

WTI Crude \$US/B	Edmonton Light \$Cdn/B	Henry Hub Gas \$US/MMBtu	AECO Gas \$Cdn/GJ	AECO Basis \$US/MMBtu	Currency \$US/\$Cdn
52.51 ↑	58.48 ↓	3.66 ↓	3.73 ↓	0.47 ↑	0.8125 ↑

Chart Watch

- 1** Equity markets continue to be in a better mood
- 6** Canadian dollar now trading around 80 cents
- 7** Long end of the oil curve flirting with \$70.00/B
- 16** US total petroleum demand is still weak
- 25** Natural gas prices averaging in the mid-\$3.00 range

A High Tech Match Alights

About a month ago, lost amidst the clamor of the global economic crisis, there was a subtle event in the world of energy, seemingly no more significant than the striking of a match, but one that is likely to make us change the way we think about our evolving energy needs.

Our energy use goes back to the discovery of fire, which is a long time ago. A 2008 archaeological discovery along the Dead Sea rift now suggests that our fire-making ability dates as far back as 790,000 years. We've come a long way since the days of our prehistoric hominid ancestors with bony eyebrows and sloped foreheads (though some days the state of the world leaves us to wonder.)

Although we've been using fire for nearly 800 millennia, our ability to control it with precision only began less than 200 years ago. In 1827, John Walker, an English chemist, discovered a way of treating small pieces of wood with chemicals that made them burn when friction was applied. The new disposable devices were sold as "Lucifer matches," and were rapidly adopted. Concurrent with the

industrial revolution, the ability to ignite fuel on demand with wooden matches was a milestone event that contributed to the beginning of society's modernization, and ravenous energy appetite.

On March 10th, the National Ignition Facility at Lawrence Livermore Labs in California (<https://lasers.llnl.gov>) ignited a newly completed high-tech match of their own. Delivering enough power to light up 10,000 100-watt light bulbs, 192 high-power lasers were focused onto a point no larger than a couple of match heads. The ensuing "flash" broke the one-megajoule barrier (a million joules of energy) for the first time ever—a milestone event in the world of high-energy physics.

Clearly, the scientists at NIF are not interested in a making a better barbecue lighter (that's already been done; the Zippo cigarette lighter was invented in 1932). The primary use of NIF's multi-billion dollar device is to prove that controlled nuclear fusion is a viable process for generating truly clean, nearly limitless electrical power on earth by inventing a workable fusion reactor.

When atoms are slammed together at ultra high temperature and pressure they fuse into larger atoms. A primary result of this constructive nuclear reaction—which is the same principle that keeps our sun alight—is the release of tremendous amounts of heat energy. In fact, "creating a miniature star on Earth," is the NIF's lofty mission, recognizing that the two principal challenges of creating a very small version of our sun in a power plant are igniting and then containing the 100 million degree inferno.

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

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Breaking the megajoule barrier is a step closer to fusion ignition, and over the next year scientists at the NIF hope to demonstrate what matches did for wood by firing their mammoth lasers on specially designed pellets, called hohlraum capsules, that contain a precise cocktail of fusible elements.

But mere ignition of a fusion capsule is not a sufficient condition to declare success. If the energy released from an ignited capsule is less than all the electrical energy it takes to stoke the process in the first place, then the system won't be of much use in solving our future energy problems. More energy in than out is a formula that neither an engineer nor accountant can live with. Ultimately, the scientists' goal is to achieve a 100:1 out-to-in ratio; in other words, 100 units of usable energy output for every one unit of laser energy input .

Fusion research has been going on since the first hydrogen bomb in 1952 successfully demonstrated that we could momentarily create a solar fireball on earth. Clearly, that kind of ignition and out-of-control energy release—akin to using a case of dynamite to light a candle—is of no practical civilian use other than to flex geopolitical muscle.

Over the past half-century, several competing approaches have emerged to try and achieve a sustained, controlled fusion reaction. These research efforts have progressed, but no one group has yet demonstrated successful fusion ignition with a positive energy balance—the eureka moment akin to lighting the first Lucifer match. That's what the NIF experiments are set to accomplish over the next couple of years.

Successful ignition of a fusion reaction—by NIF or any of the handful of others that are trying competing methods—is likely to have a profound effect on how we think about

society's future energy supplies. To this point the prospect of an operational fusion power plant has been a 50-year-long joke, with the observation that it's running promise has always been, "just 20 years away." Importantly, first ignition will be the true starting point of a commercialization process that will probably yield a demonstration power plant within two decades.

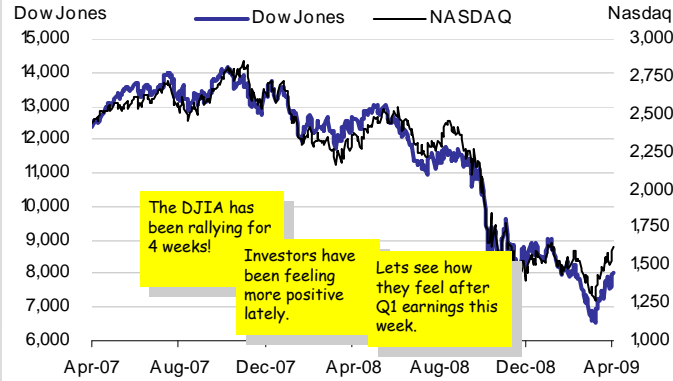
Traditional nuclear power, based on fission chain reactions, took only 15 years to commercialize after Enrico Fermi fired up Chicago Pile-1, the world's first nuclear reactor, at the University of Chicago in 1942.

To be sure, in the reality of today's anxious markets, the NIF experiments are not going to alter the price of energy commodities, least of all oil. But a stream of successful news flow coming from fusion physics labs should make incumbent energy players and policy makers take heed. Fire to matches took 800,000 years; matches to lighters about 100; and at 15 years atomic pile to nuclear power plant took less time than we've been using web browsers. Admittedly, there are many complex engineering challenges yet to figure out, but the track that NIF is on suggests that it's not going to take long before we figure out how to light up the first commercial fusion reactor once the basic principles are overcome.

In the long cycle of energy systems, twenty years is not that much time when you consider that a coal plant commissioned today is designed to last twice that long. Oil sands projects and wind farms are being planned with a twenty to forty year horizon. Of course, it's easy to get complacent about the energy systems we're used to. Lighting the first Lucifer match probably didn't attract much attention either.

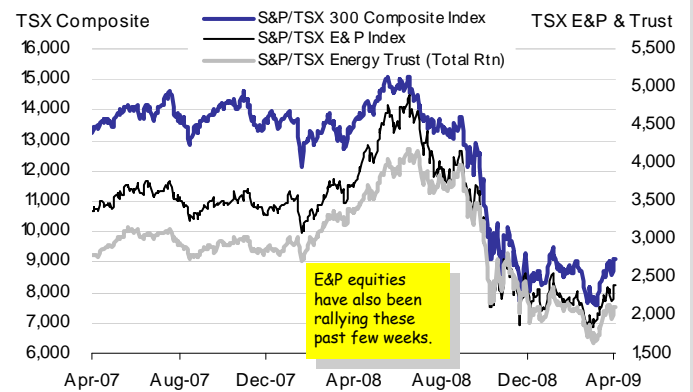
Market Indicators

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



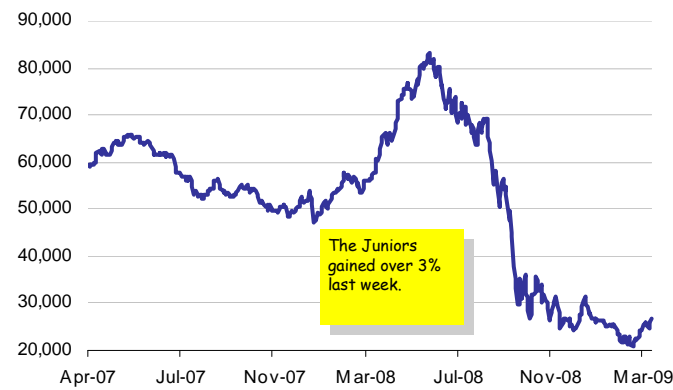
Broad market indices are one of many vital signs measuring the health of the economy. Energy demand is a function of economic health.

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



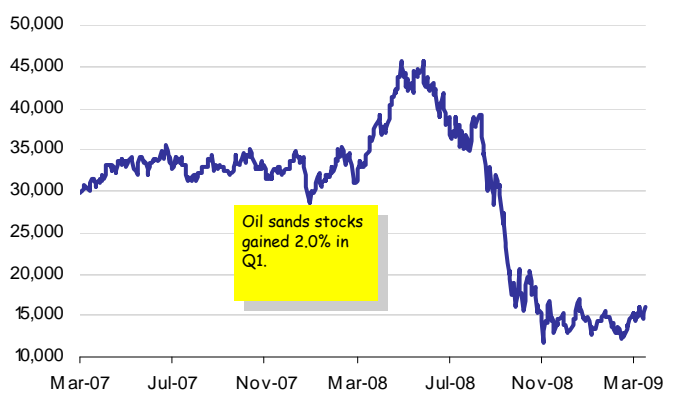
Performance of oil & gas equities are compared against the broader market. For scaling reasons, the Trust Index has been multiplied by 10.

3 ARC Junior Producers Equity Index
Daily Index Values; Rolling 24-Month History



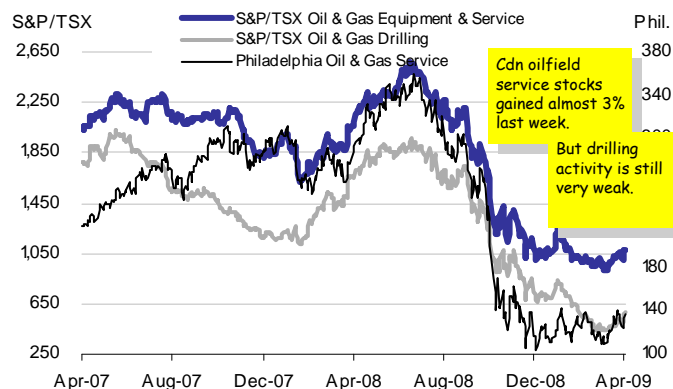
The ARC Junior Oil and Gas Index measures the performance of over 100 oil and gas producers that are not included in larger exchange indices.

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



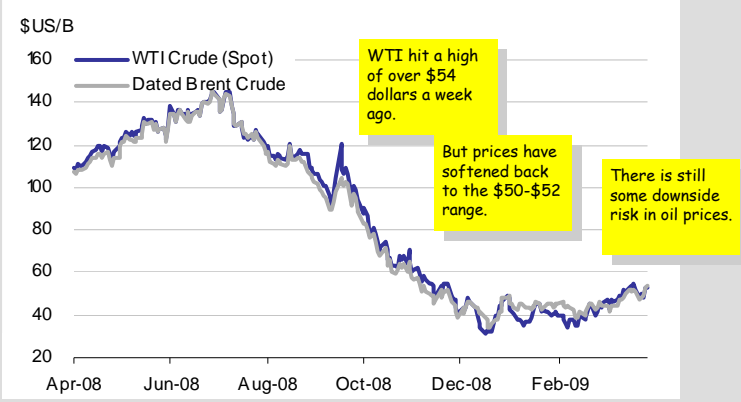
The performance of Canadian oil and gas service equities (left scale) are plotted in tandem with the corresponding US company index (right scale).

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.

7 Daily Spot Crude Oil Prices
WTI NYMEX & Dated Brent Crude; Rolling 12-Month History



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

8 US Average Retail Gasoline (All Grades) Prices
Weekly Data; Rolling 3-Year History



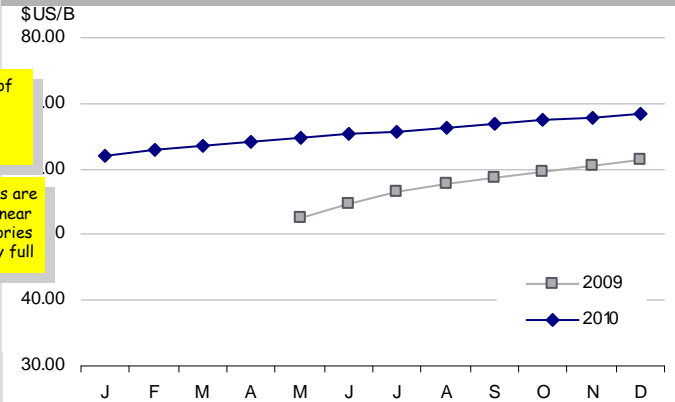
Gasoline is one of the main products refined from crude oil. Gasoline prices are influenced by crude oil prices, seasonality and retail competition.

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



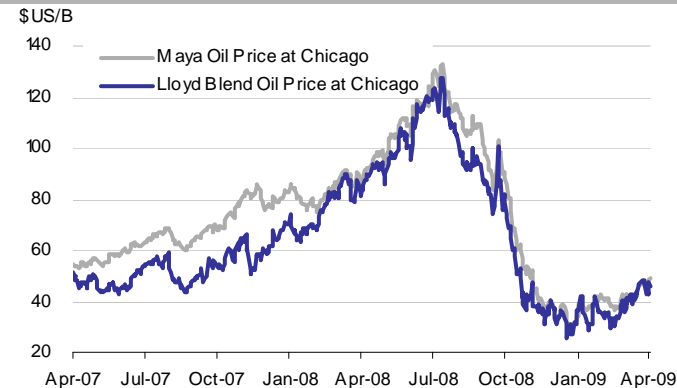
The daily close of the long end of the futures curve is important to watch for structural changes in the crude oil market.

10 US Crude Oil Futures
West Texas Intermediate (WTI) 2008 to 2010



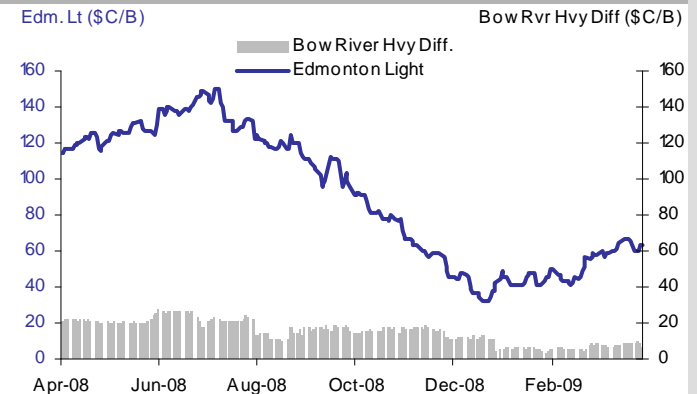
Here forward contract prices for WTI are plotted against months in the calendar year. Years are distinguished by color and/or symbol coding.

11 Daily World Heavy Oil Marker Crude Prices
Maya and Lloyd Blend at Chicago; Rolling 12-Month History



Maya, Mexico's main export crude, is a heavy sour crude with 22^o API and 3.5-4.0 % sulfur content.

12 Canadian Oil Prices & Heavy Oil Differentials
Edmonton Light and Bow River Differential; Rolling 12-Month History

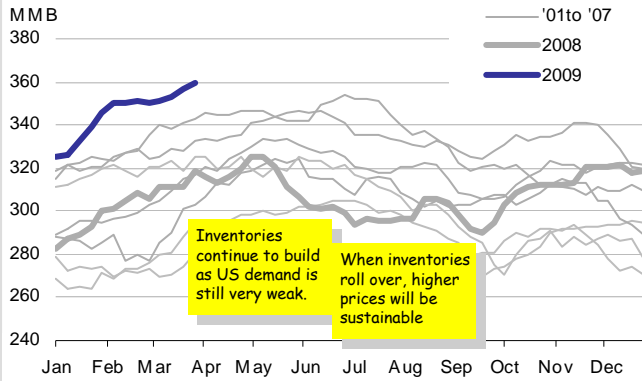


Canadian heavy differentials vary depending on barrel-to-barrel competition at a limited number of US refineries with specialized refining capacity.

energy charts

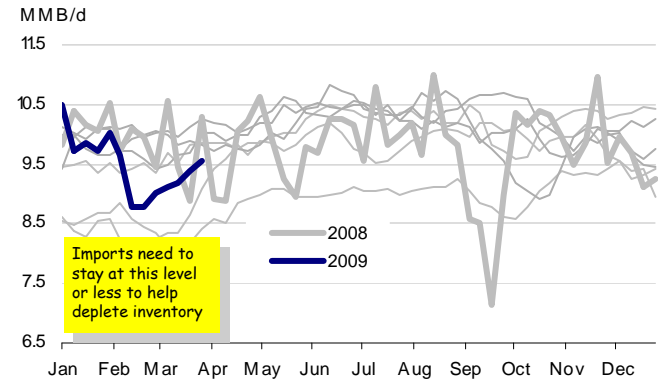
Crude Oil

13 US Crude Oil Stocks
Seven-Year Historical Tracks and Current Year Levels



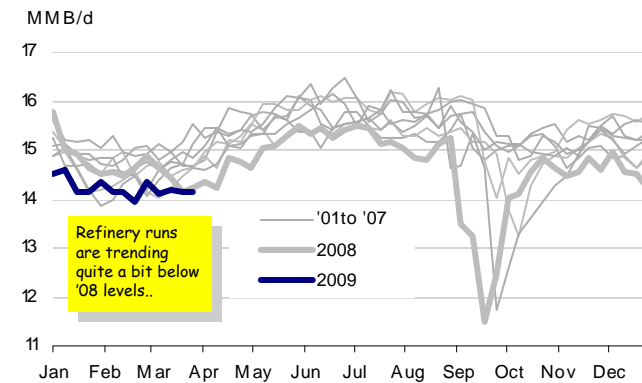
Weekly stock levels provide a snapshot of supply and demand. The grey lines span a 5-yr historical range; the blue line plots current year levels.

14 US Crude Oil Imports
Seven-Year Historical Tracks and Current Year Levels



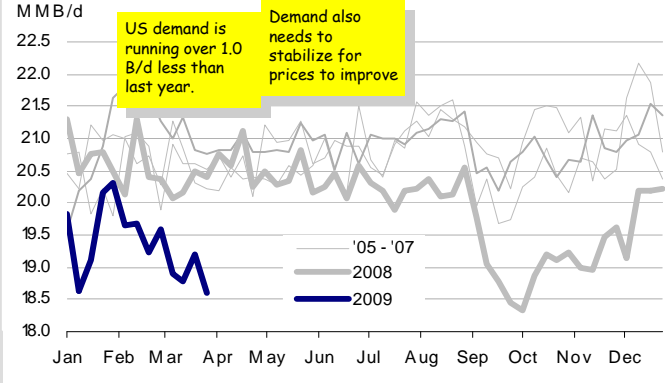
The US must import crude oil to augment its domestic supply. The grey lines span the 5-yr historical range; the blue line plots current year values.

15 US Weekly Refinery Runs
Seven-Year Historical Tracks and Current Year Levels



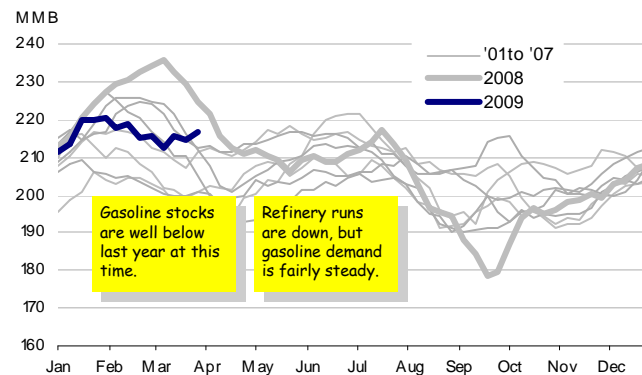
In the US, refinery runs mirror overall seasonal demand for petroleum products. Total operable capacity is approximately 17.1 MMB/d.

16 Total Weekly U.S. Petroleum Supplied
Three-Year Historical Tracks and Current Year Levels



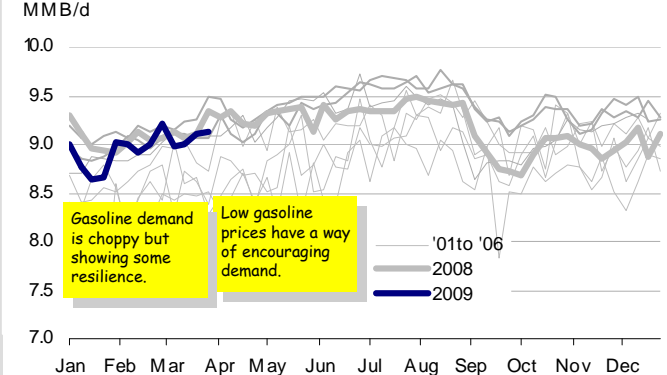
Petroleum supplied represents the total consumption of petroleum products in the U.S. Oil consumption for the current year is in blue.

17 US Motor Gasoline Stocks
Seven-Year Historical Tracks and Current Year Levels



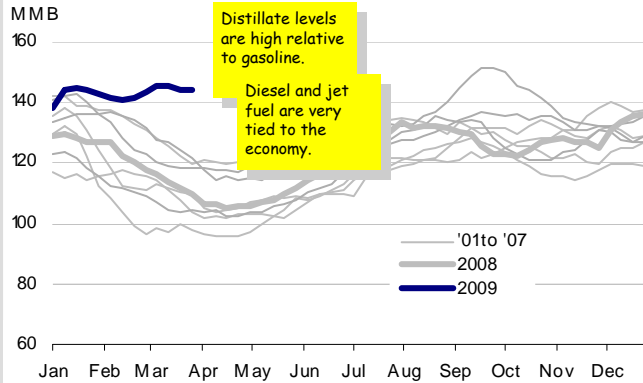
Gasoline stock levels can affect crude oil prices. Stock levels for the current year are represented by the blue line.

18 US Motor Gasoline Consumption
Seven-Year Historical Tracks and Current Year Levels



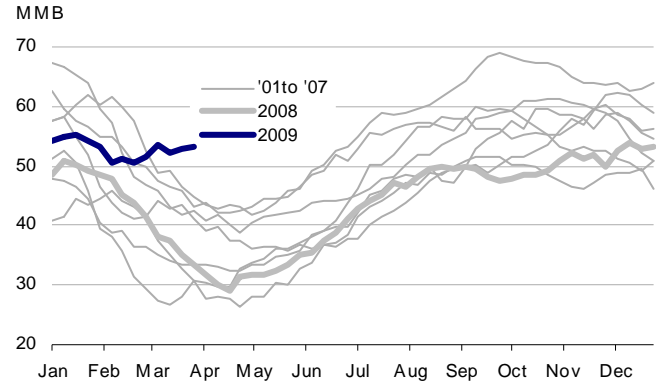
Gasoline consumption accounts for almost half of all oil use in the U.S. Gasoline consumption for the current year is in blue.

19 US Distillate Fuels Stocks
Four-Year Historical Tracks and Current Year Levels



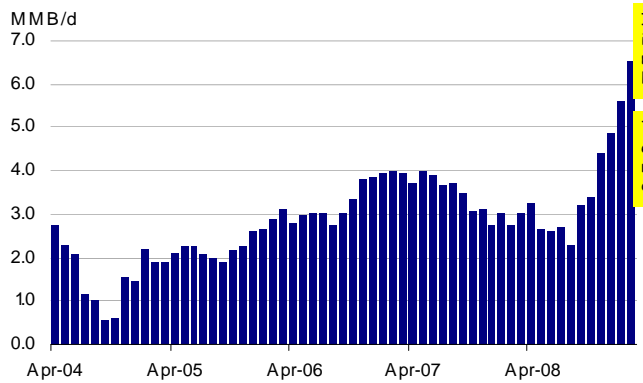
Distillate stocks are mildly seasonal, but especially important to watch in the winter months when heating oil demand comes to the fore.

20 US Distillate Fuels Stocks - PADD I
Four-Year Historical Tracks and Current Year Levels



PADD I represents the heavily populated Northeast US market. That area is important because it represents a large fraction of heating oil demand.

21 OPEC Notional Spare Capacity
Monthly; Rolling 60-Month History



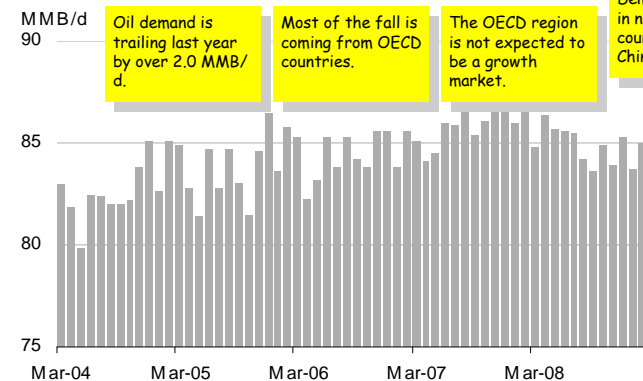
World oil spare capacity resides only in OPEC member countries. It is assumed that non-OPEC countries produce at full capacity.

22 OPEC Production Data Table
Recent Production Targets and Spare Capacity: MMB/Day

	Current Target	Feb-09 Prod'n	Prod'n vs Target	Sustainable Capacity	Spare Capacity
Algeria	1.20	1.25	0.05	1.43	0.18
Angola	1.52	1.65	0.13	2.10	0.45
Ecuador	0.43	0.48	0.05	0.50	0.02
Egypt	3.34	3.65	0.31	4.00	0.35
Equatorial Guinea	2.22	2.30	0.08	2.65	0.35
Ghana	1.47	1.58	0.11	1.77	0.19
Guinea	1.67	1.78	0.11	2.50	0.72
Qatar	0.73	0.75	0.02	0.90	0.15
Saudi Arabia	8.05	7.95	(0.10)	10.85	2.90
UAE	2.22	2.25	0.03	2.85	0.60
Venezuela	1.99	2.10	0.11	2.50	0.40
OPEC 11	24.85	25.74	0.89	32.05	6.31
Iraq		2.26		2.50	0.24
TOTAL OPEC		28.00		34.55	6.55

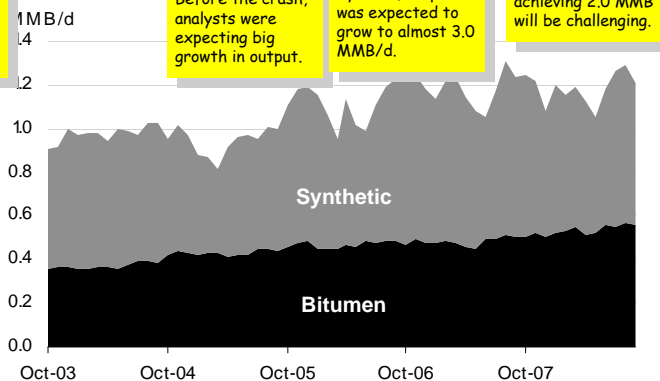
OPEC's production levels relative to its sustainable and spare capacity ties directly into near and long-term crude oil prices.

23 Global Oil Demand
Monthly; Rolling 60-Month History



Global oil demand growth is largely driven by economic growth. Approximately 75% of new demand is coming from non-OECD countries.

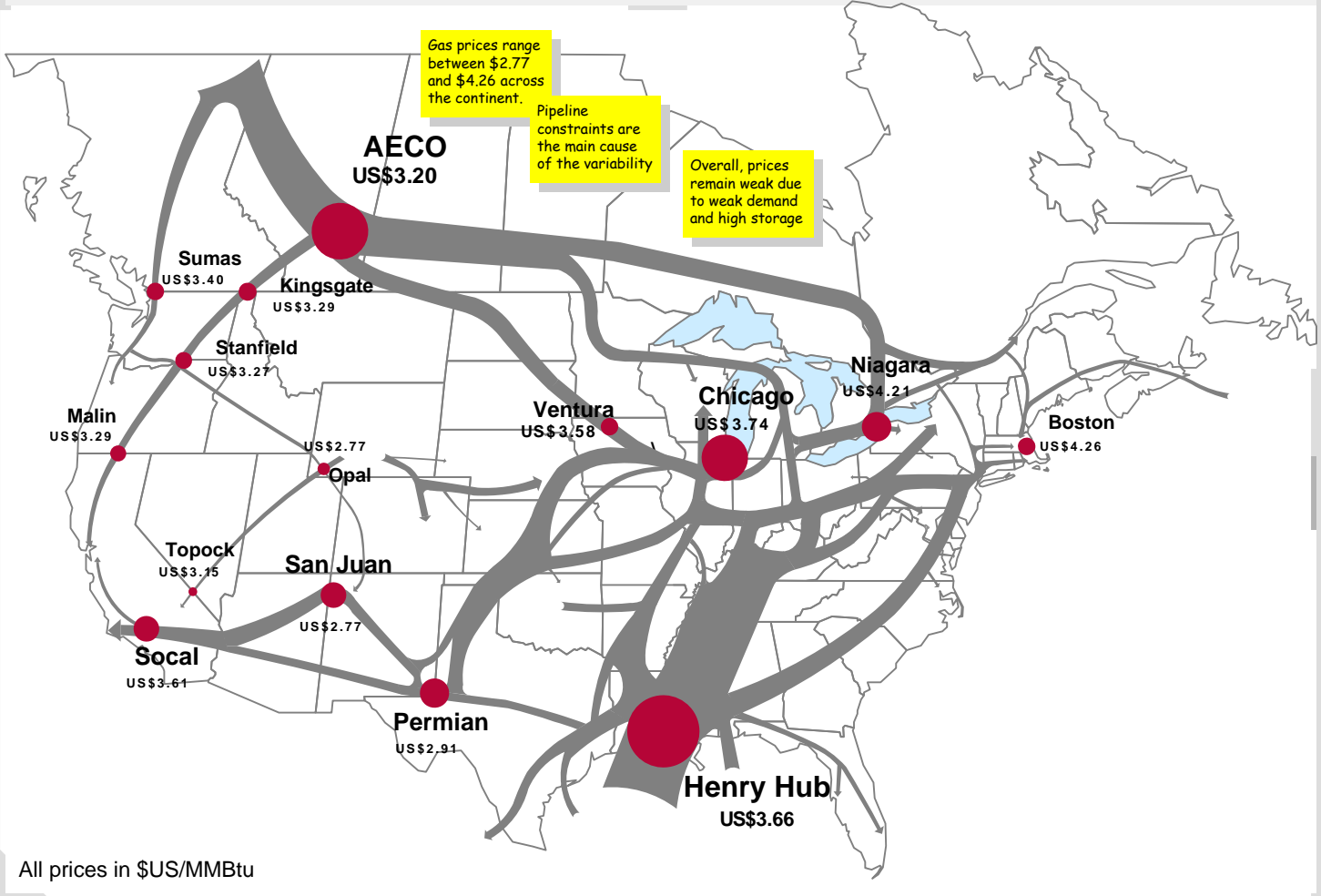
24 Canadian Oil Sands Production
Monthly; Rolling 60-Month History



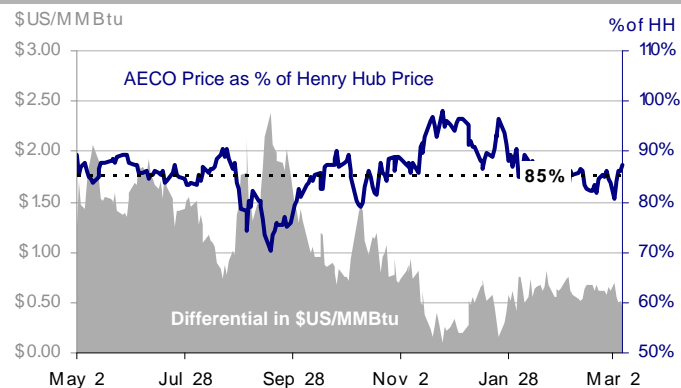
Cdn oil sands is an important source of new supply to meet global oil demand growth. Oil sands production is projected to double by 2015.

25

Closing Spot Prices at North American Natural Gas Hubs
Superimposed on Relative Pipeline Flows

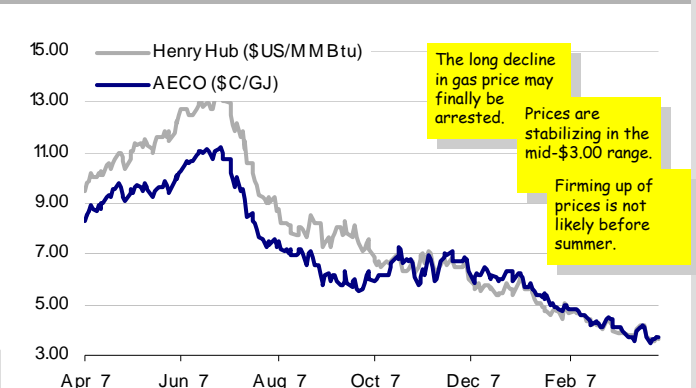


26 Henry Hub-AECO Spot Price Differential
Daily; Rolling 12-Month History



Historically the AECO price trades at 85% of the Henry Hub price (in \$US/MMBtu). Above the dashed line implies the differential is narrower than avg.

27 Spot North American Natural Gas Prices
Daily Prices; Rolling 12-Month History

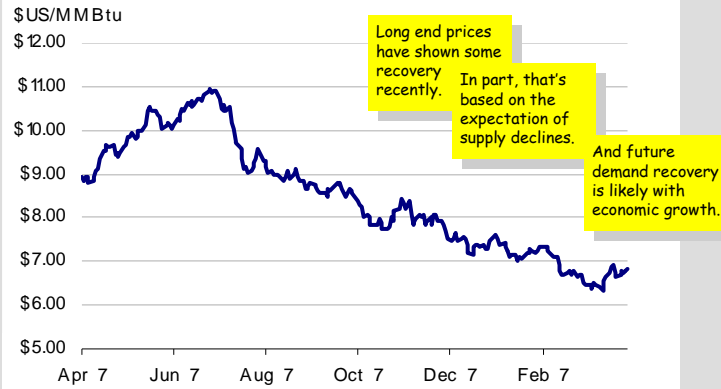


Spot prices at AECO mostly piggyback off Henry Hub prices, the exchange rate and the cost of transportation. Local factors can also affect price.

energy charts

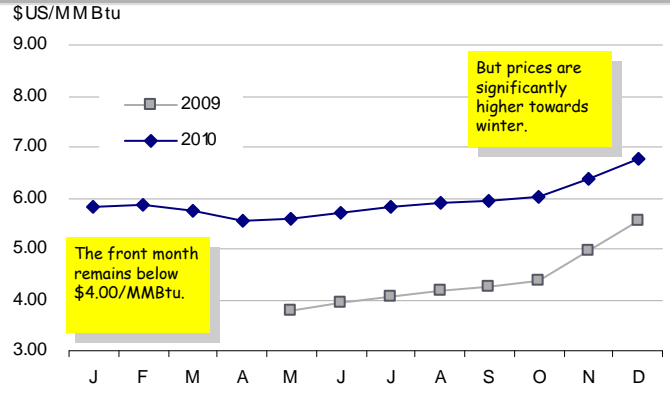
Natural Gas

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) 2008 to 2010



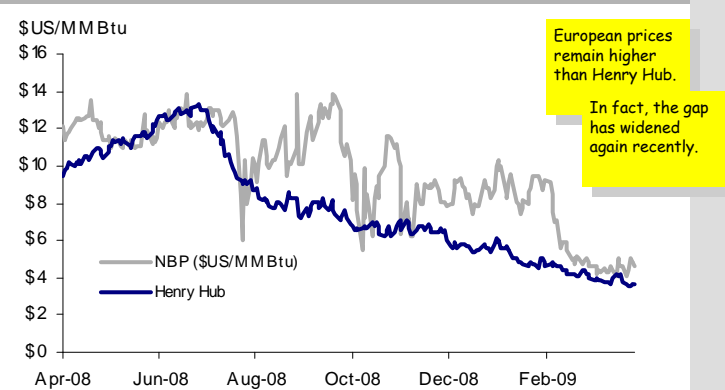
Here forward contract prices are plotted against months in the calendar year. Years are distinguished by color and/or symbol coding.

30 U.S. LNG Import Volumes (Net)
Daily Data; Year-over-year Wrapped Series 2004 to 2008 YTD



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



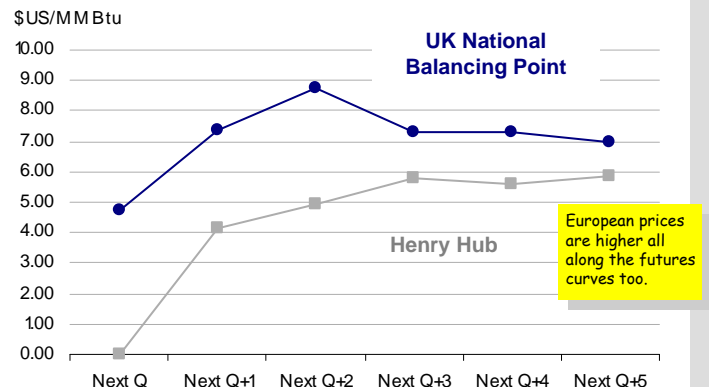
A notional point in the UK National Transmission System (NTS) used as a delivery point for gas. Prices are converted from sterling to dollars.

32 Canadian Natural Gas Futures
AECO Hub

	\$C/GJ	\$C/Mcf	\$US/MMBtu
AECO Spot Price	3.73	3.94	3.20
1-Month Fwd	3.64	3.84	3.12
AECO Nov08 - 1 Yr	5.77	6.09	4.95
Rest of Gas Year	3.85	4.06	3.30
Fwd Winter Strip	5.62	5.93	4.82

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

33 Natural Gas Futures Prices: NBP vs Henry Hub
Quarterly Futures Averages

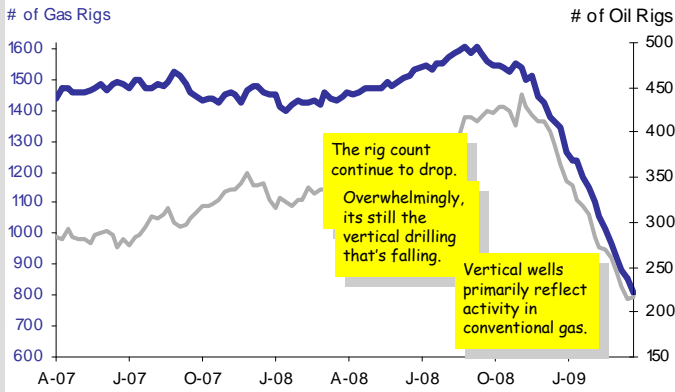


The above graph shows the pricing difference between the US and the UK natural gas futures markets on a quarterly basis. Next Q is the upcoming Q.

energy charts

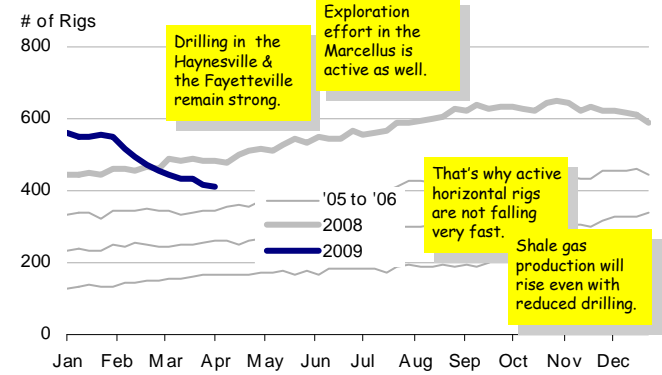
Natural Gas

34 Weekly US Oil and Gas Drilling Activity
Baker Hughes Average Rig Counts; Rolling 24-Month History



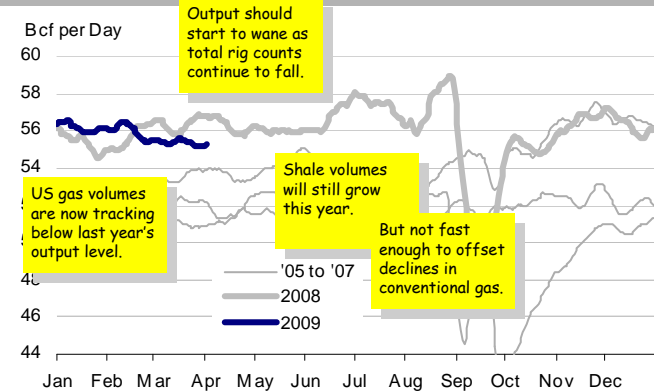
US rig activity is a leading indicator of continental supply. Gas-directed rigs (blue line) are plotted on the left-hand axis, oil-directed on the right.

35 Weekly US Horizontal Drilling Activity
Baker Hughes Average Rig Counts; Rolling 24-Month History



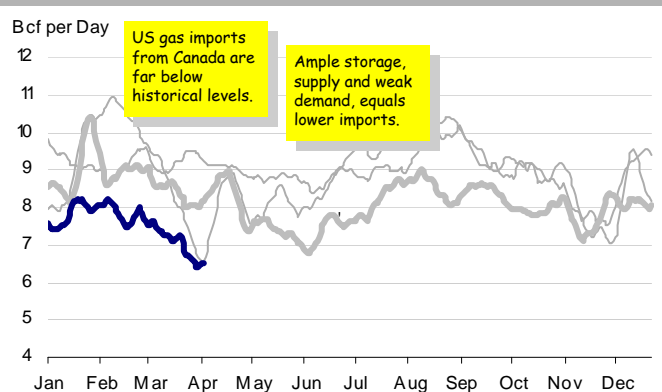
US Horizontal rig activity is a leading indicator of unconventional gas supply. Approximately 80% of the Horizontal fleet is gas directed.

36 Total US Natural Gas Production
10 Day Moving Average; Historical Tracks and Current Year Levels



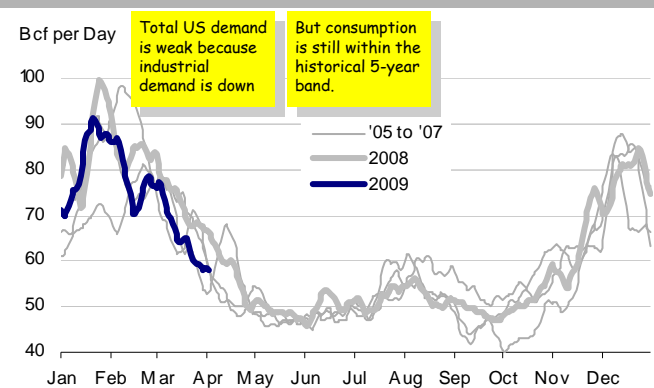
Tracking US natural gas supply helps monitor the growth in domestic production that started ramping up in late 2007.

37 US Net Natural Gas Imports From Canada
Daily; Historical Tracks and Current Year Levels



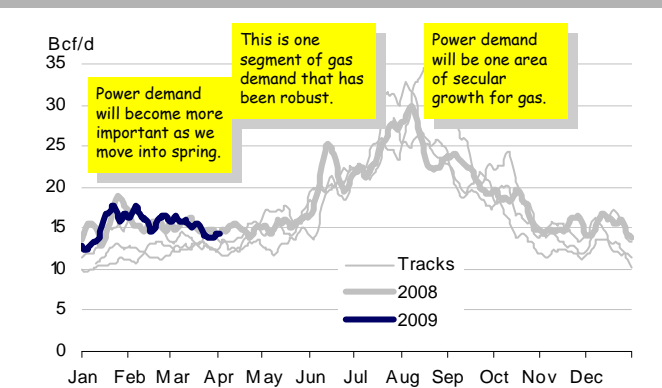
US Net Natural Gas Imports From Canada
Source: Bentek

38 US Total Natural Gas Demand
Daily; Historical Tracks and Current Year Levels



US Total Natural Gas Demand
Source: Bentek

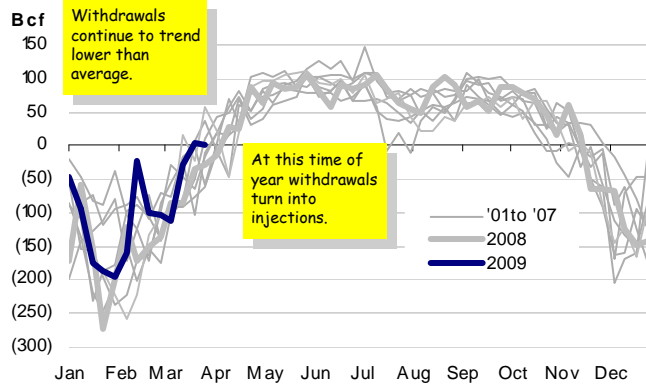
39 US Total Natural Gas Power Demand
Daily; Historical Tracks and Current Year Levels



US Natural Gas Power Demand
Source: Bentek

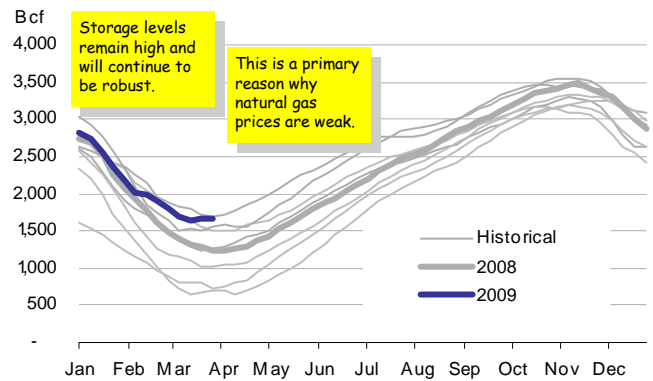
Natural Gas

40 Weekly US Natural Gas Storage Net Change
Weekly Injection or (Withdrawals); 2001 to Current



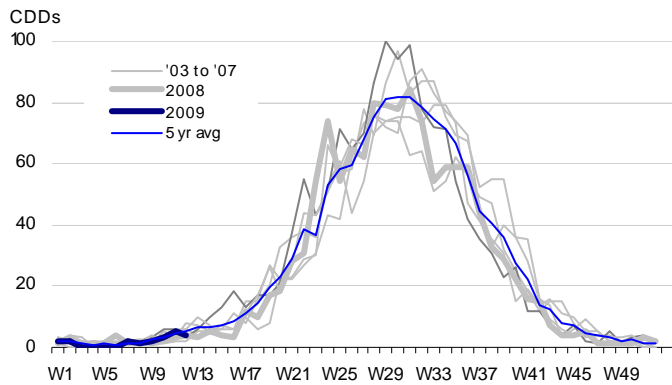
Weekly gas storage reports provide a snapshot of supply and demand. Previous years are in light grey; the blue line plots current year levels.

41 Total Working Natural Gas in US Storage
14-Year Historical Tracks, Current Year Levels and ARC Forecast



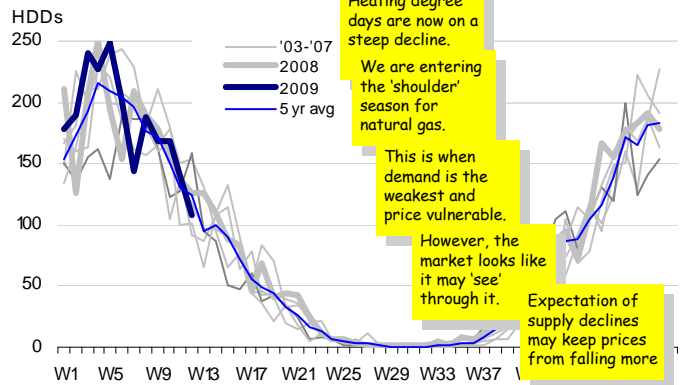
The EIA reports changes in US natural gas inventories held in underground storage facilities on weekly basis.

42 US Weekly Cooling Degree Days
Source: NOAA



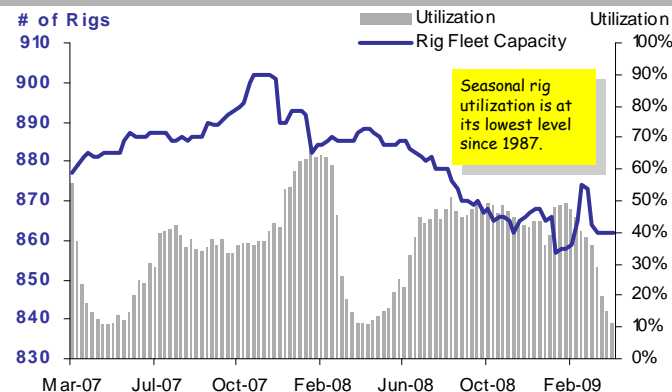
Weekly natural gas demand is directly tied to the weather. Current year is in dark blue; historical years are in grey and the 5-yr avg is in light blue.

43 US Weekly Heating Degree Days
Source: NOAA



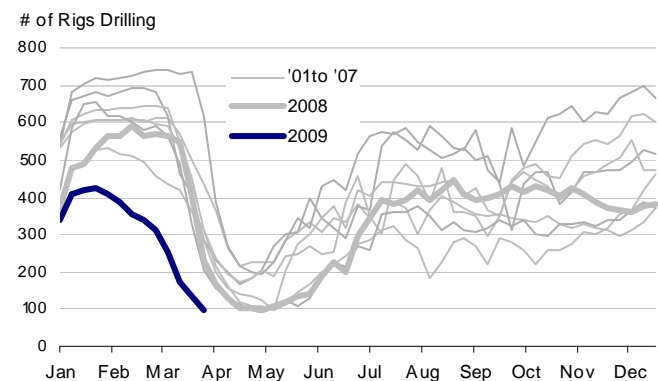
Weekly natural gas demand is directly tied to the weather. Current year is in dark blue; historical years are in grey and the 5-yr avg is in light blue.

44 Cdn Oil and Gas Rig Capacity and Utilization
CAODC Average Weekly Rig Count; Rolling 2-Year History



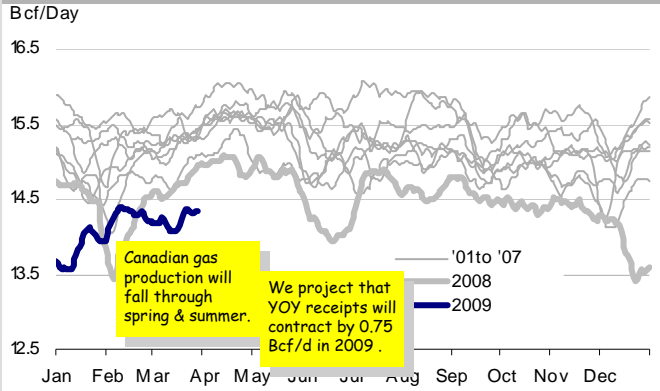
Rig utilization in Canada is a function of broad fundamentals and seasonality. Utilization always drops off during spring breakup.

45 Weekly Canadian Oil and Gas Drilling Activity
CAODC Average Weekly Rig Count



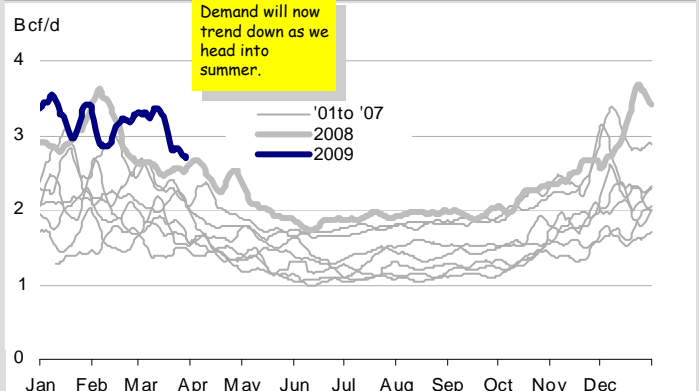
Unlike US drilling activity Canadian rigs are dispatched seasonally. The active rig count for the current year is in blue.

46 Daily Western Canadian Pipeline Receipts
TransCanada (NOVA), Alliance, WestCoast & TransGas Pipelines



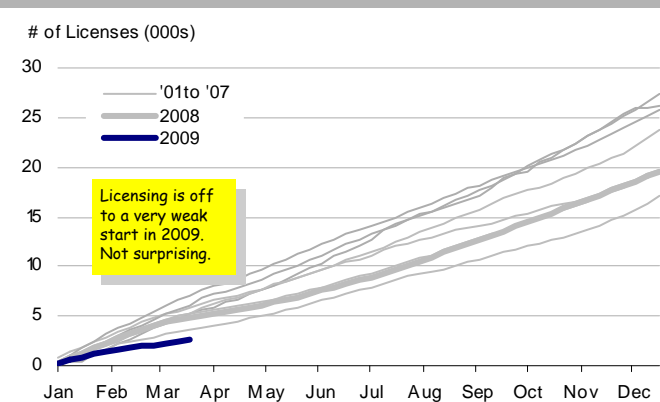
All combined, TCPL, Alliance, WestCoast and TransGas pipelines move over 15 Bcf/d of natural gas out of Western Canada.

47 Alberta Natural Gas Demand
Daily demand; Current Year and Historic Tracks



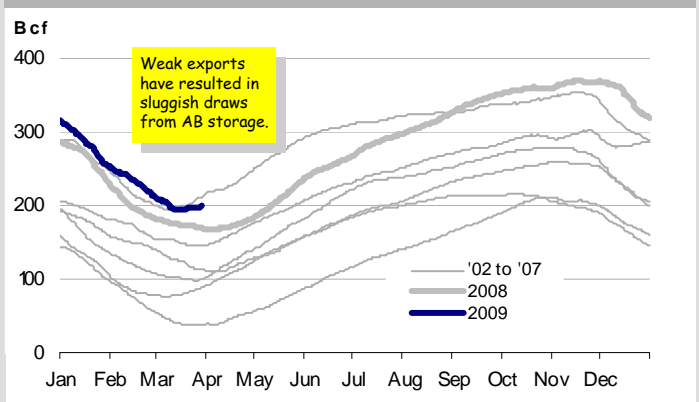
As Alberta's economy grows, and as more oil sands projects come on line, it will be increasingly important to monitor the Province's gas demand.

48 Canadian Cumulative Well Licensing Activity
Current Year vs Years Prior



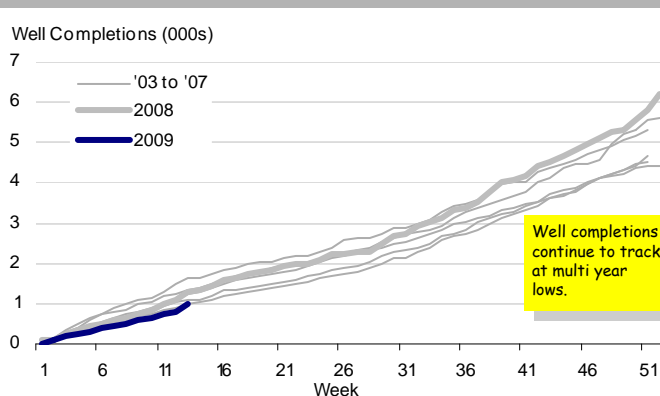
Canadian well licenses are a leading indicator of WCSB drilling activity. Cumulative well licenses for the current year are in blue.

49 Alberta Natural Gas Storage Levels
Daily; Current Year and Historic Tracks



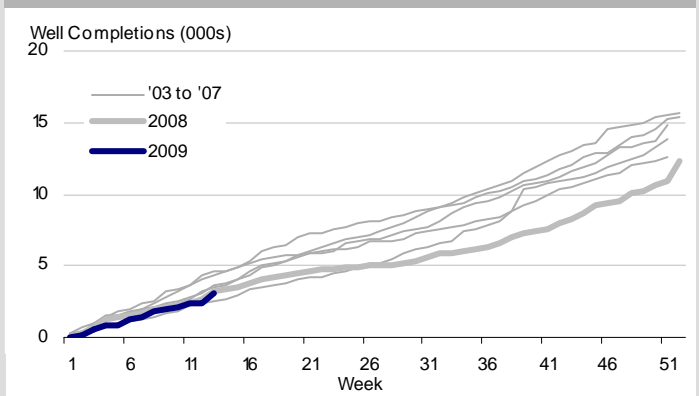
Alberta's natural gas storage levels provide a good metric if the producing region is well stocked. Abnormally high or low storage can affect the basis.

50 Canadian Cumulative Oil Well Completions
Current Year vs Years Prior



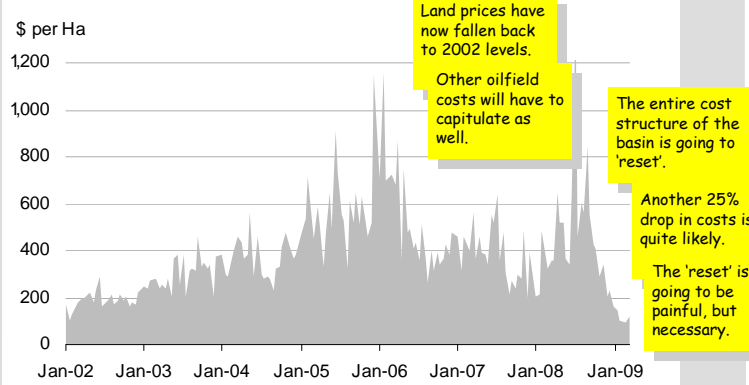
Relative year-over-year drilling activity is highlighted in this chart. Cumulative oil well completions for the current year are shown in blue.

51 Canadian Cumulative Gas Well Completions
Current Year vs Years Prior



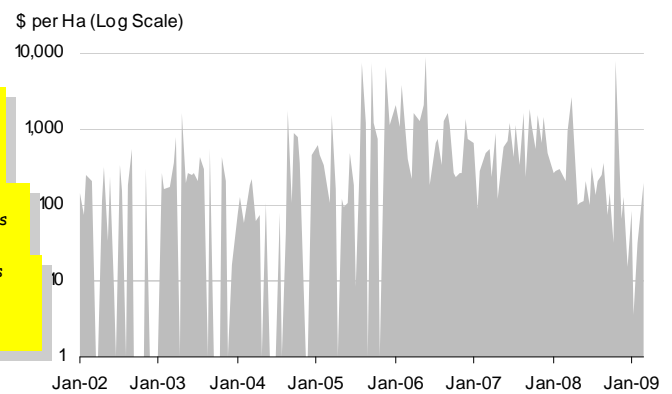
Relative year-over-year drilling activity is highlighted in this chart. Cumulative gas well completions for the current year are shown in blue.

52 Alberta Crown Land Sales - Conventional Only
Average Price per Hectare; Bi-Weekly



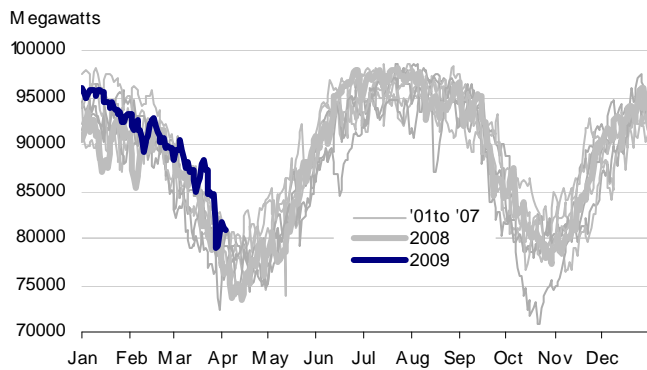
Land prices are an important component of F&D costs. In Alberta, sales of petroleum and natural gas rights are held every two weeks.

53 Alberta Crown Land Sales - Oil Sands Only
Average Price per Hectare; Bi-Weekly



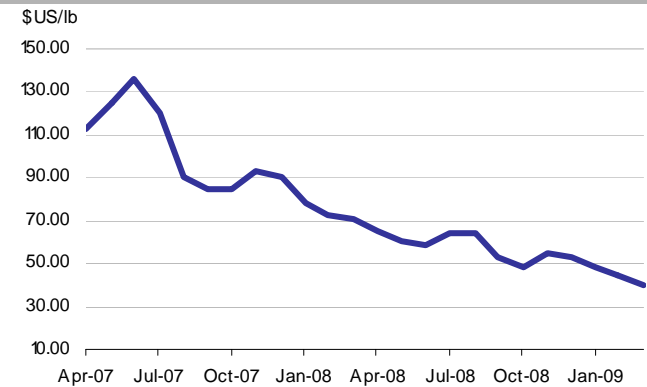
Rising commodity prices and an opportunity constrained basin have made land more valuable especially in choice regions such as the oil sands.

54 Weekly US Nuclear Electricity Generation
Current Year vs Years Prior



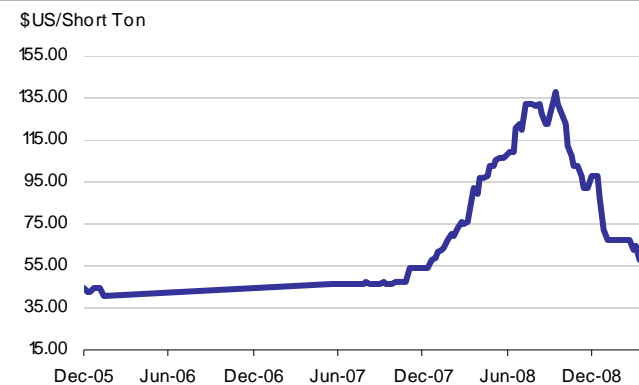
The capacity of electricity generated from US nuclear power plants is 99,910 megawatts. Source: Nuclear Regulatory Commission.

55 Uranium Spot Prices (U₃O₈)
Month-End Price; Rolling Two-Year History



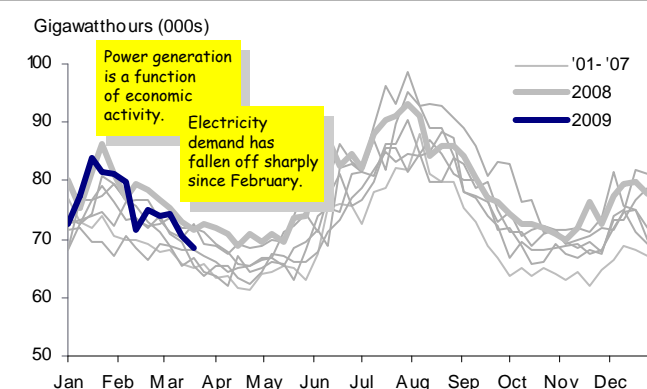
Source: The Ux Consulting Company, LLC <http://www.uxc.com/>.

56 Pennsylvania Railcar Coal Spot Price
Weekly; Rolling Two-Year History



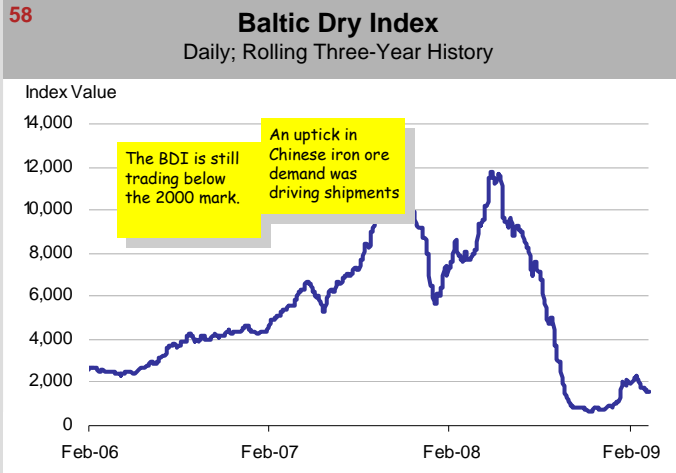
Pennsylvania railcar prices are a US benchmark for thermal coal. In power markets coal competes for market share against oil and gas.

57 Weekly US Electrical Power Output
All Sources of Power Generation

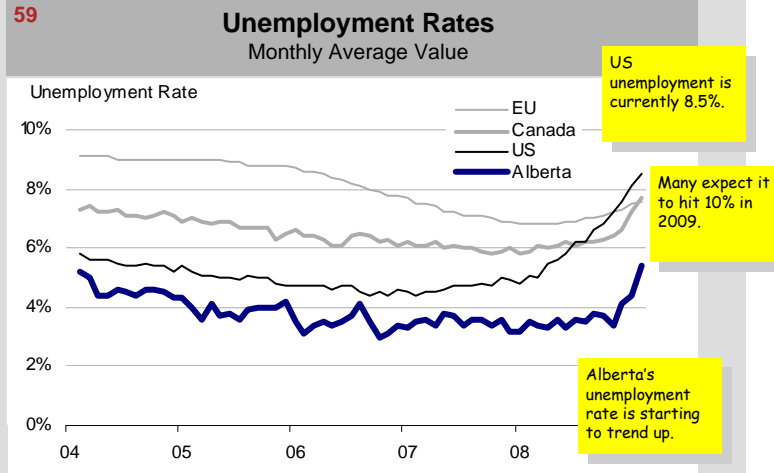


Weekly US electrical power output can be compared against output at the same time for four years prior. Current year is plotted in blue.

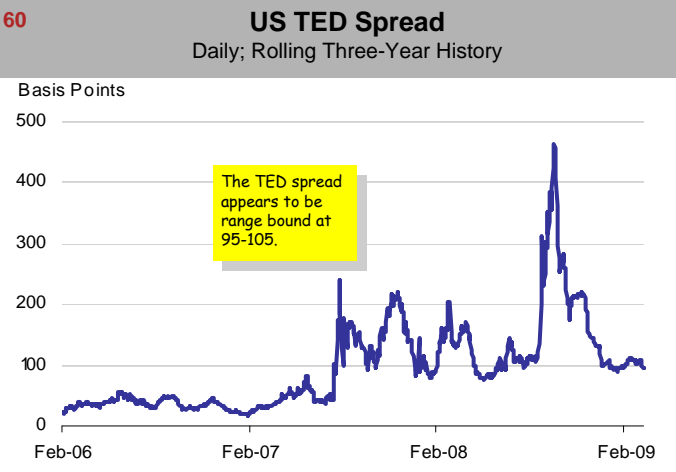
Economic Indicators



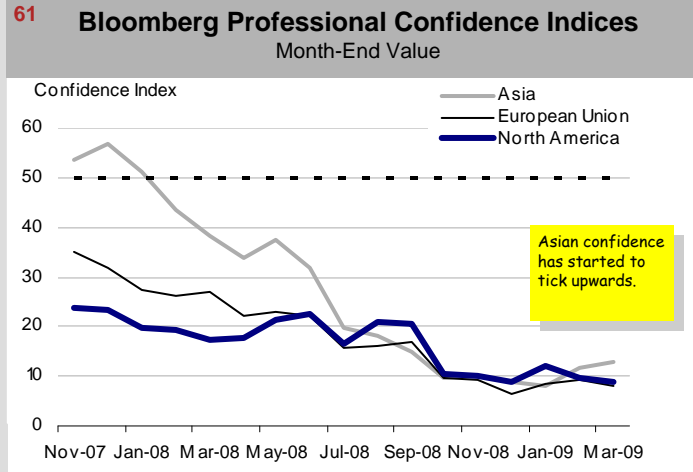
This index measures demand for shipping capacity versus the supply of dry bulk carriers. It is a leading indicator of future economic growth.



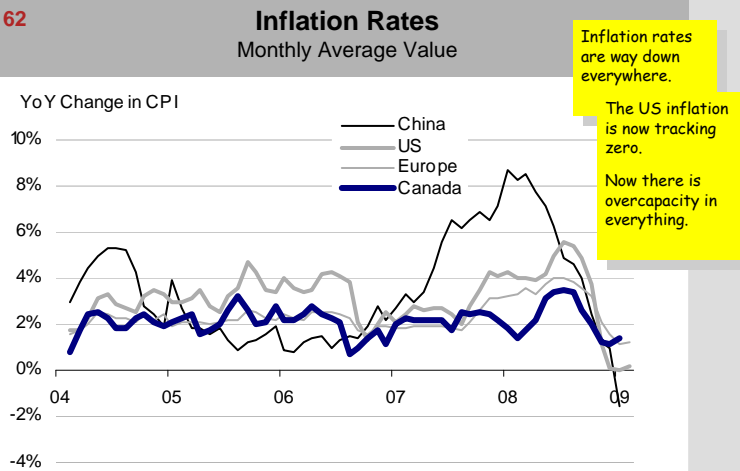
The unemployment rate is for total employees 15 years and older, working in all industries. Series is adjusted for intra-year seasonality.



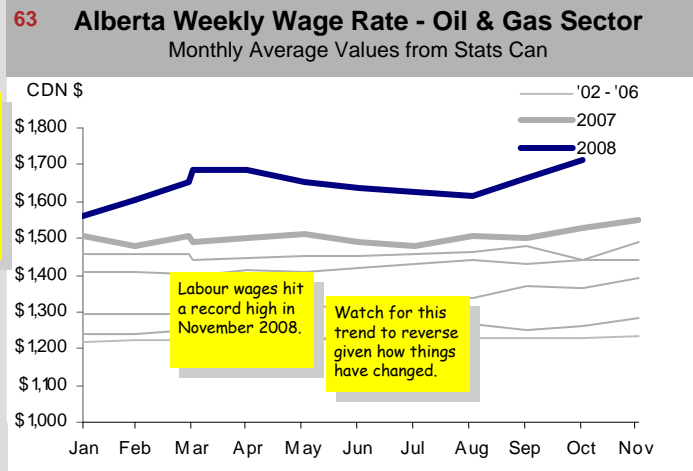
Measuring the difference between interest rates on interbank loans and US 3 month T-bill yields, the Ted Spread is an indicator of perceived credit risk.



Each index is comprised of responses about the outlook of a regional economy. A value of 50 or above indicates a positive sentiment.



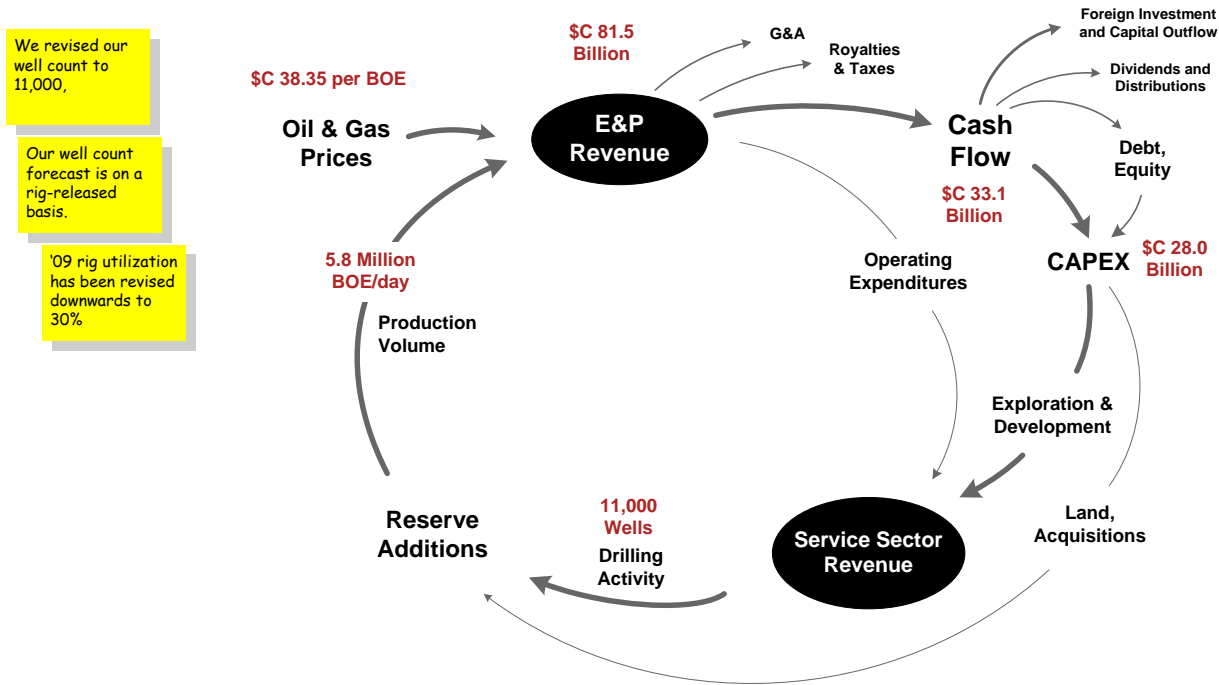
Inflation is measured by the year-over-year change in the all-item Consumer Price Index of a country. Series is unadjusted for seasonality.



Shows the average weekly wage rate for all workers in Alberta's Oil and Gas, Forestry and Fishing industries. Series is seasonally adjusted.

Canadian Industry Metrics

Estimated Capital Flow in the Canadian Oil and Gas Economy for 2009
Industry Revenue, Cash Flow, Reinvestment, Drilling Activity and Production



We revised our well count to 11,000.

Our well count forecast is on a rig-released basis.

'09 rig utilization has been revised downwards to 30%

64

Canadian Industry Statistics: Historical Data and Forecast

Canadian Industry Metrics

	Price		Production Volume				Capital Inflow		Reinvestment			Drilling			Well Split		
	Average Price		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 Fleet	Avg Rig Utiliz.	Oil Wells	Gas Wells	Dry Wells
	\$/BOE		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	# of Rigs	%	%	%	%
1995	14.14		1973	429	2,447	4,848	25,020	11,409	12,179	572	1.10	11,062	461	62%	44%	33%	22%
1996	16.65		1997	444	2,558	4,999	30,379	14,213	12,213	1,286	0.95	12,695	464	69%	50%	29%	19%
1997	16.73		1996	527	2,598	5,121	31,280	14,933	17,128	1,914	1.28	16,484	504	84%	52%	29%	17%
1998	13.58		2,044	591	2,663	5,298	26,263	11,002	15,072	1,527	1.51	9,744	575	51%	32%	47%	19%
1999	18.60		1990	568	2,745	5,303	35,996	16,846	13,743	2,422	0.96	10,605	582	46%	26%	59%	13%
2000	29.41		2,056	608	2,840	5,504	59,094	26,543	18,795	4,223	0.87	16,485	606	63%	33%	54%	12%
2001	31.22		2,024	659	2,889	5,572	63,481	29,064	21,998	5,907	0.96	17,933	636	62%	26%	62%	10%
2002	27.71		2,102	741	2,886	5,729	57,939	29,433	18,107	6,746	0.84	14,459	660	45%	27%	63%	9%
2003	35.95		2,075	863	2,800	5,738	75,298	37,644	23,855	5,048	0.77	19,851	672	62%	23%	70%	6%
2004	39.79		2,045	993	2,827	5,865	85,179	43,959	26,828	6,183	0.75	21,593	702	63%	21%	72%	6%
2005	51.53		2,007	990	2,840	5,837	107,455	56,442	34,815	10,437	0.81	21,925	736	68%	22%	70%	6%
2006	46.98		1,964	1,126	2,850	5,941	101,877	52,624	38,345	14,337	1.00	22,127	801	65%	22%	71%	7%
2007	49.28		2,055	1,199	2,812	6,066	109,100	59,097	31,184	18,065	0.88	19,144	858	38%	28%	66%	6%
2008e	61.63		1,955	1,192	2,685	5,833	131,714	68,353	29,000	21,000	0.69	20,729	879	41%	30%	60%	8%
2009e	38.37		1,915	1,348	2,559	5,822	81,507	33,094	18,000	10,000	1.00	11,000	860	33%	25%	67%	6%