



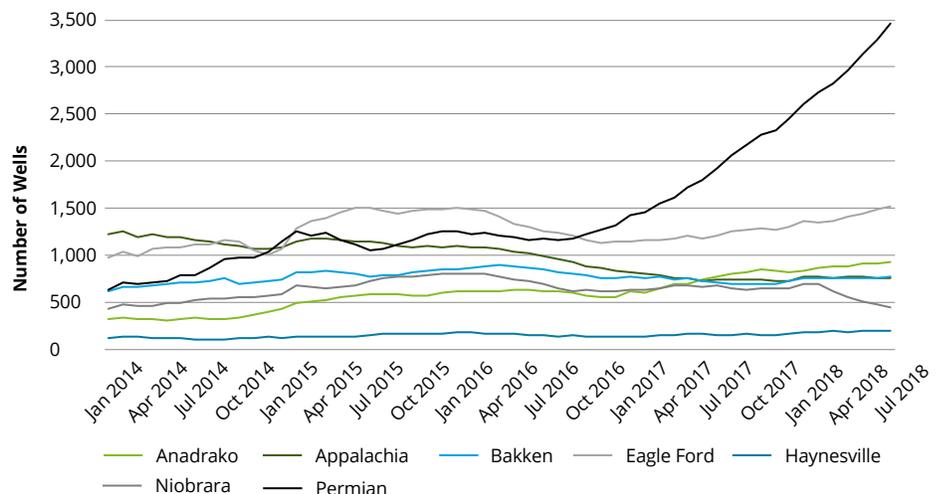
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Forecast commentary

Global oil supply and production disruptions have been a source of some volatility this past quarter. WTI and Brent prices have increased as global crude oil supply and inventories in the United States have decreased. Venezuela continues to reduce oil production, hitting historically low rates due to economic and political instability, and Iranian oil exports have declined as refiners around the globe struggle to find alternative crude sources ahead of the imposition of US sanctions in early November. Months of underproduction by Venezuela and other participating countries have pushed OPEC oil output to much lower than its targeted cut in production. As a result, OPEC and non-OPEC members are in the midst of determining modified country production volumes to try to increase rates and return to 100 percent compliance. The discussions should help determine which members will step in to produce increased volumes to help alleviate current global supply shortages.

The WTI differential to Brent has been quite wide recently, averaging more than \$5/bbl USD this quarter, due to significant production volumes from the US and Brent being attributed value based on geopolitical disruptions. Drilling rig numbers in the United States stalled over the summer due to infrastructure constraints and increased well productivity. Production from the Permian Basin has outpaced regional takeaway capacity, including local refineries, resulting in more producers continuing to delay well completions.

US drilled uncompleted wells



Source: EIA

In addition, increased domestic crude oil demand, primarily for gasoline, is forecast as the US economy continues to grow. Decreased tight oil production from the slowed activity and increased domestic demand should aid WTI prices and allow for recovery to average historical differentials nearer \$2/bbl USD.

North of the border, Canadian crude discounts also widened over the summer as limited transportation options continued to restrict the export of crude oil to the United States. With the addition of new Greenfield oil sands projects coming on-stream in September and multiple producers achieving nameplate capacities at existing sites, Canadian crude supply volumes increased over the period, with volumes forecast to increase by an additional 265,000 bbl/d for the remainder of 2018. Canadian crude production recently surpassed pipeline capacity, but despite rail shipments increasing to record levels, rail shipment capacities remain insufficient to fully alleviate transportation bottlenecks and clear the glut of oil in Western Canada.

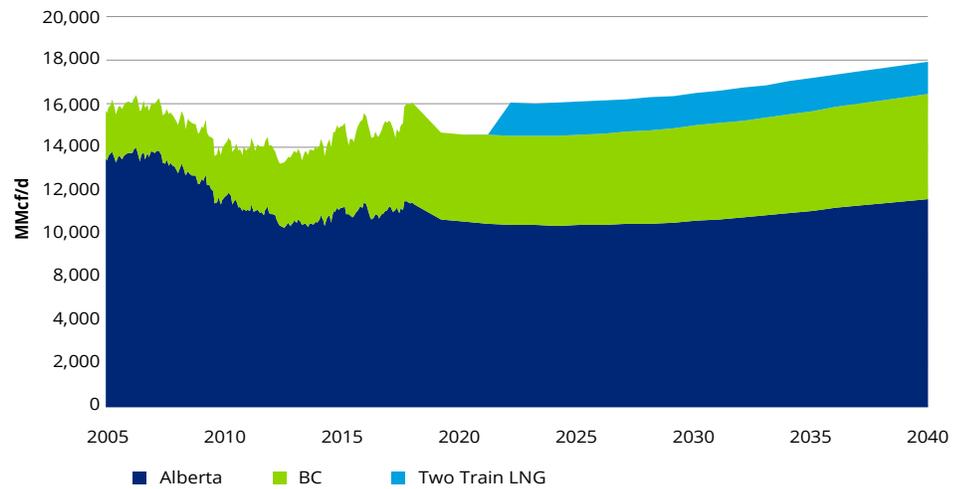
Canadian heavy crude prices are likely to face further pressure as a large number of US refineries are scheduled to undergo maintenance over the next six months, leading to offline periods where a portion of Canadian heavy crude will have nowhere to go. In September, the WCS differential to WTI widened to a five-year high, primarily due to increased inventory levels. Canadian light crude prices have also taken a hit over the summer as Edmonton light differentials swelled to over \$20/bbl CAD. The extreme differentials and lack of major projects on the horizon indicate that market optimism for Canadian crude has declined over the past few months as infrastructure projects continue to remain

in limbo and transportation capacity issues remain unsolved.

Natural gas prices have been steady at Henry Hub over the last few months, but AECO has continued to show remarkable volatility with a very large differential to Henry Hub. With a final investment decision on the LNG Canada project now made, Deloitte has performed a preliminary supply study to estimate the long-term effects the planned facility may have on the AECO gas price. We reviewed the current production, land base, and drilling potential of the five members of the LNG Canada project to estimate the capacity of the facility the participating members can fill. This included an estimate of the remaining inventory on each partner's land base and, using average production profiles in the area, an estimate of future production that could be achieved from each partner's future drilling and existing wells.

Based on this analysis, we expect that the partners in LNG Canada will, on aggregate, be able to fill a two-train facility for more than 20 years solely with their existing production and future drilling. The partners' combined production is already approximately 1.6 Bcf/d, which is more than 85 percent of the expected capacity of a two-train facility. It is likely each partner will ramp up activity to fill the facility in its first year of operation. Volumes will likely not be required from other producers to fill the facility unless LNG Canada decides to expand the facility to three or four trains (which would be well beyond the current 2022 timeline) or if a significant amount of its partners' existing production is allocated to take or pay commitments.

Forecast natural gas production



Source: public data, NEB

The production volumes needed for the two-train facility will require production from BC to increase by approximately 30 percent above the NEB's production forecast given current drilling rates. While this is a significant increase, Deloitte's analysis suggests that the partners in LNG Canada can generate this additional production within their existing land base. As a result, we do not expect a two-train facility to put significant upward pressure on gas prices in Alberta and BC, as the majority of the volumes will be filled with drilling that is contingent on the facility being built. While demand for natural gas will grow due to the

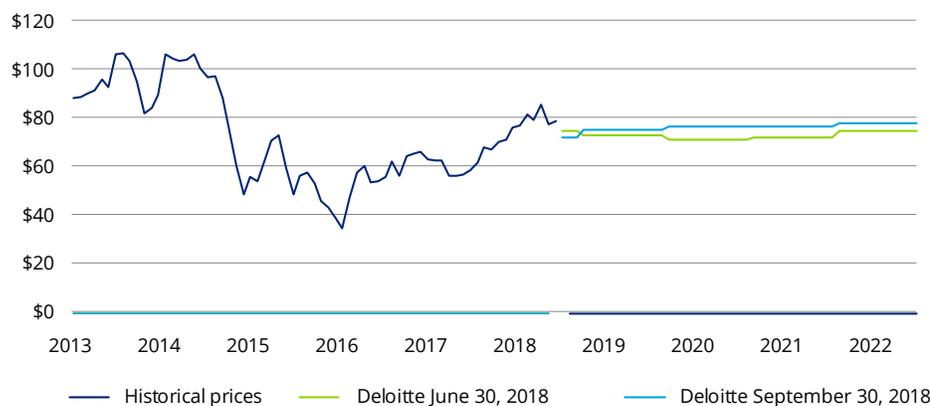
LNG export capacity, we expect supply will grow by approximately the same amount. As a result, we do not expect any positive buoy to the basin's prices unless LNG Canada expands to three or four trains or additional LNG facilities are approved. We are in an oversupply market right now, and this first major LNG project will only temper that oversupply. While many gas producers in Canada look to LNG to provide a reprieve for the sector, our analysis indicates it is more likely that this significant LNG facility will only reap benefits to the key partners involved.



Canadian domestic price forecast

Crude oil price and market demand forecast

Edmonton par (real \$)



Forecast comments

- Edmonton Par is forecast as a differential to WTI. This differential is based on Canadian Light Sweet Oil Index Futures which began trading in January 2014.
- The Edmonton crude oil price is used as the basis for the remaining Canadian crude reference points. Offsets are based on five-year historical averages with recent years weighted more heavily in the determination.

Year	WTI Cushing, OK (40 API) US\$/bbl Real	WTI Cushing, OK (40 API) US\$/bbl Current	Edmonton City Gate (40 API) C\$/bbl Real	Edmonton City Gate (40 API) C\$/bbl Current	WCS Hardisty (20.5 API) C\$/bbl Current	Heavy Oil Hardisty (12 API) C\$/bbl Current	Cost Inflation Rate	CAD to USD Exchange Rate
Historical								
2015	\$50.77	\$48.69	\$59.44	\$57.00	\$44.80	\$39.63	1.1%	0.783
2016	\$44.50	\$43.15	\$53.84	\$52.22	\$38.90	\$34.08	1.4%	0.755
2017	\$51.71	\$50.88	\$62.89	\$61.88	\$50.53	\$45.01	1.6%	0.771
2018								
9 Mths H	\$66.70	\$66.70	\$77.14	\$77.14	\$59.15	\$53.47	2.2%	0.776
3 Mths F	\$68.00	\$68.00	\$71.80	\$71.80	\$50.80	\$49.80	0.0%	0.780
Avg.	\$67.03	\$67.03	\$75.81	\$75.81	\$57.06	\$52.55	-	0.777
Forecast								
2018	\$68.00	\$68.00	\$71.80	\$71.80	\$50.80	\$49.80	0.0%	0.780
2019	\$68.00	\$69.35	\$75.00	\$76.50	\$57.10	\$56.10	2.0%	0.800
2020	\$69.00	\$71.80	\$76.35	\$79.45	\$61.75	\$60.70	2.0%	0.820
2021	\$69.00	\$73.20	\$76.45	\$81.15	\$65.20	\$62.05	2.0%	0.820
2022	\$70.00	\$75.75	\$77.65	\$84.05	\$67.80	\$64.55	2.0%	0.820
2023	\$70.00	\$77.30	\$77.65	\$85.75	\$69.15	\$65.85	2.0%	0.820
2024	\$70.00	\$78.85	\$77.65	\$87.45	\$70.55	\$67.20	2.0%	0.820
2025	\$70.00	\$80.40	\$77.65	\$89.20	\$71.95	\$68.50	2.0%	0.820

Natural gas price and market demand forecast

AECO natural gas (real \$)



Forecast comments

- The AECO natural gas price is forecast based on historical differentials to Henry Hub and future contracts traded on the NGX based in Calgary.

Year	AB Ref. Avg. Price	AB AECO Avg. Price	AB AECO Avg. Price	BC Direct Station 2 Sales	NYMEX Henry Hub	NYMEX Henry Hub
	C\$/Mcf Current	C\$/Mcf Real	C\$/Mcf Current	C\$/Mcf Current	US\$/Mcf Real	US\$/Mcf Current
Historical						
2015	\$2.56	\$2.81	\$2.69	\$1.81	\$2.74	\$2.63
2016	\$1.93	\$2.23	\$2.16	\$1.75	\$2.59	\$2.52
2017	\$2.13	\$2.23	\$2.19	\$1.56	\$3.03	\$2.99
2018						
9 Mths H	\$1.27	\$1.50	\$1.50	\$1.42	\$2.95	\$2.95
3 Mths F	\$1.40	\$1.60	\$1.60	\$1.30	\$2.90	\$2.90
Avg.	\$1.30	\$1.52	\$1.52	\$1.39	\$2.94	\$2.94
Forecast						
2018	\$1.40	\$1.60	\$1.60	\$1.30	\$2.90	\$2.90
2019	\$1.60	\$1.75	\$1.80	\$1.50	\$2.90	\$2.95
2020	\$2.20	\$2.30	\$2.40	\$2.10	\$3.10	\$3.25
2021	\$2.55	\$2.60	\$2.75	\$2.45	\$3.30	\$3.50
2022	\$2.70	\$2.70	\$2.90	\$2.60	\$3.40	\$3.70
2023	\$3.00	\$2.90	\$3.20	\$2.85	\$3.55	\$3.90
2024	\$3.25	\$3.10	\$3.50	\$3.15	\$3.75	\$4.20
2025	\$3.55	\$3.30	\$3.80	\$3.45	\$3.90	\$4.50

International price forecast

Crude oil price and market demand forecast

Year	Av. WTI Spot	Brent Spot (38.3 API with 0.37% sulphur content)	Gulf Coast ASC	Avg. OPEC Basket	Nigerian Bonny Light (33.4 API FOB)	Mexico Maya (21.8 API FOB)	Russia Urals (31.7 API FOB)
	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl
	Real	Real	Real	Real	Real	Real	Real
Forecast							
2018	\$68.00	\$78.00	\$64.50	\$76.00	\$78.65	\$69.00	\$76.50
2019	\$68.00	\$73.00	\$64.50	\$71.00	\$73.65	\$64.00	\$71.50
2020	\$69.00	\$71.00	\$65.50	\$69.00	\$71.65	\$62.00	\$69.50
2021	\$69.00	\$71.00	\$65.50	\$69.00	\$71.65	\$62.00	\$69.50
2022	\$70.00	\$72.00	\$66.50	\$70.00	\$72.65	\$63.00	\$70.50
2023	\$70.00	\$72.00	\$66.50	\$70.00	\$72.65	\$63.00	\$70.50
2024	\$70.00	\$72.00	\$66.50	\$70.00	\$72.65	\$63.00	\$70.50
2025	\$70.00	\$72.00	\$66.50	\$70.00	\$72.65	\$63.00	\$70.50

- International crude quality reference points for OPEC Basket, Venezuelan, Nigerian, UAE, Mexican, Chinese, Russian, and Indonesian crudes are now based on Brent in US dollars. For the purposes of this forecast Brent is receiving a premium to WTI on the world markets.
- Current forecasts for other Crude Oil reference points are based on historical trends to the WTI price.
- Brent, United Kingdom crude is based on 38.3°API with 0.37 per cent Sulphur content. Brent blend is a light sweet North Sea crude oil that serves as an international benchmark grade.
- United States Gulf Coast Argus Sour Crude Index (ASCI) is a blend of offshore Gulf Coast oil from Mars, Poseidon, and Southern Green Canyon.
- OPEC Basket represents the current grouping of crude oil prices from the OPEC member countries.
- Russia Urals 31.7°API is the FOB delivered price to the Mediterranean destinations.

Natural gas price and market demand forecast

Year	USD to GBP Exchange	USD to EUR Exchange	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mountain Opal	UK NBP	India Domestic Gas
			US\$/Mcf	US\$/Mcf	US\$/Mcf	US\$/Mcf	US\$/Mcf	US\$/Mcf
	Rate	Rate	Real	Real	Real	Real	Real	Real
Forecast								
2018	1.30	1.20	\$2.90	\$1.90	\$2.15	\$2.40	\$10.15	\$3.55
2019	1.30	1.20	\$2.90	\$1.90	\$2.15	\$2.40	\$9.65	\$4.25
2020	1.30	1.20	\$3.10	\$2.10	\$2.35	\$2.60	\$8.85	\$4.10
2021	1.30	1.20	\$3.30	\$2.30	\$2.55	\$2.80	\$8.05	\$4.00
2022	1.30	1.20	\$3.40	\$2.40	\$2.65	\$2.90	\$7.60	\$3.85
2023	1.30	1.20	\$3.55	\$2.55	\$2.80	\$3.05	\$7.55	\$3.75
2024	1.30	1.20	\$3.75	\$2.75	\$3.00	\$3.25	\$7.50	\$3.85
2025	1.30	1.20	\$3.90	\$2.90	\$3.15	\$3.40	\$7.65	\$3.90

Global trends

Storage

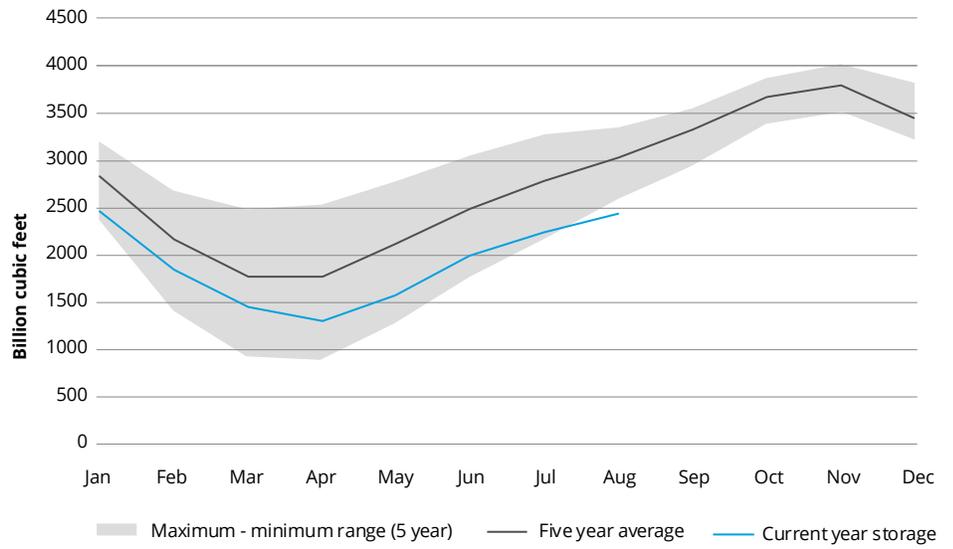
United States

- Natural gas storage levels in the United States continue to remain below the five-year average. High demand and increased exports trends over the last two quarters have continued to result in large storage draws going in to the fall.

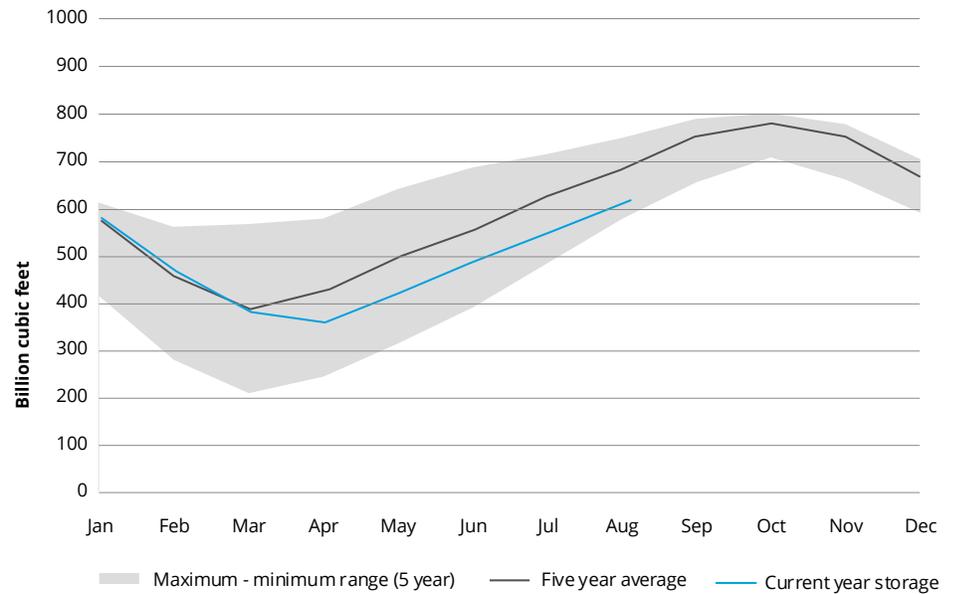
Canada

- Canadian natural gas storage levels continue to remain below the five-year average. In spite of low prices, natural gas production remains above 2017 levels, while demand in Alberta remains higher as well. However, exports remain at 2017 levels, causing storage to trend closer to the five-year average than in the United States.

US natural gas storage



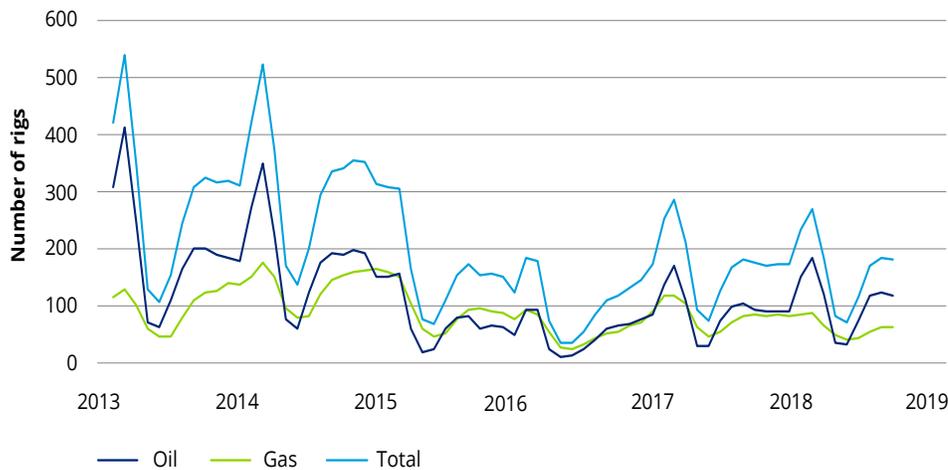
Canada natural gas storage



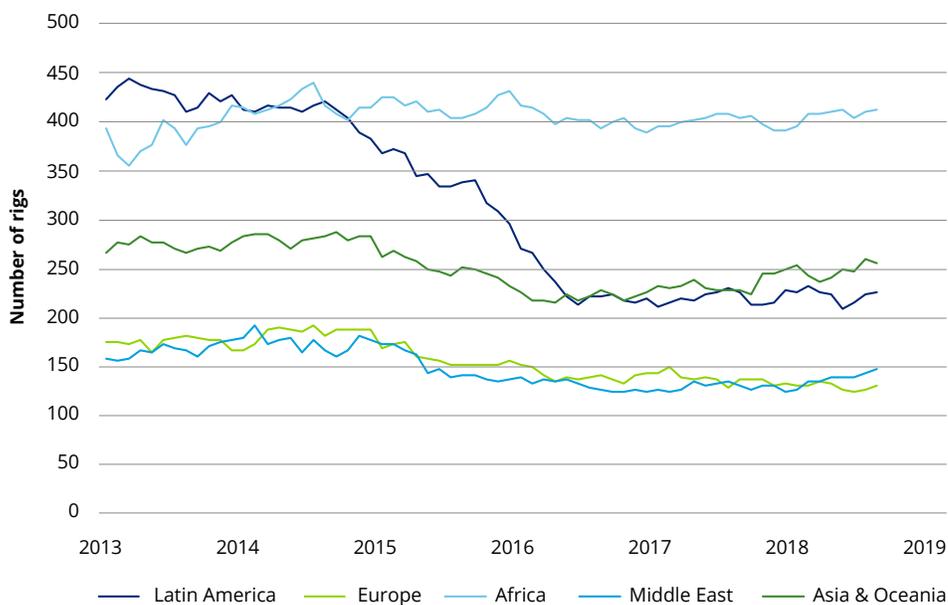
United States rig counts



Canada rig counts



International rig counts



Rigs

United States

- Rig counts in the United States have leveled off this quarter, along with prices. After no change between July and August, September has shown signs of increased drilling again.

Canada

- Canadian rigs counts are about equal to the same time last year, as oil rigs have increased and gas rigs have decreased by roughly the same amount.

International

- This quarter saw rig count increases in all parts of the world except for Europe, which remained constant. Europe is now the continent with the least drilling activity, having been recently passed by Africa.

Canadian domestic price tables

Year	Price Inflation	Cost Inflation	CAD to USD Exchange	Crude Oil Pricing				
				WTI at Cushing Oklahoma	WTI at Cushing Oklahoma	Edmonton City Gate	Edmonton City Gate	WCS 20.5 Deg. AP Hardisty
				US\$/bbl	US\$/bbl	C\$/bbl	C\$/bbl	C\$/bbl
Rate	Rate	Rate	Real	Current	Real	Current	Current	
Historical								
2008	2.4%	2.4%	0.943	\$116.90	\$99.57	\$120.69	\$102.80	\$82.95
2009	0.3%	0.3%	0.880	\$70.66	\$61.65	\$75.76	\$66.10	\$58.66
2010	1.8%	1.8%	0.971	\$90.72	\$79.40	\$88.90	\$77.80	\$67.22
2011	2.9%	2.9%	1.012	\$106.51	\$94.88	\$107.24	\$95.54	\$77.12
2012	1.5%	1.5%	1.001	\$102.56	\$94.11	\$94.34	\$86.57	\$73.10
2013	0.9%	0.9%	0.972	\$105.08	\$97.91	\$100.20	\$93.36	\$74.97
2014	1.9%	1.9%	0.906	\$99.15	\$93.26	\$99.93	\$94.00	\$81.06
2015	1.1%	1.1%	0.783	\$50.77	\$48.69	\$59.44	\$57.00	\$44.80
2016	1.4%	1.4%	0.755	\$44.50	\$43.15	\$53.84	\$52.22	\$38.90
2017	1.6%	1.6%	0.771	\$51.71	\$50.88	\$62.89	\$61.88	\$50.53
2018								
9 Mths H	2.2%	2.2%	0.776	\$66.70	\$66.70	\$77.14	\$77.14	\$59.15
3 Mths F	0.0%	0.0%	0.780	\$68.00	\$68.00	\$71.80	\$71.80	\$50.80
Avg.	N/A	N/A	0.777	\$67.03	\$67.03	\$75.81	\$75.81	\$57.06
Forecast								
2018	0.0%	0.0%	0.780	\$68.00	\$68.00	\$71.80	\$71.80	\$50.80
2019	2.0%	2.0%	0.800	\$68.00	\$69.35	\$75.00	\$76.50	\$57.10
2020	2.0%	2.0%	0.820	\$69.00	\$71.80	\$76.35	\$79.45	\$61.75
2021	2.0%	2.0%	0.820	\$69.00	\$73.20	\$76.45	\$81.15	\$65.20
2022	2.0%	2.0%	0.820	\$70.00	\$75.75	\$77.65	\$84.05	\$67.80
2023	2.0%	2.0%	0.820	\$70.00	\$77.30	\$77.65	\$85.75	\$69.15
2024	2.0%	2.0%	0.820	\$70.00	\$78.85	\$77.65	\$87.45	\$70.55
2025	2.0%	2.0%	0.820	\$70.00	\$80.40	\$77.65	\$89.20	\$71.95
2026	2.0%	2.0%	0.820	\$70.00	\$82.00	\$77.65	\$91.00	\$73.40
2027	2.0%	2.0%	0.820	\$70.00	\$83.65	\$77.65	\$92.80	\$74.85
2028	2.0%	2.0%	0.820	\$70.00	\$85.35	\$77.65	\$94.65	\$76.35
2029	2.0%	2.0%	0.820	\$70.00	\$87.05	\$77.65	\$96.55	\$77.90
2030	2.0%	2.0%	0.820	\$70.00	\$88.80	\$77.65	\$98.50	\$79.45
2031	2.0%	2.0%	0.820	\$70.00	\$90.55	\$77.65	\$100.45	\$81.05
2032	2.0%	2.0%	0.820	\$70.00	\$92.35	\$77.65	\$102.45	\$82.65
2033	2.0%	2.0%	0.820	\$70.00	\$94.20	\$77.65	\$104.50	\$84.30
2034	2.0%	2.0%	0.820	\$70.00	\$96.10	\$77.65	\$106.60	\$86.00
2035	2.0%	2.0%	0.820	\$70.00	\$98.00	\$77.65	\$108.75	\$87.75
2036	2.0%	2.0%	0.820	\$70.00	\$100.00	\$77.65	\$110.90	\$89.50
2037	2.0%	2.0%	0.820	\$70.00	\$102.00	\$77.65	\$113.10	\$91.25
2037+	2.0%	2.0%	0.820	0.0%	2.0%	0.0%	2.0%	2.0%

Notes:

- All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
- Edmonton city gate prices based on historical light oil par prices posted by the government of Alberta and Net Energy differential futures (40 Deg. API < 0.5% Sulphur)
- Real prices listed in 2018 dollars with no escalation considered

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Price Forecast September 30, 2018 | Canadian domestic price tables

Year	Natural Gas Liquids Pricing Edmonton Par Prices				Natural Gas Pricing						Sulphur
	Ethane	Propane	Butane	Pentanes + Condensate	Alberta Reference Avg. Price	Alberta AECO Avg. Price	Alberta AECO Avg. Price	B.C. Direct Stn. 2 Sales	NYMEX Henry Hub	NYMEX Henry Hub	Alberta Plant Gate
	C\$/bbl	C\$/bbl	C\$/bb	C\$/bbl	C\$/mcf	C\$/mcf	C\$/mcf	C\$/mcf	US\$/Mcf	US\$/Mcf	C\$/lt
Current	Current	Current	Current	Current	Real	Current	Current	Real	Current	Current	
Historical											
2008	\$22.59	\$56.96	\$83.54	\$109.77	\$7.88	\$9.58	\$8.16	\$8.20	\$10.40	\$8.86	\$303.83
2009	\$11.61	\$34.62	\$56.21	\$69.49	\$3.85	\$4.54	\$3.96	\$4.17	\$4.53	\$3.95	(\$5.08)
2010	\$11.53	\$45.19	\$68.79	\$84.02	\$3.76	\$4.58	\$4.01	\$4.01	\$5.01	\$4.39	\$56.94
2011	\$10.30	\$52.41	\$86.98	\$105.24	\$3.46	\$4.08	\$3.63	\$3.34	\$4.49	\$4.00	\$101.60
2012	\$6.73	\$30.80	\$75.47	\$99.67	\$2.25	\$2.60	\$2.39	\$2.29	\$3.00	\$2.75	\$126.81
2013	\$8.68	\$38.54	\$77.44	\$103.52	\$2.98	\$3.41	\$3.17	\$3.11	\$4.00	\$3.73	\$62.17
2014	\$12.46	\$42.93	\$59.43	\$101.47	\$4.22	\$4.79	\$4.50	\$4.16	\$4.67	\$4.39	\$88.99
2015	\$7.49	\$5.35	\$33.70	\$55.15	\$2.56	\$2.81	\$2.69	\$1.81	\$2.74	\$2.63	\$107.45
2016	\$6.04	\$8.71	\$31.45	\$52.43	\$1.93	\$2.23	\$2.16	\$1.75	\$2.59	\$2.52	\$45.40
2017	\$6.11	\$27.92	\$40.98	\$63.65	\$2.13	\$2.23	\$2.19	\$1.56	\$3.03	\$2.99	\$41.85
2018											
9 Mths H	\$4.17	\$28.87	\$48.39	\$81.39	\$1.27	\$1.50	\$1.50	\$1.42	\$2.95	\$2.95	\$64.59
3 Mths F	\$4.50	\$28.70	\$46.65	\$79.00	\$1.40	\$1.60	\$1.60	\$1.30	\$2.90	\$2.90	\$50.00
Avg.	\$4.25	\$28.83	\$47.95	\$80.80	\$1.30	\$1.52	\$1.52	\$1.39	\$2.94	\$2.94	\$60.94
Forecast											
2018	\$4.50	\$28.70	\$46.65	\$79.00	\$1.40	\$1.60	\$1.60	\$1.30	\$2.90	\$2.90	\$50.00
2019	\$5.00	\$34.45	\$53.55	\$84.15	\$1.60	\$1.75	\$1.80	\$1.50	\$2.90	\$2.95	\$51.00
2020	\$6.70	\$39.75	\$55.60	\$87.40	\$2.20	\$2.30	\$2.40	\$2.10	\$3.10	\$3.25	\$52.00
2021	\$7.75	\$40.60	\$56.75	\$89.25	\$2.55	\$2.60	\$2.75	\$2.45	\$3.30	\$3.50	\$53.05
2022	\$8.15	\$42.05	\$58.85	\$92.45	\$2.70	\$2.70	\$2.90	\$2.60	\$3.40	\$3.70	\$54.10
2023	\$8.95	\$42.90	\$60.00	\$94.30	\$3.00	\$2.90	\$3.20	\$2.85	\$3.55	\$3.90	\$55.20
2024	\$9.80	\$43.75	\$61.20	\$96.15	\$3.25	\$3.10	\$3.50	\$3.15	\$3.75	\$4.20	\$56.30
2025	\$10.65	\$44.65	\$62.45	\$98.10	\$3.55	\$3.30	\$3.80	\$3.45	\$3.90	\$4.50	\$57.45
2026	\$11.00	\$45.50	\$63.70	\$100.05	\$3.70	\$3.35	\$3.95	\$3.55	\$3.95	\$4.65	\$58.60
2027	\$11.35	\$46.45	\$64.95	\$102.05	\$3.80	\$3.40	\$4.05	\$3.70	\$4.00	\$4.80	\$59.75
2028	\$11.60	\$47.35	\$66.25	\$104.10	\$3.90	\$3.40	\$4.15	\$3.80	\$4.00	\$4.90	\$60.95
2029	\$11.80	\$48.30	\$67.60	\$106.20	\$4.00	\$3.40	\$4.25	\$3.85	\$4.00	\$4.95	\$62.15
2030	\$12.05	\$49.25	\$68.95	\$108.30	\$4.05	\$3.40	\$4.30	\$3.95	\$4.00	\$5.05	\$63.40
2031	\$12.30	\$50.25	\$70.30	\$110.45	\$4.15	\$3.40	\$4.40	\$4.00	\$4.00	\$5.15	\$64.70
2032	\$12.55	\$51.25	\$71.70	\$112.70	\$4.20	\$3.40	\$4.50	\$4.10	\$4.00	\$5.30	\$65.95
2033	\$12.80	\$52.30	\$73.15	\$114.95	\$4.30	\$3.40	\$4.60	\$4.15	\$4.00	\$5.40	\$67.30
2034	\$13.05	\$53.35	\$74.60	\$117.25	\$4.40	\$3.40	\$4.65	\$4.25	\$4.00	\$5.50	\$68.65
2035	\$13.30	\$54.40	\$76.10	\$119.60	\$4.50	\$3.40	\$4.75	\$4.35	\$4.00	\$5.60	\$70.00
2036	\$13.55	\$55.50	\$77.65	\$121.95	\$4.55	\$3.40	\$4.85	\$4.45	\$4.00	\$5.70	\$71.40
2037	\$13.85	\$56.60	\$79.20	\$124.40	\$4.65	\$3.40	\$4.95	\$4.50	\$4.00	\$5.85	\$72.85
2037+	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	2.0%	2.0%	0.0%	2.0%	2.0%

Notes:

- All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
- Natural Gas Liquid prices are forecasted at Edmonton therefore an additional transportation cost must be included to plant gate sales point
- 1 Mcf is equivalent to 1 mmbtu
- Real prices listed in 2018 dollars with no escalation considered
- Alberta gas prices, except AECO, include an average cost of service to the plant gate
- NGL prices have been switched from a mix reference to a spec reference

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Additional crude reference prices

	Crude oil pricing			Natural gas pricing
Year	Lt. Sour 35 Deg. API Cromer, SK	MSO 31 Deg. API Hardisty	Synbit (AWB) 70% Bitumen 30% Cond. 21 Deg. API	Ontario Dawn Reference Point
	C\$/bbl	C\$/bbl	C\$/bbl	C\$/mcf
	Current	Current	Current	Current
Historical				
2008	\$95.28	\$92.40	\$84.08	\$9.88
2009	\$64.04	\$63.76	\$58.92	\$4.80
2010	\$76.40	\$72.32	\$67.64	\$4.79
2011	\$92.13	\$83.39	\$80.29	\$4.34
2012	\$84.27	\$77.53	\$74.75	\$3.11
2013	\$91.76	\$82.65	\$76.90	\$4.13
2014	\$92.91	\$89.39	\$82.03	\$5.76
2015	\$55.46	\$54.70	\$44.28	\$3.72
2016	\$51.37	\$48.29	\$39.58	\$3.46
2017	\$62.06	\$58.16	\$50.60	\$3.97
2018				
9 Mths H	\$78.36	\$69.92	\$61.85	\$3.62
3 Mths F	\$72.80	\$66.80	\$58.55	\$3.65
Avg.	\$76.97	\$69.14	\$61.02	\$3.63
Forecast				
2018	\$72.80	\$66.80	\$58.55	\$3.65
2019	\$77.50	\$72.40	\$64.50	\$3.65
2020	\$80.45	\$75.25	\$68.70	\$3.85
2021	\$82.20	\$76.90	\$70.20	\$4.10
2022	\$85.15	\$79.70	\$72.95	\$4.30
2023	\$86.85	\$81.30	\$74.40	\$4.60
2024	\$88.55	\$82.95	\$75.90	\$4.90
2025	\$90.35	\$84.60	\$77.40	\$5.25
2026	\$92.15	\$86.30	\$78.95	\$5.40
2027	\$94.00	\$88.00	\$80.55	\$5.55
2028	\$95.85	\$89.80	\$82.15	\$5.65
2029	\$97.80	\$91.55	\$83.80	\$5.80
2030	\$99.75	\$93.40	\$85.50	\$5.90
2031	\$101.75	\$95.25	\$87.20	\$6.00
2032	\$103.80	\$97.20	\$88.95	\$6.15
2033	\$105.85	\$99.10	\$90.70	\$6.25
2034	\$107.95	\$101.10	\$92.55	\$6.40
2035	\$110.15	\$103.15	\$94.40	\$6.50
2036	\$112.35	\$105.20	\$96.25	\$6.65
2037	\$114.60	\$107.30	\$98.20	\$6.75
2037+	2.0%	2.0%	2.0%	2.0%

Notes:

- All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
- Edmonton city gate prices based on historical light oil par prices posted by the government of Alberta and Net Energy differential futures (40 Deg. API < 0.5% Sulphur)
- Natural Gas Liquid prices are forecasted at Edmonton therefore an additional transportation cost must be included to plant gate sales point
- 1 Mcf is equivalent to 1 mmbtu
- **Real prices listed in 2018 dollars with no escalation considered**
- **Alberta gas prices, except AECO, include an average cost of service to the plant gate**
- **NGL prices have been switched from a mix reference to a spec reference**

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International price tables

Crude Oil Pricing																
Year	Average WTI Spot	Alaskan North Slope	California Midway-Sunset	Louisiana Heavy Sweet	Louisiana Light Sweet	MARS Blend	Wyoming Sweet	Brent Spot	Gulf Coast Argus Sour Crude Index ASCI	Average OPEC Basket	Venezuelan Merly	Nigerian Bonny Light	Arabia UAE Dubai Feteh	Mexico Maya	Russia Urals	Indonesia Minas
	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl
	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real
Forecast																
2018	\$68.00	\$64.25	\$69.00	\$68.50	\$67.00	\$64.50	\$65.00	\$78.00	\$64.50	\$76.00	\$70.00	\$78.65	\$76.00	\$69.00	\$76.50	\$71.00
2019	\$68.00	\$64.25	\$69.00	\$68.50	\$67.00	\$64.50	\$65.00	\$73.00	\$64.50	\$71.00	\$65.00	\$73.65	\$71.00	\$64.00	\$71.50	\$66.00
2020	\$69.00	\$65.25	\$70.00	\$69.50	\$68.00	\$65.50	\$66.00	\$71.00	\$65.50	\$69.00	\$63.00	\$71.65	\$69.00	\$62.00	\$69.50	\$64.00
2021	\$69.00	\$65.25	\$70.00	\$69.50	\$68.00	\$65.50	\$66.00	\$71.00	\$65.50	\$69.00	\$63.00	\$71.65	\$69.00	\$62.00	\$69.50	\$64.00
2022	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2023	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2024	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2025	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2026	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2027	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2028	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2029	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2030	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2031	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2032	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2033	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2034	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2035	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2036	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2037	\$70.00	\$66.25	\$71.00	\$70.50	\$69.00	\$66.50	\$67.00	\$72.00	\$66.50	\$70.00	\$64.00	\$72.65	\$70.00	\$63.00	\$70.50	\$65.00
2037+	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Notes:

- Venezuelan Merly replaced BCF-17 in the OPEC basket March 1, 2009.

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Year	Exchange rate		Natural Gas pricing						Ethanol
	USD to GBP	USD to EUR	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mtn. Opal	UK NBP	India Domestic Gas	US CBOT Ethanol
	Exchange rate	Exchange rate	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/Mcf Real	US\$/gal Real
Forecast									
2018	1.300	1.200	\$2.90	\$1.90	\$2.15	\$2.40	\$10.15	\$3.55	\$1.50
2019	1.300	1.200	\$2.90	\$1.90	\$2.15	\$2.40	\$9.65	\$4.25	\$1.50
2020	1.300	1.200	\$3.10	\$2.10	\$2.35	\$2.60	\$8.85	\$4.10	\$1.50
2021	1.300	1.200	\$3.30	\$2.30	\$2.55	\$2.80	\$8.05	\$4.00	\$1.50
2022	1.300	1.200	\$3.40	\$2.40	\$2.65	\$2.90	\$7.60	\$3.85	\$1.50
2023	1.300	1.200	\$3.55	\$2.55	\$2.80	\$3.05	\$7.55	\$3.75	\$1.50
2024	1.300	1.200	\$3.75	\$2.75	\$3.00	\$3.25	\$7.50	\$3.85	\$1.50
2025	1.300	1.200	\$3.90	\$2.90	\$3.15	\$3.40	\$7.65	\$3.90	\$1.50
2026	1.300	1.200	\$3.95	\$2.95	\$3.20	\$3.45	\$7.70	\$4.05	\$1.50
2027	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2028	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2029	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2030	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2031	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2032	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2033	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2034	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2035	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2036	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2037	1.300	1.200	\$4.00	\$3.00	\$3.25	\$3.50	\$7.75	\$4.10	\$1.50
2037+	1.300	1.200	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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Pricing philosophy

Price forecasting takes into account many variables that can influence future prices. Our experience tells us that we must continually review the forecasting tools we use to predict where oil and gas prices are heading. However, one constant influence on oil and gas pricing is the geo-political landscape. This impact is most accurately reflected in the financial industry's futures market for commodities, a main influence when Deloitte creates its price forecast. In other words, Deloitte looks to both the futures and the past when we create our forecasts.

This pricing philosophy challenges conventional thinking. The traditional view is based on the mean-reversion view of commodities presented by economists. Following this model, industry forecasts from 2000 to 2006 reflected a drop in prices over the long term from the current prices of the day – even though the futures market indicated otherwise. While the mean-reversion approach definitely has some merit, history has tended to reflect that the futures market is a more accurate barometer.

Client focus

At Deloitte, we believe it is part of our role to help our clients in both the oil and gas sector and the investment community make better long-term business decisions by providing them with the most accurate and realistic information. We understand that sound analysis of changing trends can influence decisions on mergers, acquisitions, divestitures and investments. One way we ensure our price forecasts are as accurate as possible, given the continuing impact of near-term volatility, is to review our pricing assumptions on a quarterly basis.

Our process

In preparing the price forecast, Deloitte considers the current monthly trends, the actual price and trends for the year-to-date and the prior year actual prices. The base forecast for both oil and gas is based on New York Mercantile Exchange (NYMEX) futures in U.S. dollars.

Crude oil and natural gas forecasts are based on yearly variable factors, weighted to a higher percent for the current data and then reflect a higher percent to prior year historical data for the later years. Gas prices have been determined independently from oil prices, but still reflect the current competitive nature of the two fuels and historical oil-to-gas ratios for the latter years of the gas forecast.

Deloitte prepares our price and market forecasts based on information we collect from numerous government agencies, industry publications, oil refineries, natural gas marketers and industry trends. Inflation forecasts and exchange rates are also an integral part of the forecast.

These forecasts are Deloitte's best estimate of how the future will look, and while they are considered reasonable, changing market conditions or additional information may require alteration from the indicated effective date.



Glossary

Some of the words, phrases and acronyms we use frequently when talking about pricing are listed below:

AECO	Alberta Energy Company - historical name of a virtual trading hub on the NGX system	LNG	Liquefied Natural Gas
ANS	Alaska North Slope	MESC	Middle East Sour Crude
ASCI	Argus Sour Crude Oil	MSO	Mixed Sour Crude Oil
AWB	Access Western Blend - Canadian condensate/bitumen mix	MSW	Canadian Light Sweet
BR	Bow River Crude Oil	NEB	Canadian National Energy Board
CAPP	Canadian Association of Petroleum Producers	NGX	Natural Gas Exchange
CBOT	Chicago Board Of Trade	NIT	Nova Inventory Transfer
CGA	Canadian Gas Association	NRC	Natural Resources Canada
CME	Chicago Mercantile Exchange	NYMEX	New York Mercantile Exchange
DCQ	Daily Contract Quantity	OECD	Organization of Economic Cooperation and Development
DOB	Daily Oil Bulletin	OPEC	Organization of Petroleum Exporting Countries
EIA	Energy Information Administration	PADD	Petroleum Administration Defense District
FERC	US Federal Energy Regulatory Commission	USGC	US Gulf Coast
FOB	Free on Board (shipper term)	USWC	US West Coast
IEA	International Energy Administration	WCS	Western Canada Select Crude Oil
LLB	Lloydminster Blend Crude Oil	WTI	West Texas Intermediate
		WTS	West Texas Sour

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