 6-week highs
58	New: 2013 Canadian Industry Model estimates

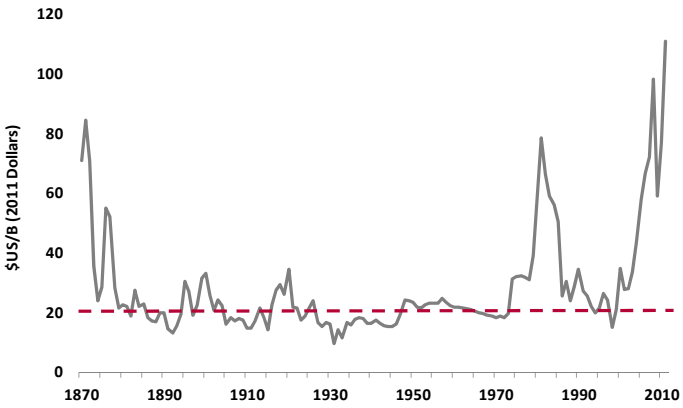
Price Shocks– 40 Years On

This year marks the 40th anniversary of the 1973 oil price shock. Rifling through an old LIFE Magazine sparked memories of the Middle Eastern drama. Looking at some of the contrasting photos – a room full of jovial Arab leaders enjoying the 250% rise in the price of oil; a western freeway void of cars due to widespread gasoline shortages – the disco-era reminiscence gave pause for thought about vulnerable oil markets. Running some numbers on the flashback was thought-provoking too: in real dollar terms a barrel of light oil (world price) is 40% more expensive today than it was during the second, 1979 price shock (see Figure 1). Should oil producers be concerned about a price fall from the lofty high?

At a time when global oil demand was growing by 9% per year, the 1973 Arab-Israeli war and resulting embargo by the Organization of Arab Petroleum Exporting Countries (OAPEC) drove the price of a barrel of oil up nominally from $3.00 to $8.00. Figure 1 shows that the elevated prices lingered for seven years, until after 1979, when the second blow of the one-two punch was thrown. The vicious Iran-Iraq war took 7.0 MMB/d off the world market, resulting in a four-fold, average $32/B jump in oil prices. Adjusted to today's dollar terms, Figure 1 shows that prices in the late '70s climbed to $80/B.

Figure 1: Real Price of Crude Oil

Average Annual Global Price in 2011 Dollars



Sources: EIA, Bloomberg, Other US Gov't Reports, ARC Financial

High oil prices in the 1970s had precedent. When oil emerged, in the latter half of the 1800s, it was priced around $80/B (real dollars). Coveted for its application in lighting, lubrication and combustion engines, the demand for oil exceeded what the

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Sources Bloomberg, CAODC, Baker Hughes, EIA, NOAA, CPC, IEA, Natural Resources Canada, Canadian Gas Association, ARC Financial Research

immature extraction technologies of the mid-19th century could deliver. In response to the lucrative pricing, productivity gains brought down unit costs and better drilling techniques delivered larger volumes. It wasn't long before oil barons were able to supply thirsty markets at greater cost efficiency. As a result, the price of oil fell to the consumer friendly $20/B average in today's real terms.

In the early 1980s, the theme of high price as a catalyst for change recurred. In response to the two '70s price shocks, western nations implemented hard policies that encouraged substitution of oil with coal and nuclear power. Japan and Europe invested heavily in mass transportation, mostly rail. Governments also mandated higher fuel economy in vehicles. By the late '80s, these and other measures contributed to substantially reduced levels of oil consumption growth. On the supply side, the high price of oil was a big catalyst for putting new offshore technologies to work and bringing hitherto uneconomic oil to market from the North Sea and Gulf of Mexico. Like a rerun of the late 19th century, economies of scale and new drilling innovation brought the cost of expensive oil down. A hundred years later, by the 1990s, the price of oil came tumbling down to the long-term, real $20/B level.

Someone who knows nothing about oil may be inclined to look at Figure 1 and suggest that oil must once again revert to the long-term baseline of twenty bucks. Few will deny that similar themes to the 1970s are at work today: for example, government policies to push oil substitutes and higher vehicle fuel economy; substitutes for road transport; and once again, a massive roll out of new drilling, completion and production technologies to bring large volumes of hitherto uneconomic oil to market.

Yet, a collapse back to $20/B is not forthcoming. For one thing, over the past decade, in parallel with the rapidly rising price of oil, the real cost of oilfield services has also hyper-inflated. Even a modest drop in the price of oil would crimp cash flow, cut investment and slow production. Yet while $20/B may not be realistic, producers should not be in denial about recurring forces that are in play to bring costs down. Increasing productivity gains and proliferation of resource exploitation techniques to other regions of the world will be hard to stop at current price. Most trends in play today point to a decline in the marginal cost of bringing oil to the market.

At the moment, real oil prices remain stubbornly high. Market expectations of endless consumption in high-growth regions like China continue to buttress price against the downward pressure of supply-side innovation. So for now, suggesting a sudden oil price drop – despite powerful supply side trends – is a riskier bet than the converse: a further run up in price, potentially triggered by another disruptive Middle Eastern crisis. Forty years on, some traders are still taking the latter bet, which is another reason why oil prices will be stubborn to retreat.

Look for our Commentary in Canada's National Newspaper, The Globe and Mail (www.theglobeandmail.com).
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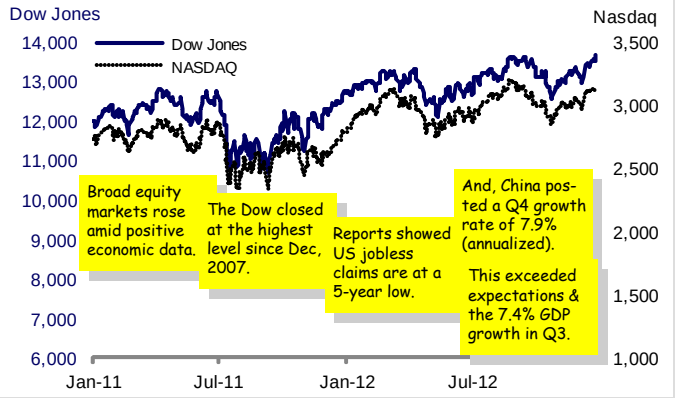
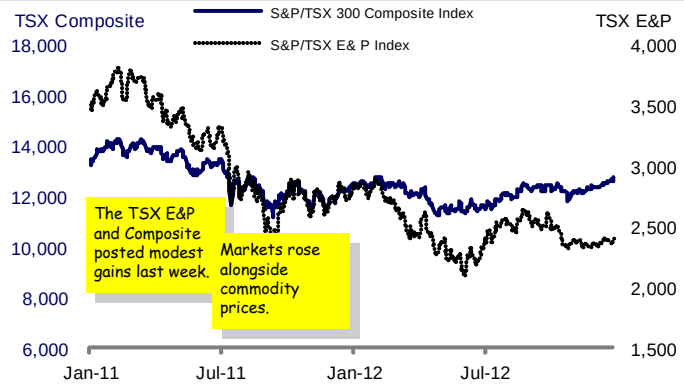
Market Indicators

1 Broad Equity Markets
Daily Index Values; Rolling 24-Month History



Broad market indices are one of many vital signs measuring the health of the economy. Energy demand is a function of economic health.

2 Performance of Oil and Gas Equities
Daily Index Values; Rolling 24-Month History

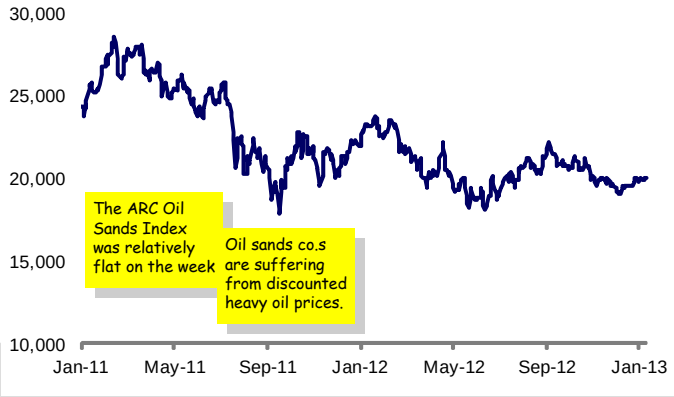


Performance of Canadian oil & gas equities are compared against the broader market.

3 ARC Canadian Oil & Gas Growth Equity Index
Daily Index Values; Rolling 24-Month History

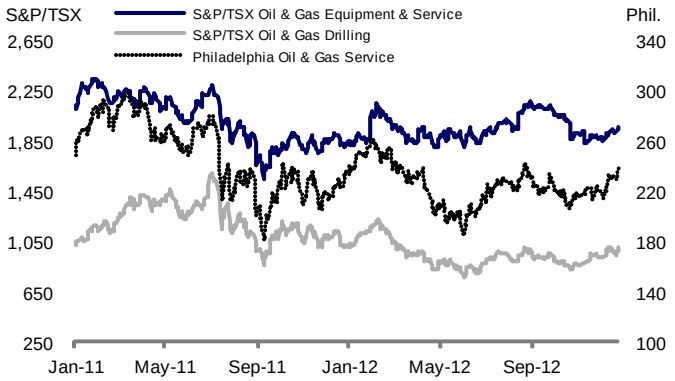
The ARC CDN Oil & Gas Growth Index measures the performance of over 100 oil and gas producers that are not included in larger exchange indices.

4 ARC Oil Sands Producers Equity Index
Daily Index Values; Rolling 24-Month History



The ARC Oil Sands Index measures the performance of six oil sand producers.

5 Philadelphia Oil & Gas Service Equity Index
Daily Index Values; Rolling 24-Month History



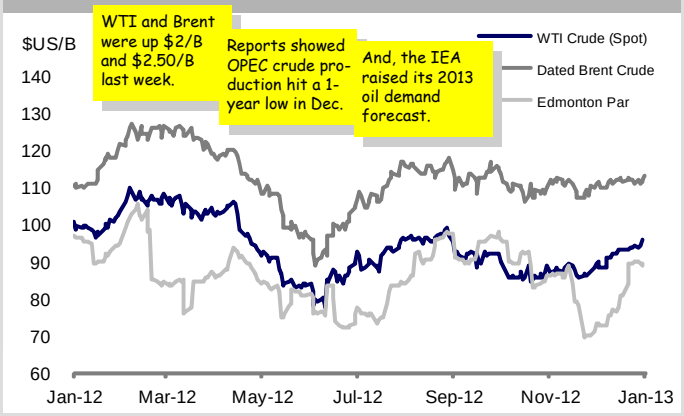
The performance of Canadian oil and gas service equities (left scale) are plotted in tandem with the corresponding US company index (right scale).

6 Canadian Currency Exchange
Daily Close Values; Rolling 24-Month History

Much of Canada's oil and gas production is exported. As such, the value of the Canadian dollar has significant impact on corporate revenues.

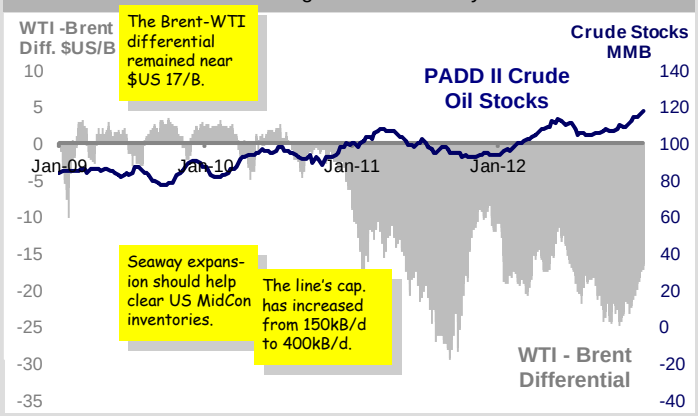
Crude Oil

7 Daily Spot Crude Oil Prices
WTI, Brent Crude, Edmonton Par; Rolling 12-Month History



Spot crude oil prices are principally driven by stock levels, international supply/demand dynamics and related geopolitical influences.

8 WTI-Brent Differential & PADD II Crude Oil Stocks
Rolling 48-Month History

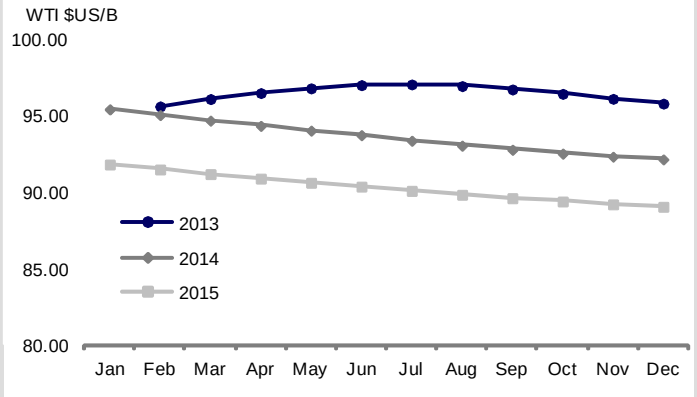


PADD II represents the US Midwest market including Cushing, the delivery point for WTI. Stock levels here often influence WTI vs global benchmarks.

9 Daily Futures Crude Oil Prices: 24-Mth Contract
WTI NYMEX; Rolling 12-Month History

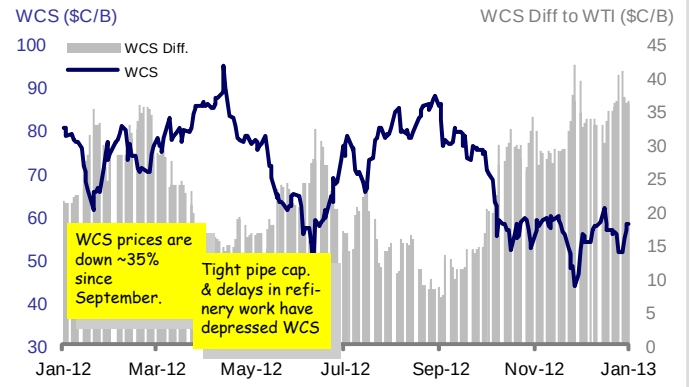
The daily close of the long end of the futures curve is important to watch for structural changes in the crude oil market.

10 US Crude Oil Futures
West Texas Intermediate (WTI) 2013 to 2015



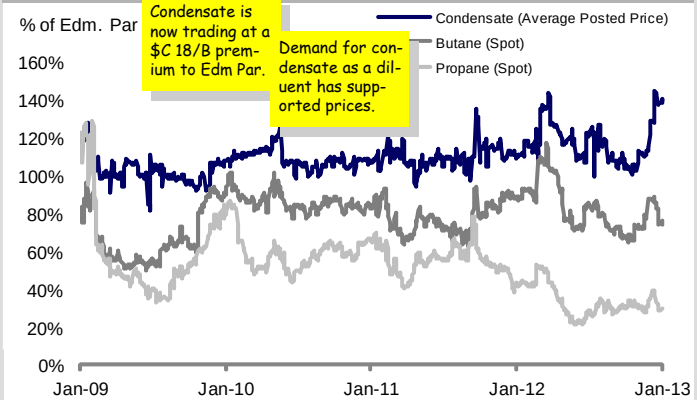
Here forward contract prices for WTI are plotted against months in the calendar year. Years are distinguished by color and/or symbol coding.

11 Canadian Heavy Oil Price and Differential to WTI
Western Canadian Select (WCS) Differential; Rolling 12-Month History



Canadian heavy differentials vary depending on barrel-to-barrel competition at a limited number of US refineries with specialized refining capacity.

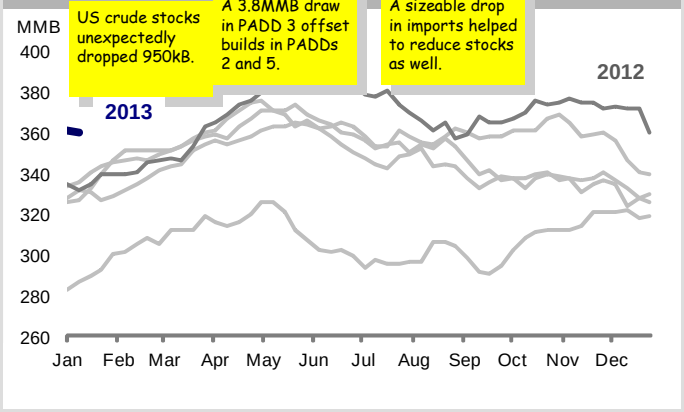
12 Daily NGL Prices as a % of Edmonton Par
Segregated Condensate; Butane Edm. Spot; Propane Edm. Spot



Natural gas liquids have become critical contributors to producers' cash flow. Condensate, butane and propane prices are influenced by the price of oil.

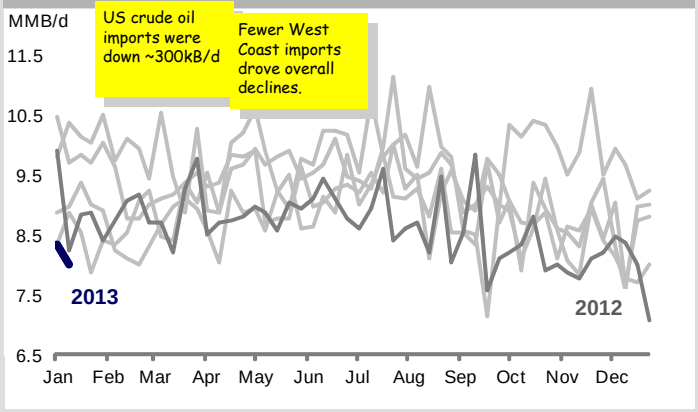
Crude Oil

13 US Crude Oil Stocks
Historical Tracks and Current Year Levels



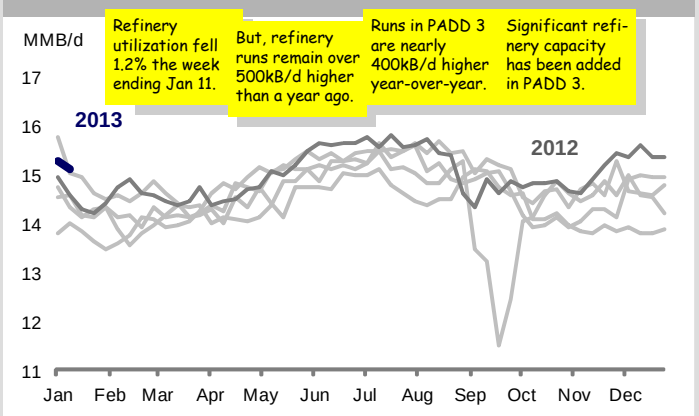
Weekly stock levels provide a snapshot of supply and demand. The grey lines span a historical range; the blue line plots current year levels.

14 US Crude Oil Imports
Historical Tracks and Current Year Levels



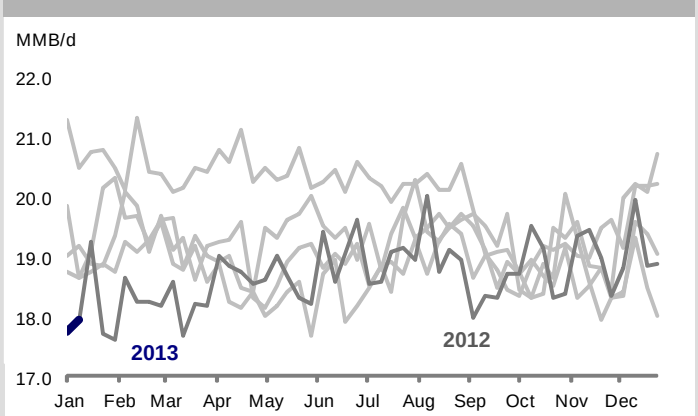
The US must import crude oil to augment its domestic supply. The grey lines span a historical range; the blue line plots current year values.

15 US Weekly Refinery Runs
Historical Tracks and Current Year Levels



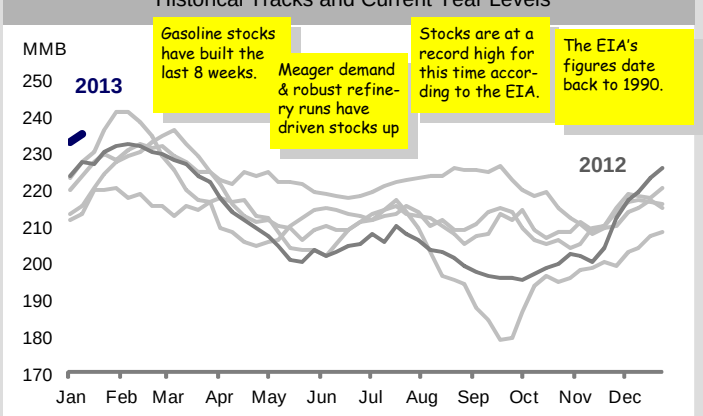
In the US, refinery runs mirror overall seasonal demand for petroleum products. Total operable capacity is approximately 17.6 MMB/d.

16 Total Weekly US Petroleum Supplied
Historical Tracks and Current Year Levels



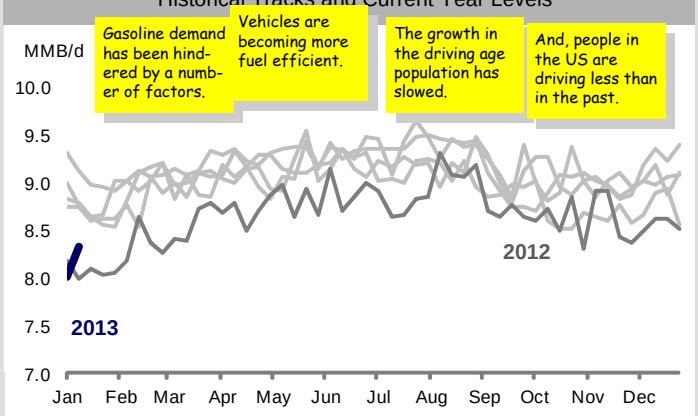
Petroleum supplied represents the total consumption of petroleum products in the U.S. Oil consumption for the current year is in blue.

17 US Motor Gasoline Stocks
Historical Tracks and Current Year Levels



Gasoline stock levels can affect crude oil prices. Stock levels for the current year are represented by the blue line.

18 US Motor Gasoline Consumption
Historical Tracks and Current Year Levels

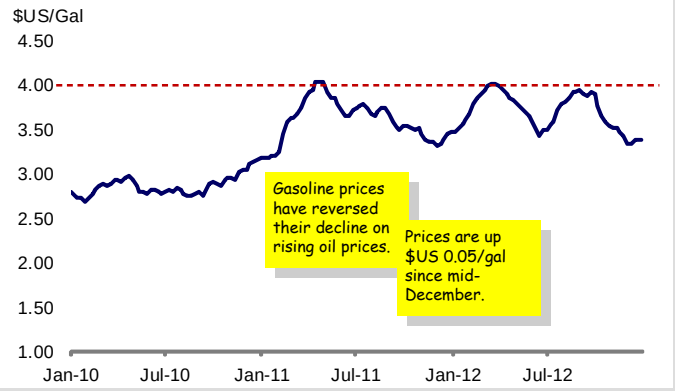


Gasoline consumption accounts for almost half of all oil use in the U.S. Gasoline consumption for the current year is in blue.

Crude Oil

19 US Average Retail Gasoline (All Grades) Prices

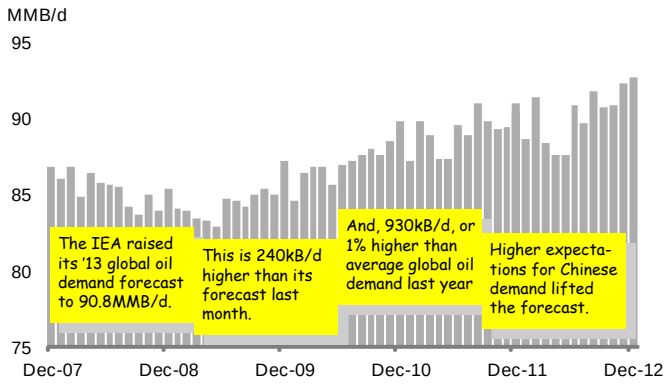
Weekly Data; Rolling 3-Year History



Gasoline is one of the main products refined from crude oil. Gasoline prices are influenced by crude oil prices, seasonality and retail competition.

20 Global Oil Demand

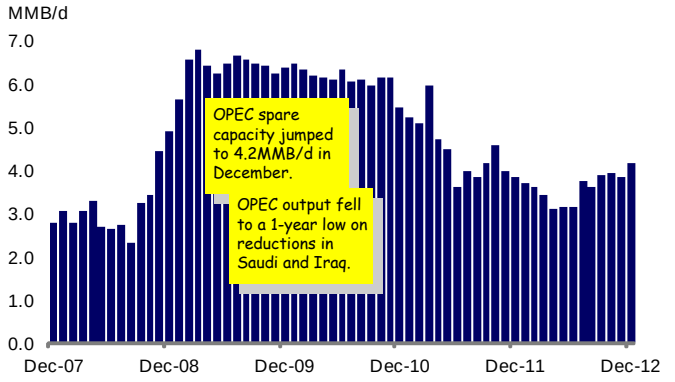
Monthly; Rolling 60-Month History



Global oil demand growth is largely driven by economic growth. The majority of new demand is coming from non-OECD countries.

21 OPEC Notional Spare Capacity

Monthly; Rolling 60-Month History



World oil spare capacity resides only in OPEC member countries. It is assumed that non-OPEC countries produce at full capacity.

22 OPEC Production Data Table

Recent Production Targets and Spare Capacity: MMB/Day

	Target Effective Dec-12	Dec-12 Prod'n	Sustainable Capacity	Spare Capacity
Algeria		1.18	1.19	0.01
Angola		1.73	1.89	0.16
Ecuador		0.50	0.52	0.02
Iran		2.70	3.03	0.33
Iraq		2.97	3.30	0.33
Kuwait		2.78	2.86	0.08
Libya		1.40	1.58	0.18
Nigeria		2.10	2.49	0.39
Qatar		0.74	0.74	0.00
Saudi Arabia		9.36	11.80	2.44
UAE		2.68	2.80	0.12
Venezuela		2.50	2.60	0.10
TOTAL OPEC	**30.00**	**30.64**	**34.80**	**4.16**

OPEC crude production fell to the lowest level in a year in Dec.

Saudi Arabia's & Iraq's output fell ~290kB/d and ~240kB/d.

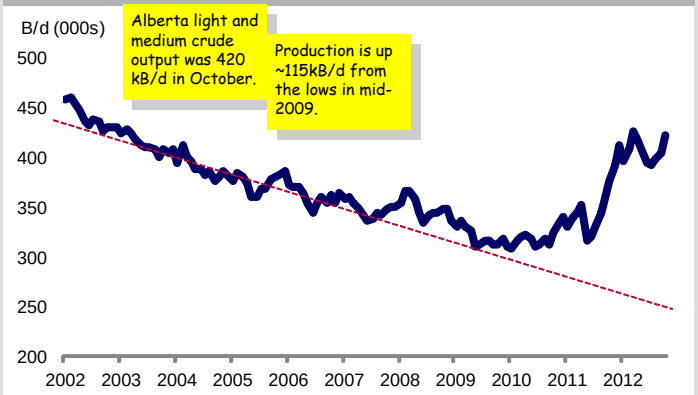
Declines were somewhat offset by a 220kB/d rise in Nigeria.

On an annual basis, OPEC supply hit an all time high in 2012.

OPEC's production levels relative to its sustainable and spare capacity ties directly into near and long-term crude oil prices.

23 Alberta Oil Production

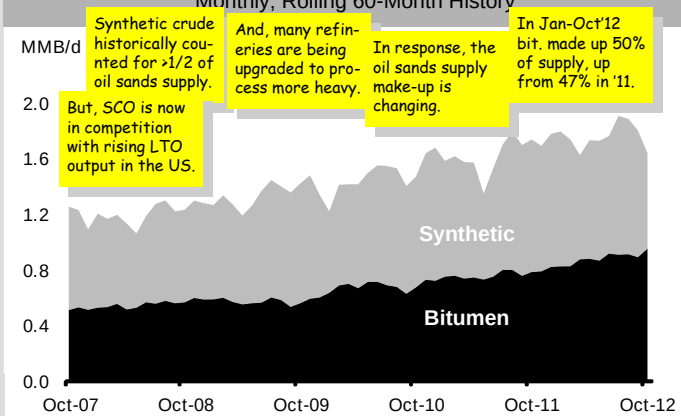
Monthly; Light & Medium Crude



Alberta is the largest producer of crude oil in Canada. Recent growth has come as a result of innovations in drilling and completions methods.

24 Canadian Oil Sands Production

Monthly; Rolling 60-Month History



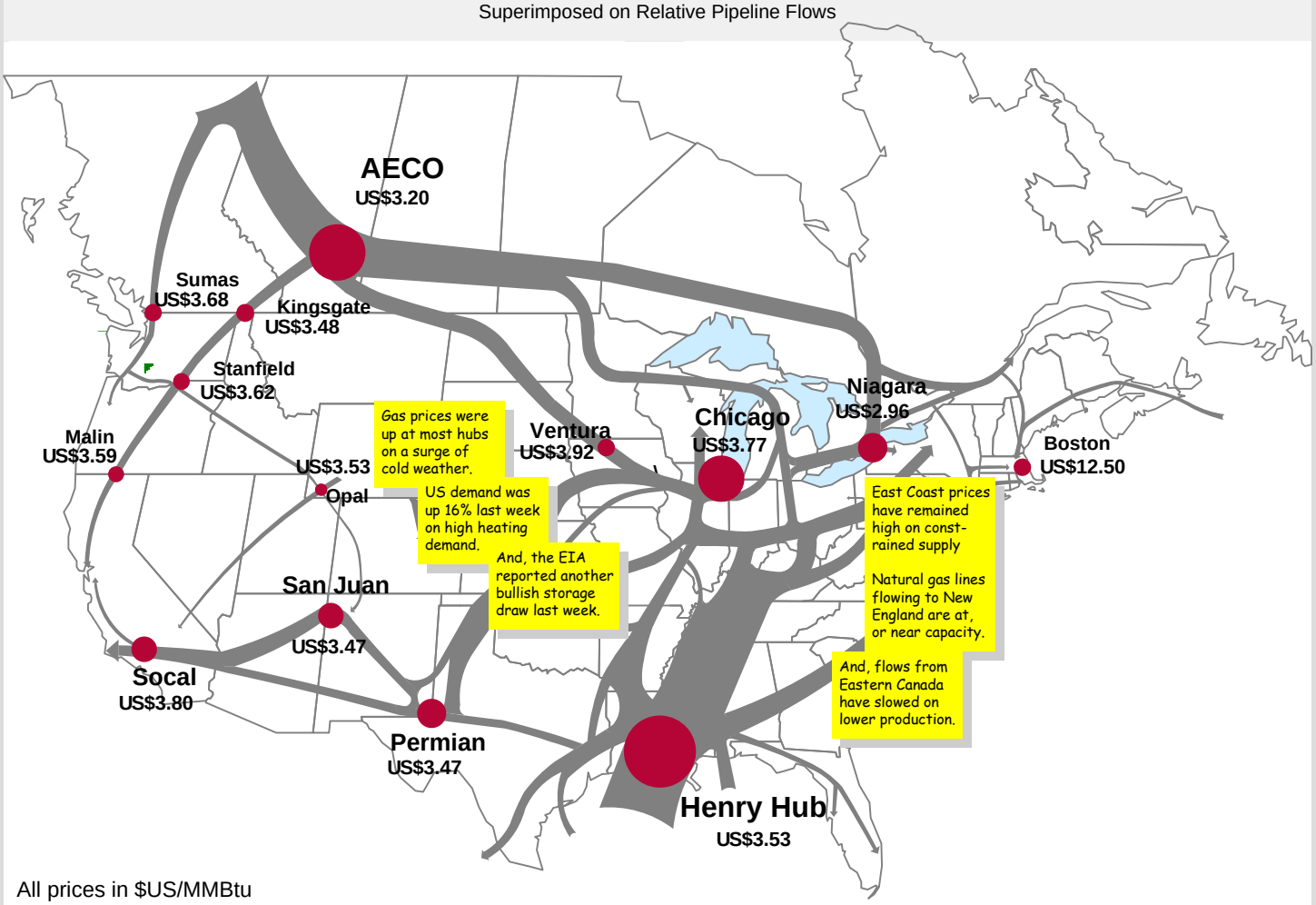
Cdn oil sands is an important source of new supply to meet global oil demand growth. Production is projected to reach 2.1 MMBd by 2015.

Natural Gas

25

Closing Spot Prices at North American Natural Gas Hubs

Superimposed on Relative Pipeline Flows



All prices in $US/MMBtu

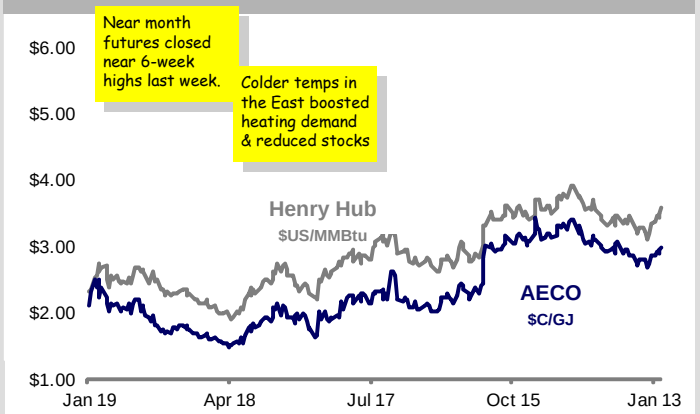
26 Henry Hub-AECO Near Month Price Differential

Daily; Rolling 12-Month History

Historically the AECO price has traded at approximately 85% of the Henry Hub price (in $US/MMBtu).

27 Near Month North American Natural Gas Prices

Daily Prices; Rolling 12-Month History



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

Natural Gas

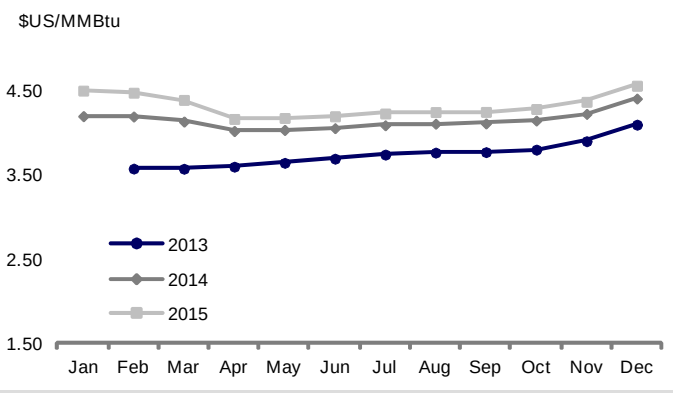
28 Daily Natural Gas Prices Futures Average

Average of 25-to-36 month out contracts; Rolling 12-Month History

The daily close of the long end of the futures curve is important to watch for structural changes in the natural gas market.

29 US Natural Gas Futures

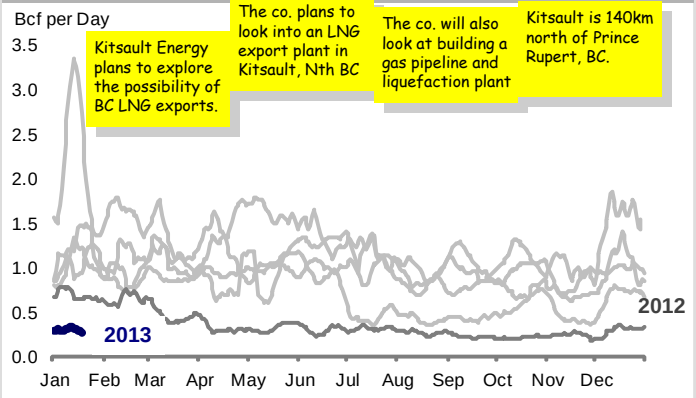
Nymex (Henry Hub) 2013 to 2015



Here forward contract prices are plotted against months in the calendar year. Years are distinguished by color and/or symbol coding.

30 US LNG Import Volumes (Net)

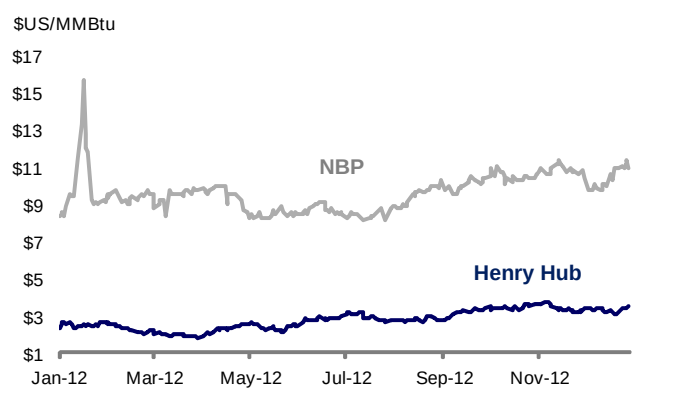
Daily; Historical Tracks and Current Year Levels



LNG Imports are an important component in meeting US natural gas demand. Source: Bentek

31 Natural Gas Spot Prices: NBP vs Henry Hub

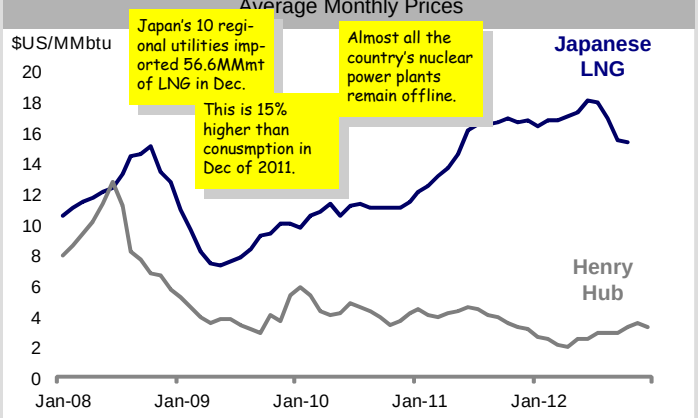
Within-Day Close; Rolling 12-Month History



A notional point in the UK National Transmission System (NTS) used as a delivery point for gas. Prices are converted from sterling to dollars.

32 Japanese LNG Price vs Henry Hub

Average Monthly Prices



LNG index updates on a two month lag basis. The LNG import prices are inclusive of freight cost. LNG imports are from all countries into Japan.

33 Canadian Natural Gas Forward Prices

AECO Hub

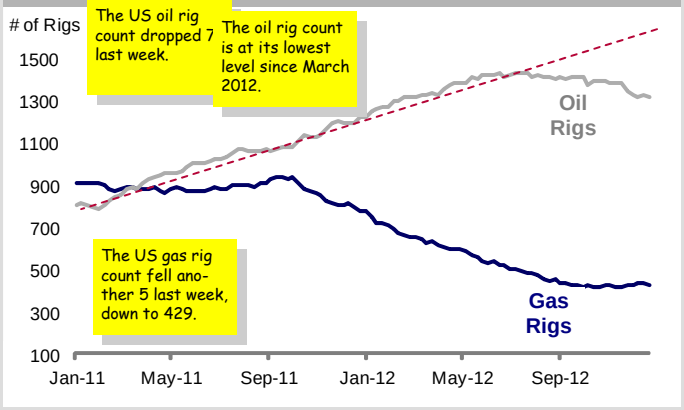
	$C/GJ	$C/Mcf	$US/MMBtu
AECO Spot Price	3.01	3.18	3.20
1-Month Fwd	2.99	3.15	3.18
AECO Nov 1 Yr Out	3.44	3.63	3.66
Rest of Gas Year	3.03	3.20	3.22
Fwd Winter Strip	3.68	3.88	3.91

AECO forward prices mimic Henry Hub futures plus a differential. Due to less liquidity, forward AECO quotes do not extend out beyond one year.

Natural Gas

34 Weekly US Oil and Gas Drilling Activity

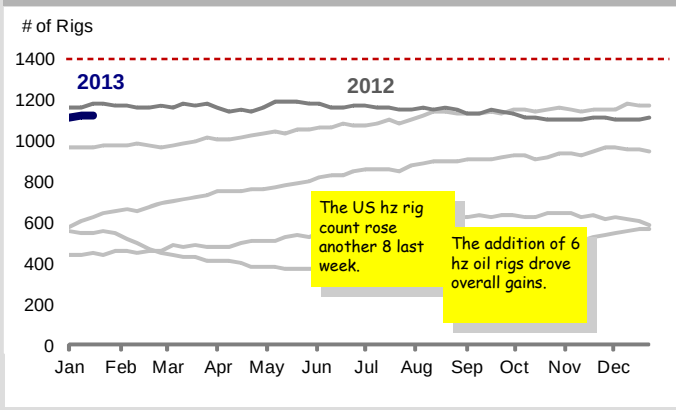
Baker Hughes Average Rig Counts; Rolling 24-Month History



US rig activity is a leading indicator of continental supply. Capital allocation by operators is driven by views of future oil and natural gas prices.

35 Weekly US Horizontal Drilling Activity

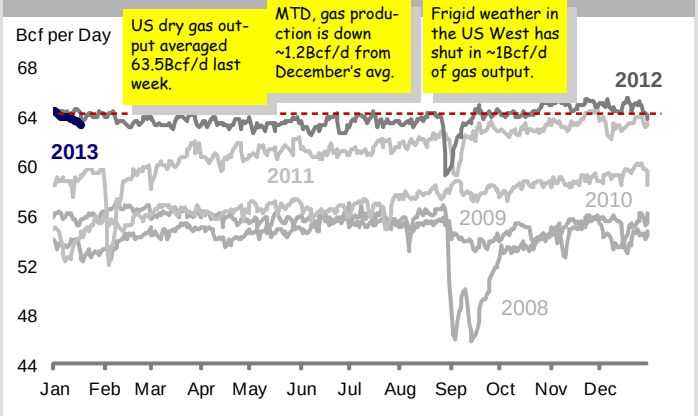
Source: Baker Hughes



US Horizontal rig activity is a leading indicator of unconventional oil and gas supply. Horizontal wells are more productive than vertical wells.

36 Total US Dry Natural Gas Production

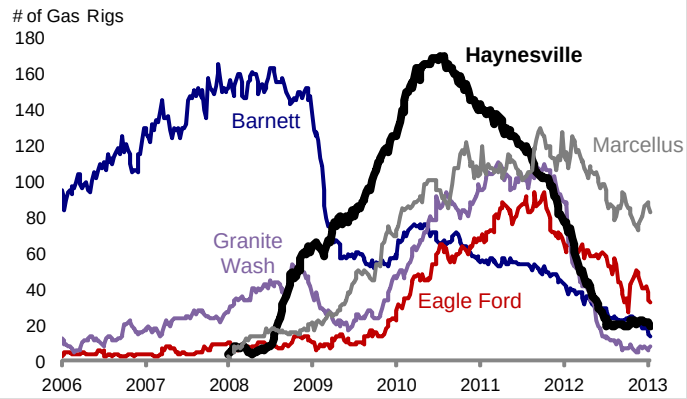
Historical Tracks and Current Year Levels



Tracking US natural gas supply helps monitor the growth in domestic production that started ramping up in late 2007.

37 US Shale Gas Drilling Activity

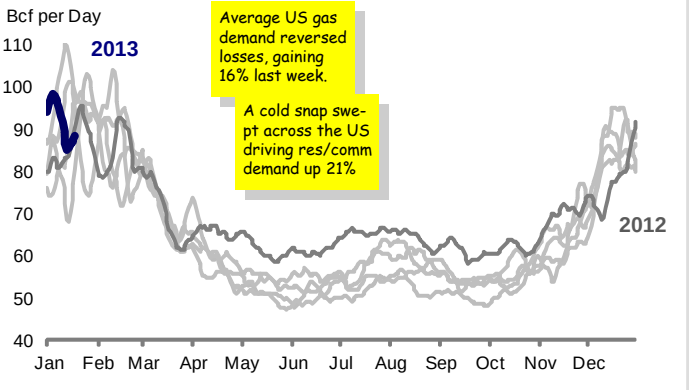
Smith Bits Average Shale Gas Rig Counts



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

38 US Total Natural Gas Demand

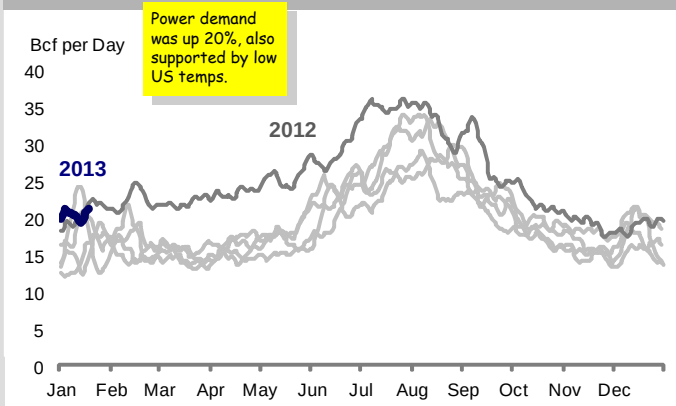
Daily; Historical Tracks and Current Year Levels



Total US demand fluctuates between 50 Bcf/d in summer and 100 Bcf/d in the winter. Weather is still the most influential factor driving consumption.

39 US Total Natural Gas Power Demand

Daily; Historical Tracks and Current Year Levels

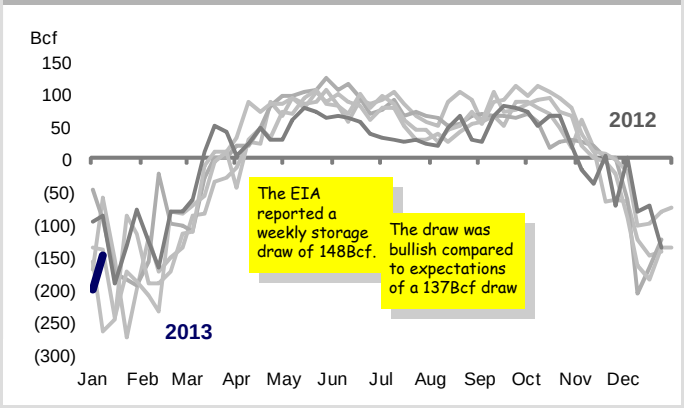


The electric power industry has become an important driver of total US natural gas demand. It is the largest component by far in the summer.

Natural Gas

40 Weekly US Natural Gas Storage Net Change

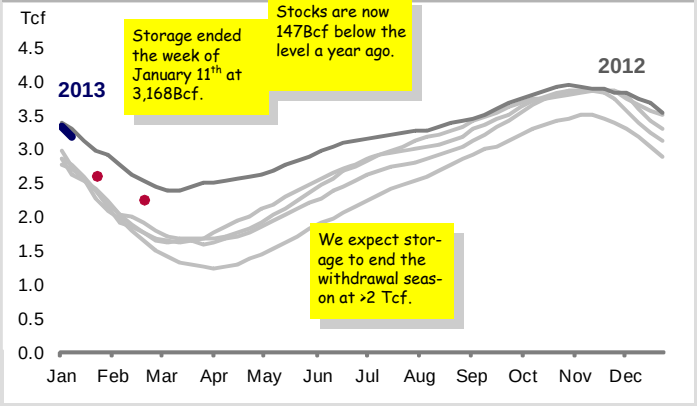
Weekly Injection or (Withdrawals); 2007 to Current



Weekly gas storage reports provide a snapshot of supply and demand. Previous years are in light grey; the blue line plots current year levels.

41 Total Working Natural Gas in US Storage

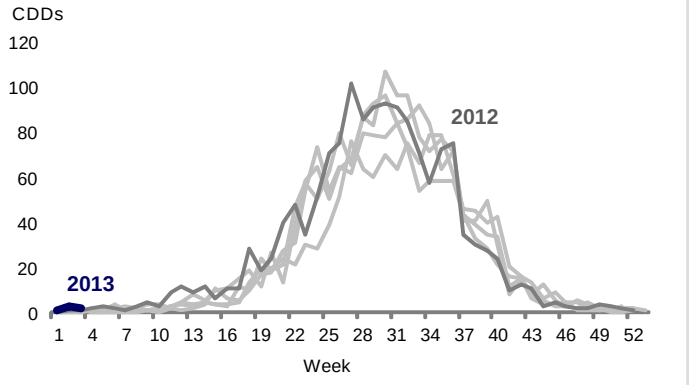
Historical Tracks and Current Year Levels



The EIA reports changes in US natural gas inventories held in underground storage facilities on weekly basis.

42 US Weekly Cooling Degree Days

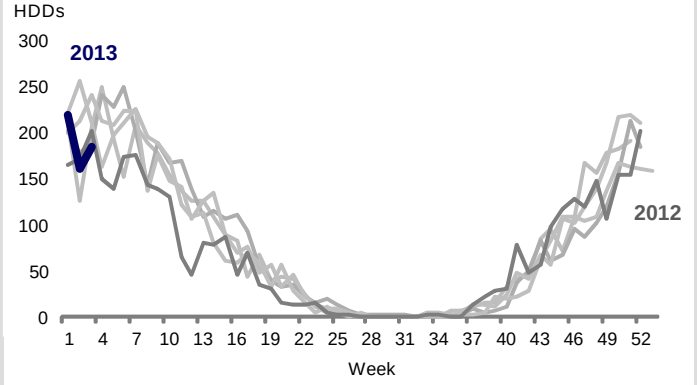
Source: NOAA



Weekly natural gas demand is directly tied to the weather. Current year is in dark blue; historical years are in grey.

43 US Weekly Heating Degree Days

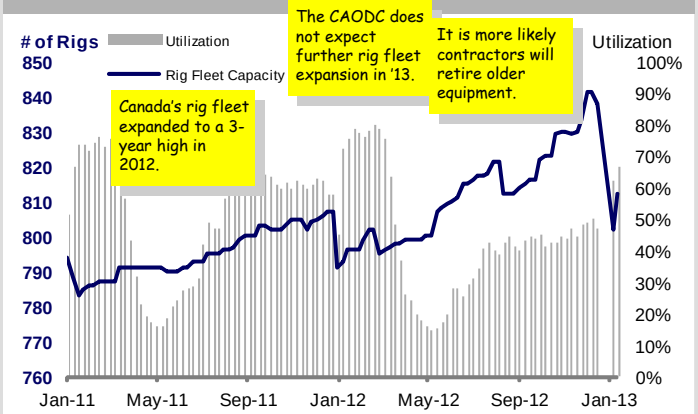
Source: NOAA



Weekly natural gas demand is directly tied to the weather. Current year is in dark blue; historical years are in grey.

44 Cdn Oil and Gas Rig Capacity and Utilization

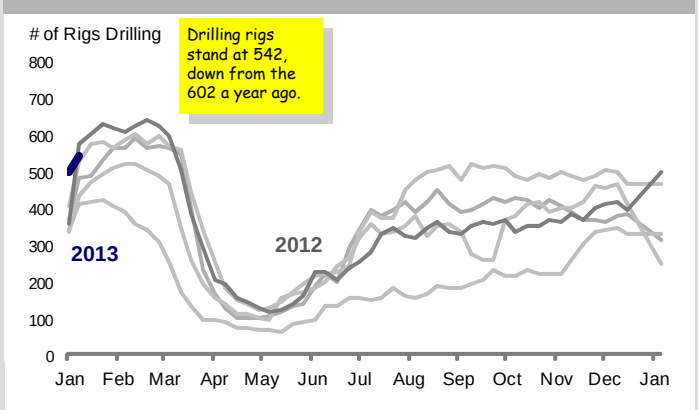
CAODC Average Weekly Rig Count; Rolling 2-Year History



Rig utilization in Canada is a function of broad fundamentals and seasonality. Utilization always drops off during spring breakup.

45 Weekly Canadian Oil and Gas Drilling Activity

CAODC Average Weekly Rig Count

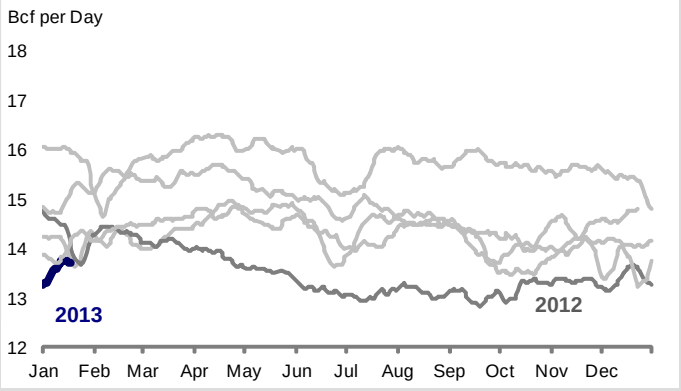


Unlike US drilling activity Canadian rigs are dispatched seasonally. The active rig count for the current year is in blue.

Natural Gas

46 Daily Western Canadian Pipeline Receipts

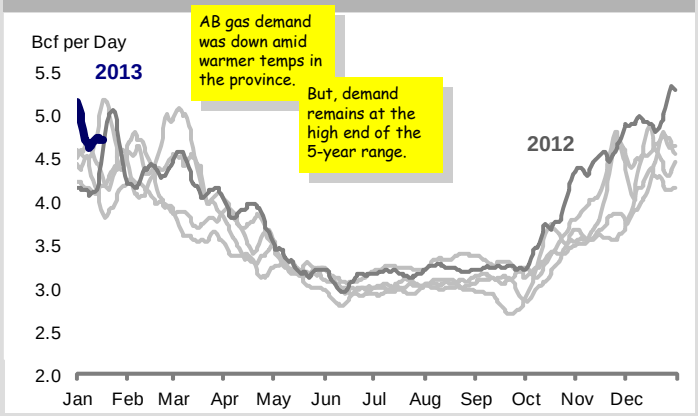
TransCanada (NOVA), Alliance, WestCoast & TransGas Pipelines



All combined, TCPL, Alliance, WestCoast and TransGas pipelines move over 13 Bcf/d of natural gas out of Western Canada.

47 Alberta Natural Gas Demand

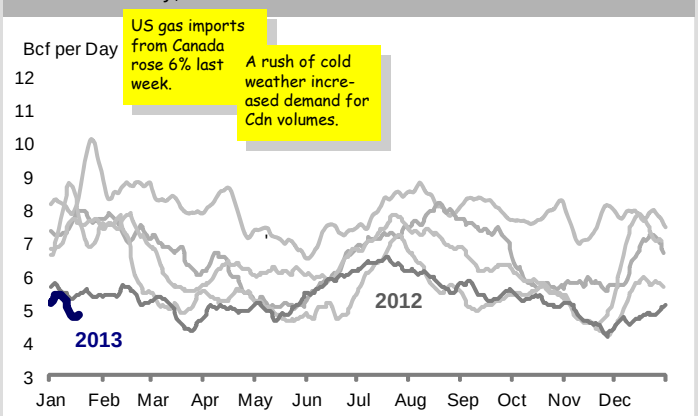
TransCanada Intra-AB Deliveries; Current Year and Historical Tracks



As Alberta's economy grows, and as more oil sands projects come on line, it will be increasingly important to monitor the Province's gas demand.

48 US Net Natural Gas Imports From Canada

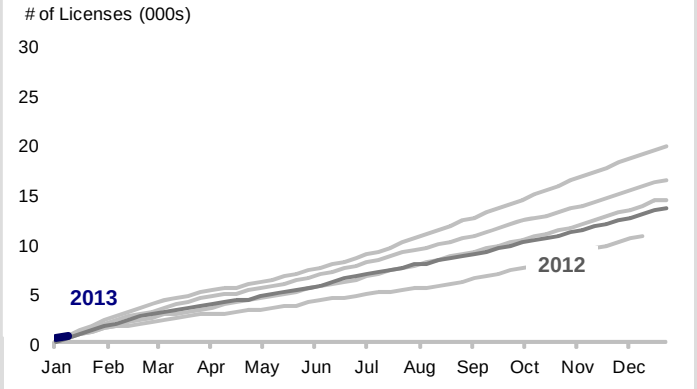
Daily; Historical Tracks and Current Year Levels



The US is a large consumer of Canadian gas. However, the dynamic is changing as US domestic production continues to grow.

49 Canadian Cumulative Well Licensing Activity

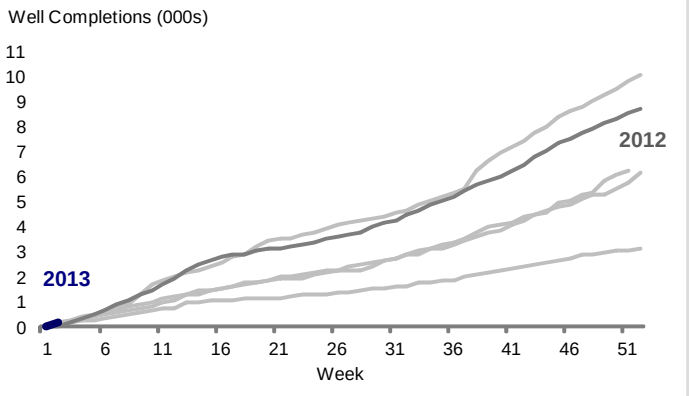
Current Year *vs* Years Prior



Canadian well licenses are a leading indicator of WCSB drilling activity. Cumulative well licenses for the current year are in blue.

50 Canadian Cumulative Oil Well Completions

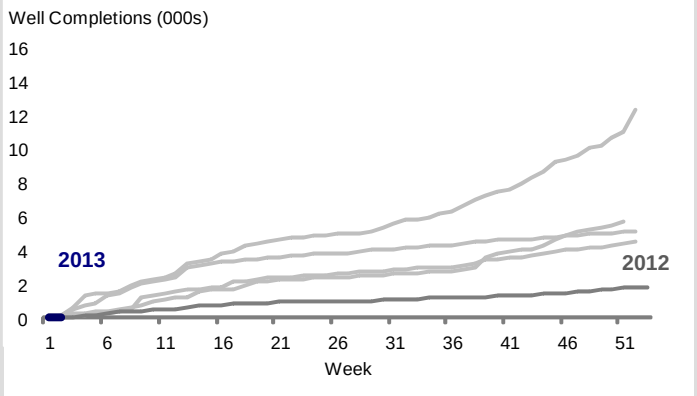
Current Year *vs* Years Prior



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

51 Canadian Cumulative Gas Well Completions

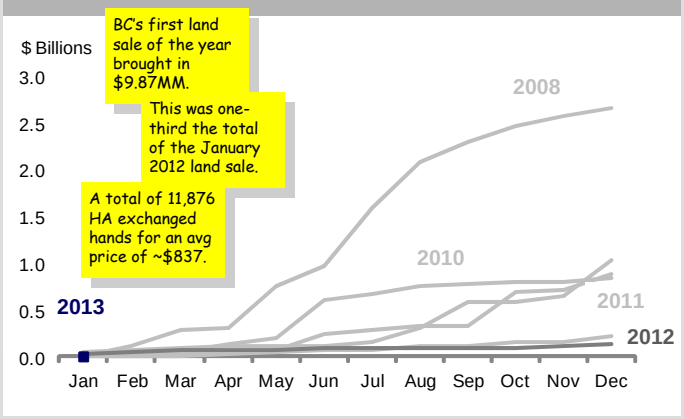
Current Year *vs* Years Prior



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

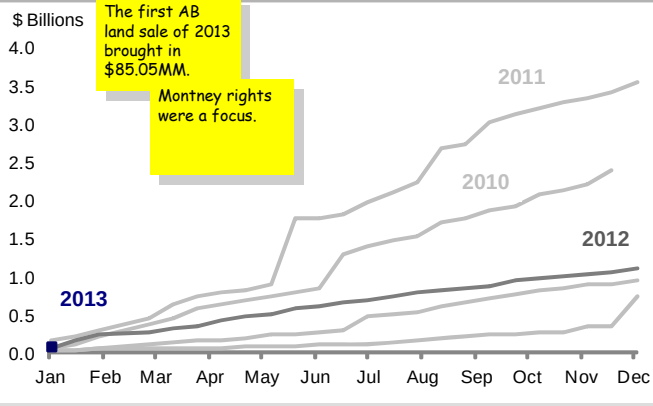
Other Indicators

52 British Columbia Crown Land Sales
Year-over-Year; Cumulative



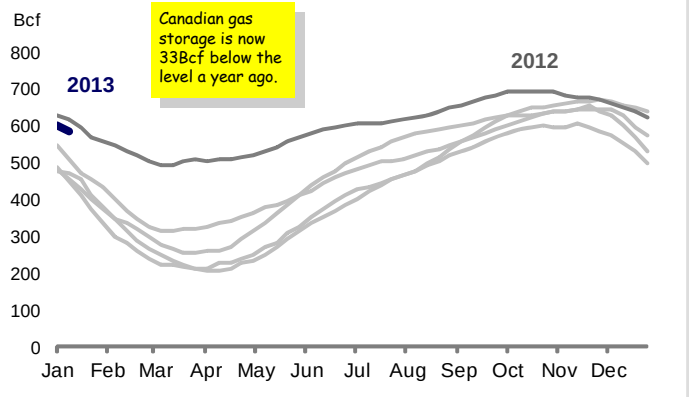
Land prices are an important component of F&D costs. In British Columbia, sales of petroleum and natural gas rights are held every month.

53 Alberta Crown Land Sales – Excluding Oil Sands
Year-over-Year; Cumulative



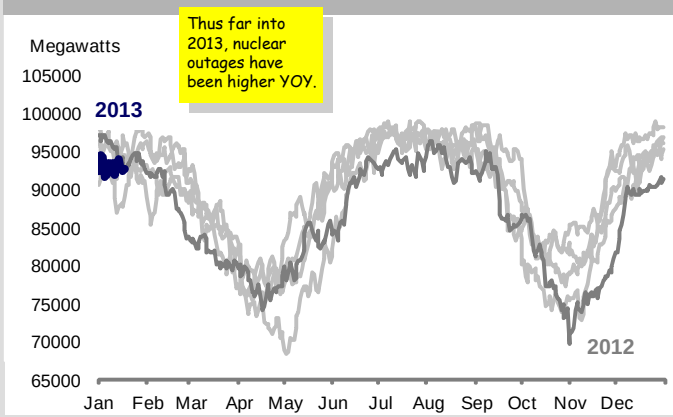
Land prices are an important component of F&D costs. In Alberta, sales of petroleum and natural gas rights are held every two weeks.

54 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.

55 Weekly US Nuclear Electricity Generation
Current Year *vs* Years Prior

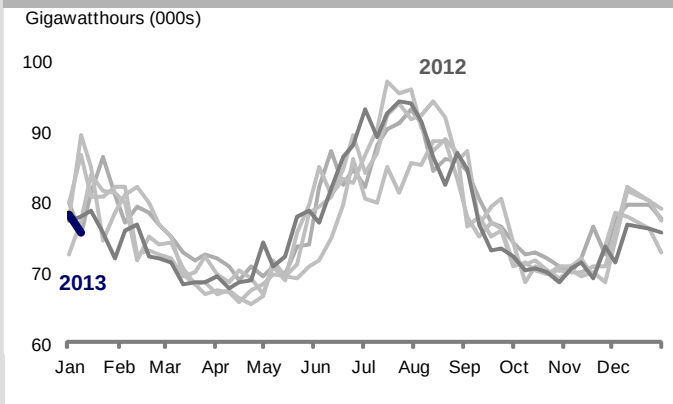


The capacity of electricity generated from US nuclear power plants is 99,910 megawatts. Source: Nuclear Regulatory Commission.

56 NYMEX CAPP Coal Prices – Near Month
Daily; Rolling 12-Month History

Nymex offers a liquid market to hedge physical coal contracts. In power markets, coal competes for market share against oil and gas.

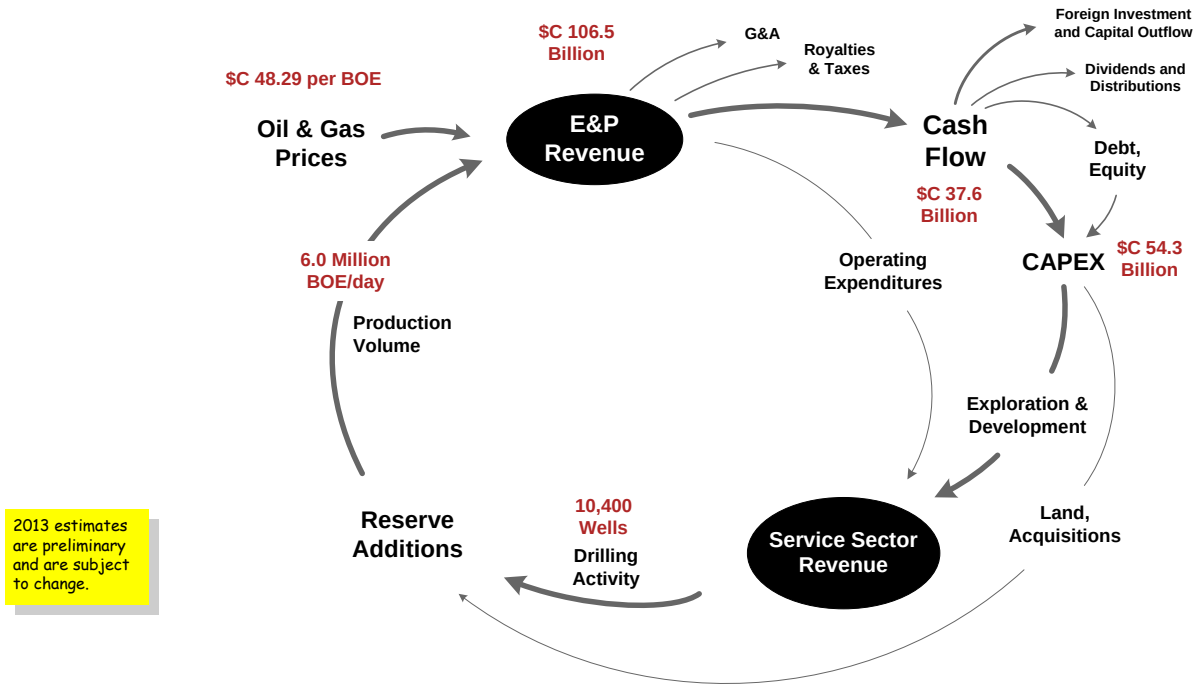
57 Weekly US Electrical Power Output
All Sources of Power Generation



Weekly US electrical power output can be compared against output at the same time for years prior. Current year is plotted in blue.

Estimated Capital Flow in the Canadian Oil and Gas Economy for 2013

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



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Canadian Industry Statistics: Historical Data and Forecast

Canadian Industry Metrics

	Price			Production Volume				Capital Inflow		Reinvestment			Drilling		Well Split	
	Average Price	Edmonton Par	AECO	Conv. Liquids	Bitumen + Synthetic	Natural Gas	Total Volume	Total Revenue	After-tax Cash Flow	Conv. Oil and Gas	Oilsands	Reinvest Ratio	Wells Compl.	Avg Rig Utiliz.	Oil Wells	Gas Wells
	$/BOE	$C/B	$C/GJ	Average MBOE/d	Average MBOE/d	MBOE/d (@ 6:1)	MBOE/d (@ 6:1)	$C millions	$C millions	$C millions	$C millions	x:1	# / Year	%	%	%
1999	18.60	27.61	2.77	1,990	568	2,745	5,303	35,996	16,846	13,743	2,422	0.96	10,605	46%	26%	59%
2000	29.41	44.48	5.31	2,056	608	2,840	5,504	59,094	26,543	18,795	4,223	0.87	16,485	63%	33%	54%
2001	31.22	39.26	5.17	2,024	659	2,889	5,572	63,481	29,064	21,998	5,907	0.96	17,933	62%	26%	62%
2002	27.71	40.21	3.89	2,102	741	2,886	5,729	57,939	29,433	18,107	6,746	0.84	14,459	45%	27%	63%
2003	35.95	43.40	6.31	2,075	863	2,800	5,738	75,298	37,644	23,855	5,048	0.77	19,851	62%	23%	70%
2004	39.79	52.86	6.24	2,045	993	2,827	5,865	85,179	43,959	26,828	6,183	0.75	21,593	63%	21%	72%
2005	51.53	69.19	8.36	2,007	990	2,840	5,837	107,455	56,442	34,815	10,437	0.81	21,925	68%	22%	70%
2006	46.98	73.27	6.20	1,964	1,126	2,850	5,941	103,294	54,171	38,345	14,337	1.00	22,127	65%	22%	71%
2007	49.28	77.01	6.12	2,055	1,199	2,810	6,070	109,274	54,985	31,184	18,065	0.88	19,144	38%	28%	66%
2008	68.22	102.66	7.75	1,957	1,207	2,700	5,864	145,425	83,255	36,293	18,113	0.65	16,877	41%	36%	56%
2009	42.26	66.42	3.79	1,838	1,331	2,514	5,683	89,057	36,680	22,335	11,227	0.91	8,368	25%	41%	51%
2010	48.41	77.55	3.79	1,845	1,403	2,434	5,668	101,056	43,569	35,666	17,195	1.19	12,119	40%	56%	40%
2011	55.32	95.24	3.44	1,872	1,482	2,386	5,740	115,890	53,448	40,139	22,491	1.17	12,827	52%	65%	21%
2012e	49.77	86.38	2.30	1,966	1,700	2,279	5,945	107,988	43,046	32,952	22,991	1.30	11,067	53%	76%	16%
2013e	48.29	80.00	3.10	1,920	1,881	2,239	6,040	106,450	37,596	30,804	23,491	1.44	10,416	40%	75%	17%