Price forecast
Oil, gas & chemicals

March 31, 2021

Forecast commentary

Crude oil rebounded as vaccines restarted global economies

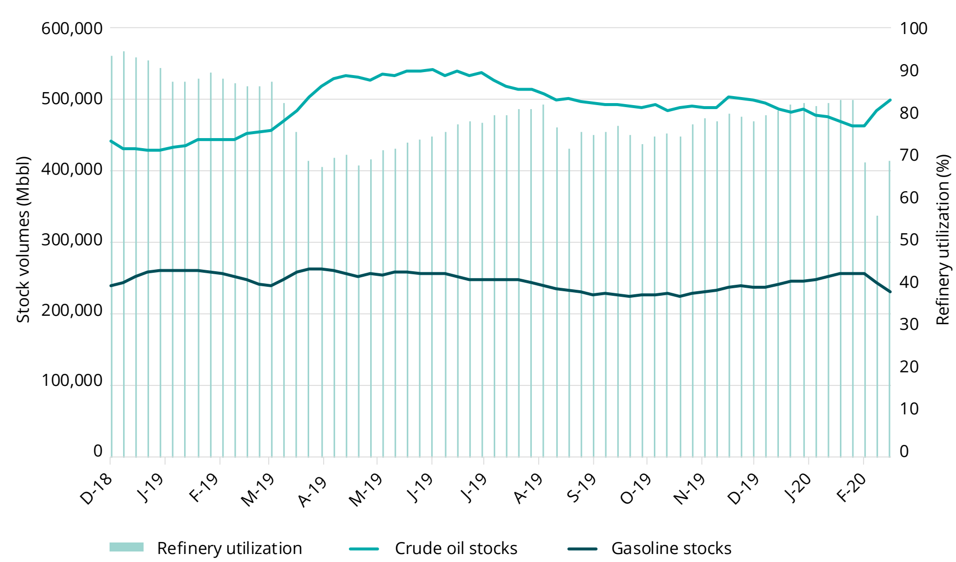
Oil prices surged in the first quarter of 2021 as oil demand began to rebound, reflecting the optimism of continuous rollouts of the COVID-19 vaccine and improved global economic activity. In March, OPEC+ members announced they would maintain production cuts through April, which resulted in benchmark Brent and West Texas Intermediate (WTI) prices rising 22% and 24% respectively from December 2020 values. The OPEC+ production curtailments, coupled with slower-than-expected supply growth in the United States, led to global inventory withdrawals of 3.7 MMbbl/d in February. These were the highest volumes since 2002, indicating global demand outpaced depressed supply levels in Q1 2021. As the sector works to stabilize supply and demand curves, crude oil prices are expected to drop in the coming months as supply returns to the market.

Towards the end of the quarter, futures for WTI and Brent were already showing signs of weakness as renewed lockdown concerns in Europe plagued demand.

Although the global crude stock withdrawals represent good news for the sector, storage volumes in the United States have been increasing alongside price, indicating a misalignment with price and supply and demand fundamentals. We do not expect this will last in the long term, with a market correction likely to come.

Winter storms and record-low temperatures in Texas crippled the sector, with production halted because wellheads froze and refinery utilization levels dropped to 56%. Several major refineries along the US Gulf Coast were shut in due to the storm and frozen equipment forced operators to phase restart efforts, which caused slow ramp-ups. The low

US crude oil and product stocks with refining disruptions



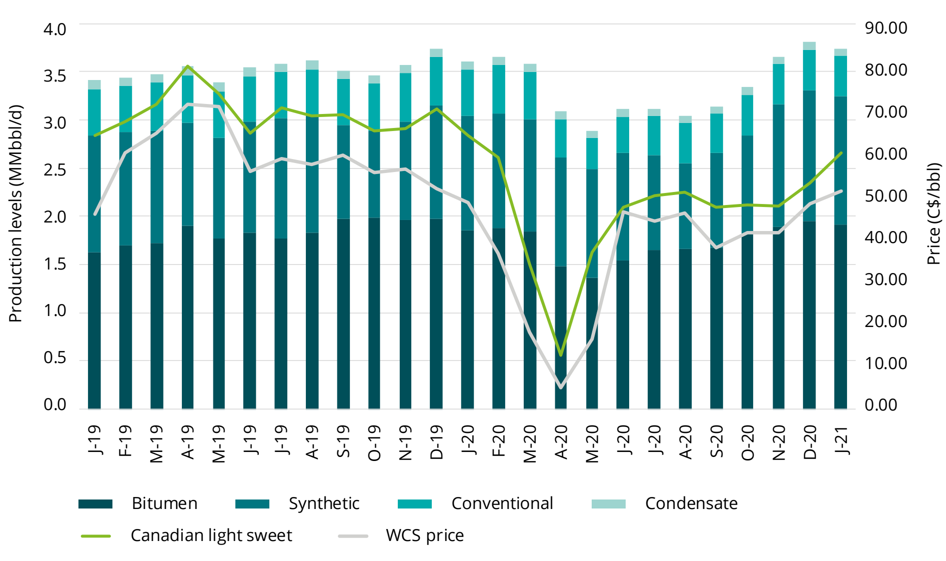
Source: United States Energy Information Administration.

refinery utilization rates led to US crude stocks swelling by 21.6 MMbbl, the largest weekly increase in US history. While crude oil stocks increased, refined product stocks decreased to below the five-year minimum since gasoline production capacity was limited.

Strong prices at the beginning of 2021 were expected to stimulate US activity and lead to production increases, primarily in the Permian basin. Recent data shows the number of drilled and uncompleted wells has decreased and rig count activity has increased over the first few months of the year. However, despite some increase to activity levels, US production has stayed relatively flat as volumes brought on-stream offset existing production declines. In addition, the weather events in Texas delayed some planned operations and forced production levels to dip even further in mid-February. Supply is expected to increase as producers tackle their development plans, but production is not expected to return as quickly as originally thought, especially in the Permian basin. US companies have stated they plan to maintain supply rates and maximize cash flow to pay down debt. This reflects a change in philosophy from previous years, when US shale players were focused on drilling for growth with less than optimal return on the capital deployed.

Canadian producers have fared well in Q1 2021, with implied differentials to WTI remaining favourable and prices returning to pre-pandemic values. Production levels in Alberta have rebounded at the same time to volumes last seen before COVID-19 struck, as producers accelerated their winter drilling activity to take advantage of higher prices.

Alberta production levels



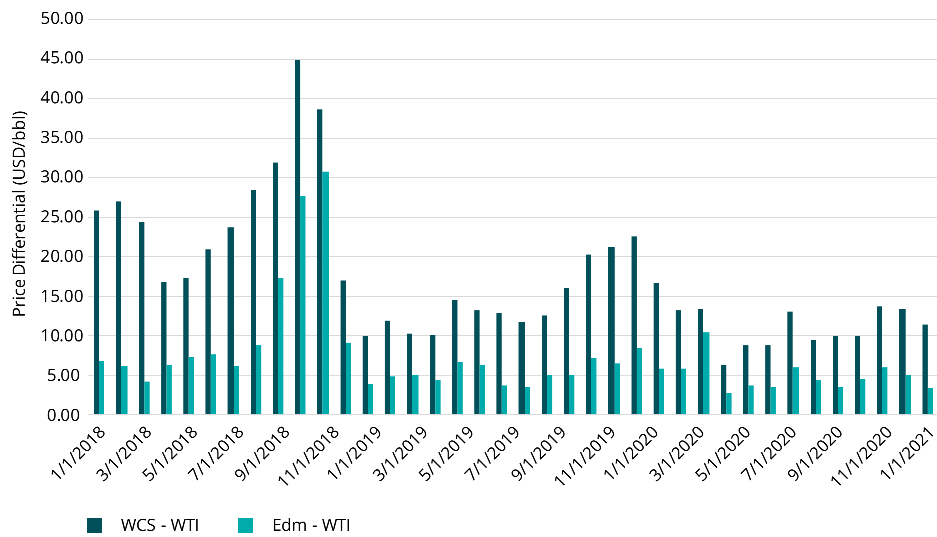
Source: Alberta Energy Regulator, Flint, Natural Resources Canada, Oil Sand Magazine.

Oil production in Alberta reached 116 MMbbl in January 2021, a 3.6% increase from January 2020 levels. Oilsands production represented the largest volume increases that month, with mined volumes contributing 47% of total production.

Canadian light oil producers were supported by high WTI prices and narrow differentials in March, as Canadian light hit its highest value since August 2018. Increased oilsands supply coming onstream in late 2020 and early 2021 caused Western Canadian Select (WCS) price differentials to start widening in Q1 2021.

The current oil price rally does not seem sustainable with OPEC+ having a significant amount of production still offline. It seems more plausible that the members will agree to increase production in the coming months, which would push down prices below US$60/bbl, rather than allow US companies to substantially recover market share and spend more on development.

Canadian oil price differentials



Source: Daily Oil Bulletin.

Natural gas prices surged as cold weather hit North America

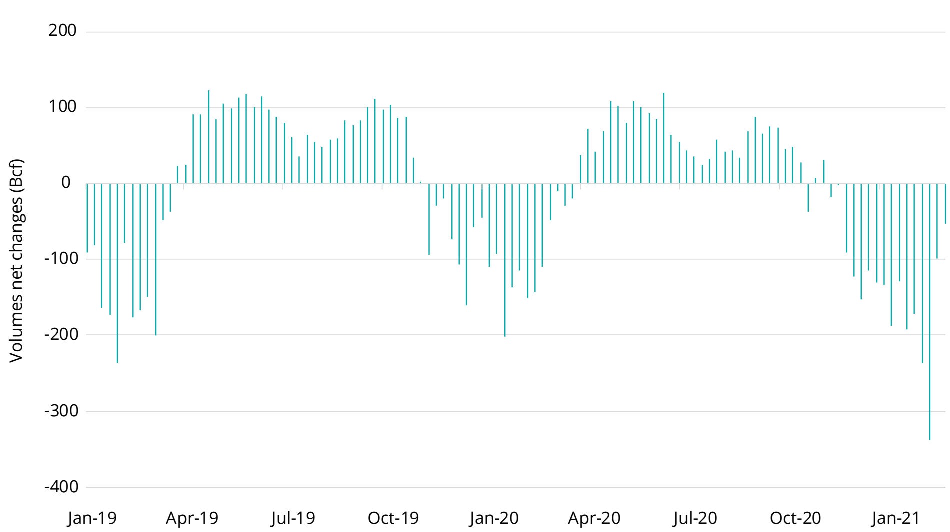
US natural gas storage levels trended below the five-year withdrawal season average as domestic demand surged in February due to cold weather across the country and winter storms caused production to decrease by 21 Bcf/d. In Texas, well freeze-offs decreased production by 10 Bcf/d, as associated gas from the Permian basin was shut in for certain fields. The rise in demand and drop in supply caused Henry Hub prices to spike in February.

The United States mitigated its short-term supply issues by importing additional volumes from Western Canadian producers, leading to further AECO price increases beyond our own cold-weather prices. US production has resumed in recent weeks, and data shows supply volumes are relatively flat from Q4 2020 values.

US liquid natural gas (LNG) exports continue to grow, averaging 9.8 Bcf/d in January 2021, while Japanese LNG prices spiked in Q1 2021 to approximately US$18/mmbtu. February shipments were affected by the winter storms in Texas as Gulf Coast ports dealt with the severe weather and lower natural gas supply. It's likely that natural gas producers will mostly maintain the current supply rather than seek to grow substantially; if LNG export demand continues to grow as expected, prices will steadily increase for the remainder of 2021. This may spur renewed activity later in the year.

In Canada, natural gas production has remained stagnant as producers aim to maintain current production levels and boost cash flows, a state that's expected for the rest of the year. Similar to the United States, prices surged in February in response to cold weather across the country and increased demand from south of the border. AECO prices are expected to remain relatively flat for the spring as companies wrap up a successful winter drilling season. Gas storage levels in Western Canada are below the five-year average, which will support prices as we head into the gas injection season. Since Canadian producers are aiming to maintain production levels throughout the year, storage levels are not expected to be outside the norm.

US natural gas working net storage changes



Source: EIA.

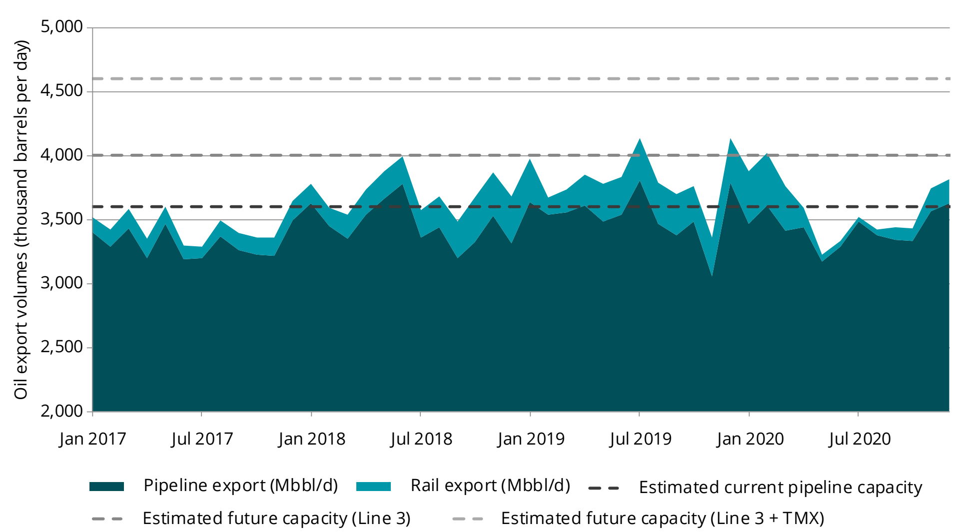
Canadian oil export capacity without Keystone XL

With the recent revocation of the Keystone XL cross-border permit, the capacity for growth in Western Canadian oil production has been thrown into doubt. Pipeline export capacity has reached its limits in recent years, as evidenced by the increased reliance on shipping crude by rail. Rail export volumes grew from less than 100,000 barrels per day in 2016 to more than 300,000 by the end of 2019. At its peak in February 2020, just over 400,000 barrels were being exported every day by rail to the United States. The onset of the global COVID-19 pandemic and resulting crash in crude prices and demand temporarily reversed this trend as multiple companies shut in production.

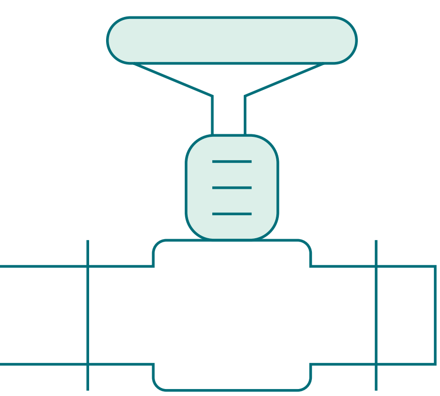
Nameplate export capacity from the four major pipelines to the United States is four million barrels per day. However, routine maintenance and operational considerations lower the maximum number of volumes that can be exported consistently. Based on the export and crude-by-rail volumes observed over the last several years, we estimate that a consistently achievable take-away capacity is approximately 3.6 million barrels per day. With the expected completion of the Line 3 and Trans Mountain expansion projects over the next couple of years, total export capacity is expected to rise to over 4.5 million barrels per day.

Any Western Canadian production growth in the coming year above the peak in early 2020, therefore, will need to be exported by rail until these projects are completed. Total rail capacity is estimated to be slightly more than 400,000 barrels per day, which should allow modest growth in production in 2021 as compared with 2020. In 2022 and beyond, the completion of Line 3 and Trans Mountain should allow the Canadian Association of Petroleum Producers' current growth forecast of 1.25 million barrels per day over the next 15 years to be achievable.

Historical export volumes and estimated pipeline capacity



Source: CAPP, EIA, CER.



Despite the plans to clear the bottleneck of Western Canadian export capacity over the next couple of years, we can still expect rail to play a role in the future. With the Trans Mountain expansion servicing international export, Western Canadian oil producers may continue to export to heavy oil-tooled refineries in the US Gulf Coast. It remains to be seen what effect the rebalancing of the export market will have on WCS differentials, but demand is expected to remain strong in the Gulf Coast as Venezuelan heavy oil production continues to remain historically low.

While Keystone would have provided options for producers at a lower cost than rail, there is still room for oil production growth. TMX will provide the needed breathing room.

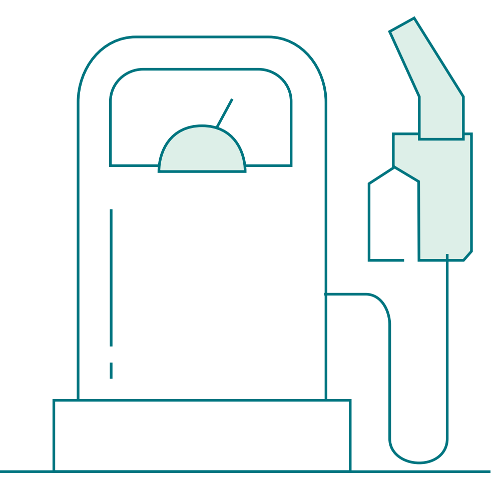
Any Western Canadian production growth in the coming year above the peak in early 2020, therefore, will need to be exported by rail until these projects are completed.

M&A momentum builds

As the demand for energy declined during lockdown measures to contain the spread of COVID-19, so too did merger and acquisition (M&A) activity in oil and gas over the first half of 2020. In our view, stability and predictability are typically necessary for deals to happen in the oil and gas sector, and, while these were lacking even before COVID-19 due primarily to market access issues in Canada, the onset of the pandemic deepened the impact of their absence.

In recent months, however, the wait-and-see attitude that was prevalent in oil and gas through most of 2020 has started to fade. M&A activity has begun to recover. The challenges of the past year have made the sector leaner and meaner, and we expect the current reset will drive more M&A activity, with more restructuring and a renewed focus on defensive M&A to deliver further efficiencies.

We're seeing this with a mix of deal types. The large corporate merger between **Cenovus and Husky** made up 50% of the total value of Canadian upstream transactions between Q3 2020 and Q1 2021. Large cap producers targeted gas-weighted purchases, particularly Montney and Deep Basin assets. Transactions of intermediates focused on assets that would grow their portfolios and make them more relevant in the market, typically by targeting conventional oil-weighted assets. While this often meant picking up complimentary assets, it also meant diversifying with new areas and product types; for example, the Duvernay transactions.



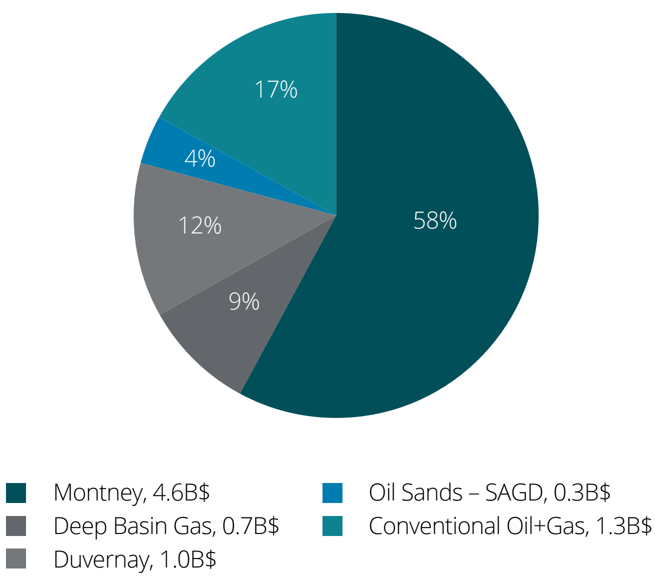
Three key factors are driving M&A

The commodity price environment has been a significant factor in M&A activity. Most activity has focused on the upstream subsector, as is clear from the deal types noted above. Trends in the oilfield services subsector, which have been under severe stress after producers slashed capital spending, have been driven by diversification in service offerings and operational jurisdictions. In addition, as their customers begin to consolidate, so in turn are pure-play oilfield services companies beginning to consolidate in order to maintain competitive cost structures and market share.

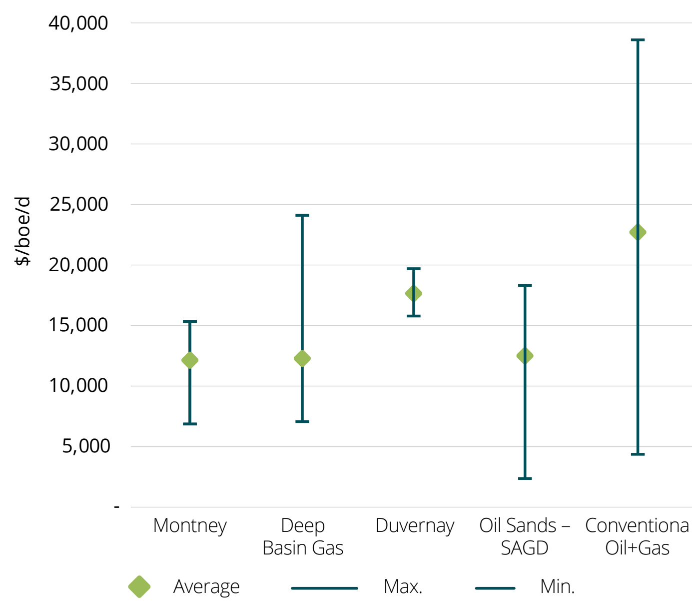
The ability to access capital is another factor driving M&A activity. In a capital-starved sector, attracting new financing and outside investment has been and continues to be challenging. To avoid taking on debt, some corporations have sought to access non-traditional sources, consider alternative exchange listings, enact go-private deals, or complete all-stock deals. The companies that were well-capitalized before COVID-19 arrived and are now in a position to strike deals with those that have limited options.

Trends in environmental, social, and governance (ESG) policies and processes is another key aspect. The pandemic environment has accelerated the scrutiny of these, and organizations are looking for ways to use M&A to incorporate ESG into their long-term strategy. The emphasis within the ESG spectrum applied will depend on where companies sit in the energy ecosystem, but as they look for ways to reduce their carbon footprint and consider their role in the future of energy, we expect M&A will continue to be a prominent path to new avenues of growth.

Upstream transaction split by asset type excluding Husky/Cenovus merger



Upstream transaction value per boe/d by asset type excluding Husky/Cenovus merger



Source: Enervus.

Executing strategy through M&A

Facing increased pressure from investors, oil and gas companies are also adjusting how they deploy their capital. There's growing interest in the most resilient subsectors in the energy value chain as well as many great growth pockets, with opportunities to deploy capital in smart and strategic ways. As the transition away from carbon-based energy toward sustainable, renewable ones continues to attract interest from private equity and pension funds, companies will find there are stepping stones—such as solutions involving natural gas and blue hydrogen—that are a logical extension of their current expertise, strategy, or operations. The prospect exists to both make money and contribute to the broader energy transition with smart investments.

M&A will let companies enter new businesses and change their energy mix. Organizations must look carefully at broader levels of diversification and think strategically about how to balance their business relative to the ways the world—and consumer behaviour—are changing. The growing certainty about the pathways to decarbonization in the oil and gas sector should help companies feel more confident using M&A to execute their strategic goals.

To learn more about the trends in M&A in the sector, read **Deloitte's 2021 oil and gas M&A outlook.**

Canadian domestic price forecast

Crude oil price and market demand forecast

Edmonton par (real $)

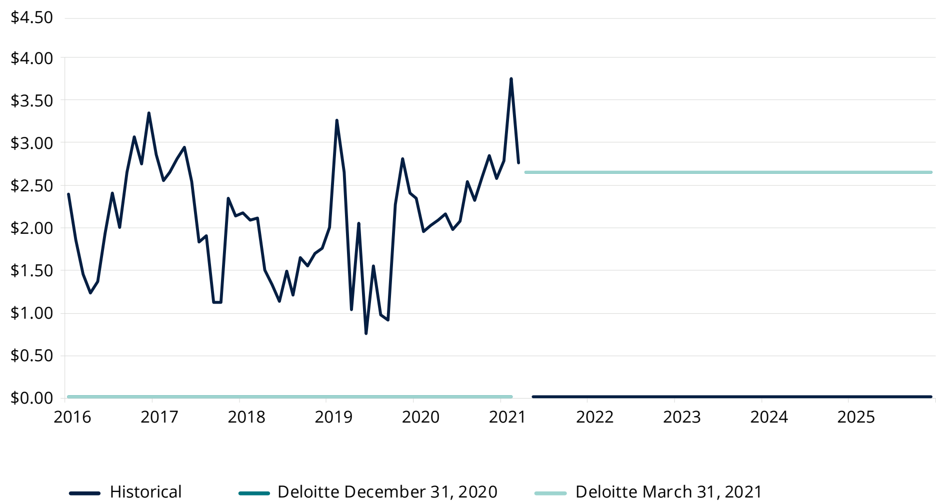
Forecast comments

- 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)	WTI Cushing, OK (40 API)	Edmonton City Gate (40 API)	Edmonton City Gate (40 API)	WCS Hardisty (20.5 API)	Heavy Oil Hardisty (12 API)	Cost Inflation	CAD to USD Exchange
	US$/bbl Real	US$/bbl Current	C$/bbl Real	C$/bbl Current	C$/bbl Current	C$/bbl Current	Rate	Rate
Historical								
2018	$68.25	$64.94	$72.63	$69.10	$49.68	$45.34	2.3%	0.772
2019	$58.54	$56.98	$70.90	$69.02	$58.75	$55.11	1.9%	0.754
2020	$39.51	$39.23	$46.02	$45.69	$35.60	$31.48	0.7%	0.746
2021								
3 Mths H	$58.23	$58.23	$67.29	$67.29	$58.21	$50.33	1.1%	0.790
9 Mths F	$58.00	$58.00	$67.10	$67.10	$59.50	$54.50	0.0%	0.790
Avg.	$58.06	$58.06	$67.15	$67.15	$59.18	$53.46	-	0.790
Forecast								
2021	$58.00	$58.00	$67.10	$67.10	$59.50	$54.50	0.0%	0.790
2022	$56.50	$57.65	$64.40	$65.70	$55.50	$50.40	2.0%	0.800
2023	$55.00	$57.20	$62.50	$65.05	$52.00	$46.80	2.0%	0.800
2024	$55.00	$58.35	$62.50	$66.35	$53.05	$47.75	2.0%	0.800
2025	$55.00	$59.55	$62.50	$67.65	$54.10	$48.70	2.0%	0.800
2026	$55.00	$60.70	$62.50	$69.00	$55.20	$49.70	2.0%	0.800
2027	$55.00	$61.95	$62.50	$70.40	$56.30	$50.70	2.0%	0.800
2028	$55.00	$63.20	$62.50	$71.80	$57.45	$51.70	2.0%	0.800

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$/Mcf	C$/Mcf	C$/Mcf	C$/Mcf	US$/Mcf	US$/Mcf
	Current	Real	Current	Current	Real	Current
Historical						
2018	$1.36	$1.62	$1.54	$1.26	$3.33	$3.17
2019	$1.48	$1.86	$1.81	$1.02	$2.64	$2.57
2020	$2.00	$2.27	$2.25	$2.20	$2.05	$2.04
2021						
3 Mths H	$2.79	$3.14	$3.14	$3.03	$3.59	$3.59
9 Mths F	$2.40	$2.65	$2.65	$2.60	$2.70	$2.70
Avg.	$2.50	$2.77	$2.77	$2.71	$2.92	$2.92
Forecast						
2021	$2.40	$2.65	$2.65	$2.60	$2.70	$2.70
2022	$2.45	$2.65	$2.70	$2.65	$2.80	$2.85
2023	$2.50	$2.65	$2.75	$2.70	$2.90	$3.00
2024	$2.55	$2.65	$2.80	$2.75	$2.90	$3.10
2025	$2.60	$2.65	$2.85	$2.80	$2.90	$3.15
2026	$2.65	$2.65	$2.95	$2.85	$2.90	$3.20
2027	$2.70	$2.65	$3.00	$2.95	$2.90	$3.25
2028	$2.75	$2.65	$3.05	$3.00	$2.90	$3.35

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
	Current	Current	Current	Current	Current	Current	Current
Forecast							
2021	$58.00	$62.00	$56.00	$61.50	$62.00	$57.00	$62.10
2022	$57.65	$61.70	$55.60	$61.20	$61.70	$54.55	$61.80
2023	$57.20	$61.40	$55.15	$60.85	$61.40	$54.10	$61.50
2024	$58.35	$62.60	$56.25	$62.10	$62.60	$55.20	$62.70
2025	$59.55	$63.85	$57.35	$63.30	$63.85	$56.30	$63.95
2026	$60.70	$65.15	$58.50	$64.60	$65.15	$57.40	$65.25
2027	$61.95	$66.45	$59.70	$65.90	$66.45	$58.55	$66.55
2028	$63.20	$67.75	$60.90	$67.20	$67.75	$59.75	$67.90

- 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% 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

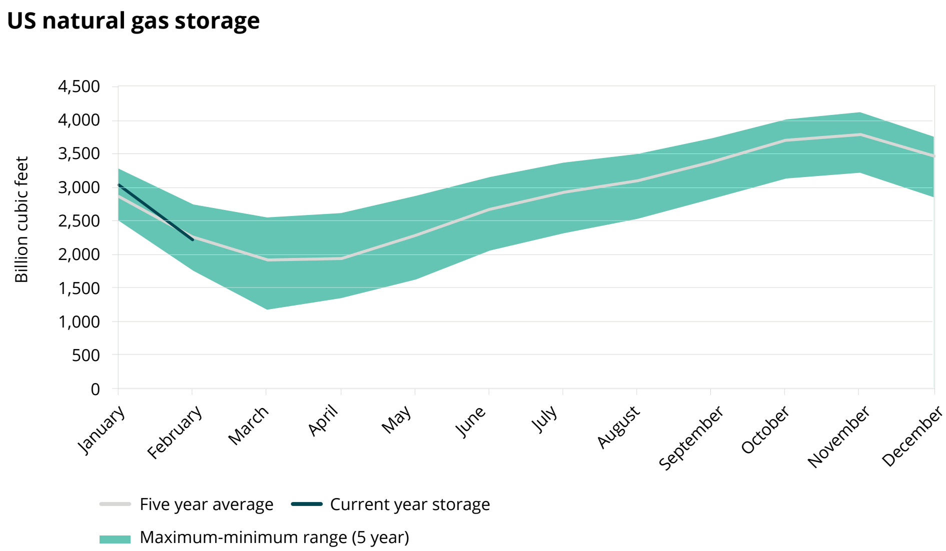
Year	USD to GBP Exchange	USD to EUR Exchange	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mountain Opal	UK NBP	India Domestic Gas
			US$/Mcf	US$/Mcf	US$/Mcf	US$/Mcf	US$/Mcf	US$/Mcf
	Rate	Rate	Current	Current	Current	Current	Current	Current
Forecast								
2021	1.40	1.22	$2.70	$1.95	$2.35	$2.50	$5.95	$2.00
2022	1.40	1.22	$2.85	$2.10	$2.50	$2.65	$5.65	$3.15
2023	1.40	1.22	$3.00	$2.25	$2.65	$2.80	$5.60	$3.10
2024	1.40	1.22	$3.10	$2.30	$2.70	$2.85	$5.75	$3.20
2025	1.40	1.22	$3.15	$2.35	$2.75	$2.90	$5.85	$3.25
2026	1.40	1.22	$3.20	$2.35	$2.80	$3.00	$5.95	$3.30
2027	1.40	1.22	$3.25	$2.40	$2.85	$3.05	$6.10	$3.40
2028	1.40	1.22	$3.35	$2.45	$2.95	$3.10	$6.20	$3.45

Global trends

Storage

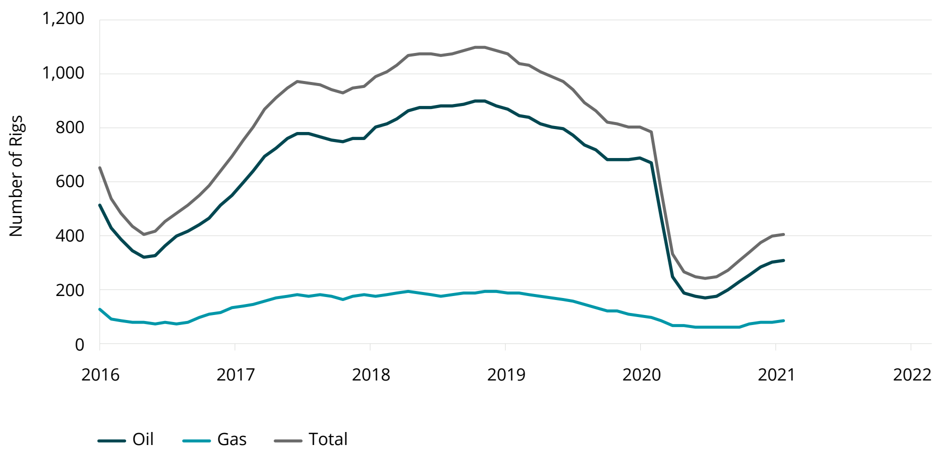
United States

Natural gas storage in the United States has begun to trend below the five year average due to slowing growth in gas production and a cold winter.



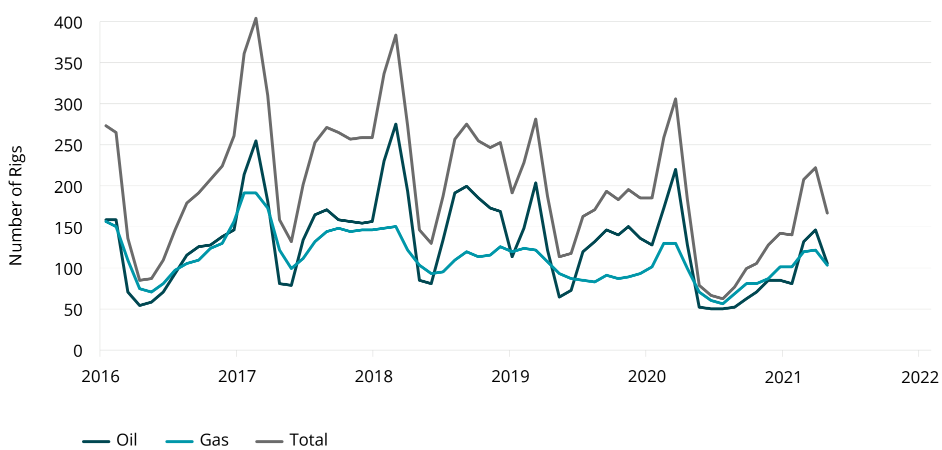
Source: Baker Hughes.

US rig counts



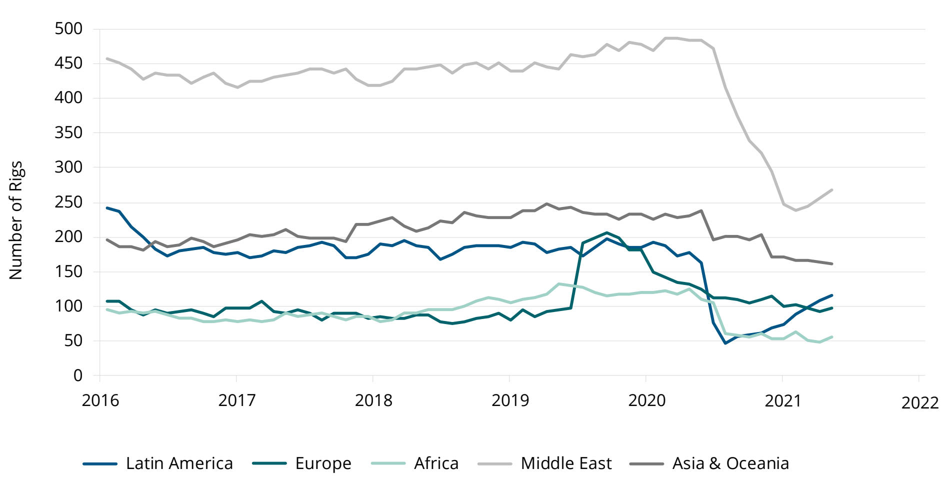
Source: Baker Hughes.

Canada rig counts



Source: Baker Hughes.

International rig counts



Source: Baker Hughes.

Rigs

United States

Both oil and gas rig counts have begun levelling off in recent months after growing through the end of 2020, even while oil and gas prices have strengthened.

Canada

Oil rig counts remain historically low, with peak winter drilling activity down significantly compared to prior years. With strengthening gas prices this winter, gas rig counts peaked at a level close to that seen in the last two years.

International

Rig counts in the Middle East have begun to rise as OPEC nations look to begin easing production costs as prices rise. Latin America continues to see increased drilling activity, particularly in Argentina and Colombia.

Canadian domestic price tables

			Crude Oil Pricing					
Year	Price Inflation	Cost Inflation	CAD to USD Exchange	WTI at Cushing Oklahoma	WTI at Cushing Oklahoma	Edmonton City Gate	Edmonton City Gate	WCS 20.5 Deg. API Hardisty
				US$/bbl	US$/bbl	C$/bbl	C$/bbl	C$/bbl
	Rate	Rate	Rate	Real	Current	Real	Current	Current
Historical								
2011	2.9%	2.9%	1.012	$111.95	$94.88	$112.72	$95.54	$77.12
2012	1.5%	1.5%	1.001	$107.80	$94.11	$99.16	$86.57	$73.10
2013	0.9%	0.9%	0.972	$110.44	$97.91	$105.31	$93.36	$74.97
2014	1.9%	1.9%	0.906	$104.21	$93.26	$105.03	$94.00	$81.06
2015	1.1%	1.1%	0.783	$53.37	$48.69	$62.48	$57.00	$44.80
2016	1.4%	1.4%	0.755	$46.77	$43.15	$56.59	$52.22	$38.90
2017	1.6%	1.6%	0.771	$54.35	$50.88	$66.10	$61.88	$50.53
2018	2.3%	2.3%	0.772	$68.25	$64.94	$72.63	$69.10	$49.68
2019	1.9%	1.9%	0.754	$58.54	$56.98	$70.90	$69.02	$58.75
2020	0.7%	0.7%	0.746	$39.51	$39.23	$46.02	$45.69	$35.60
2021								
3 Mths H	1.1%	1.1%	0.790	$58.23	$58.23	$67.29	$67.29	$58.21
9 Mths F	0.0%	0.0%	0.790	$58.00	$58.00	$67.10	$67.10	$59.50
Avg.	N/A	N/A	0.790	$58.06	$58.06	$67.15	$67.15	$59.18
Forecast								
2021	0.0%	0.0%	0.790	$58.00	$58.00	$67.10	$67.10	$59.50
2022	2.0%	2.0%	0.800	$56.50	$57.65	$64.40	$65.70	$55.50
2023	2.0%	2.0%	0.800	$55.00	$57.20	$62.50	$65.05	$52.00
2024	2.0%	2.0%	0.800	$55.00	$58.35	$62.50	$66.35	$53.05
2025	2.0%	2.0%	0.800	$55.00	$59.55	$62.50	$67.65	$54.10
2026	2.0%	2.0%	0.800	$55.00	$60.70	$62.50	$69.00	$55.20
2027	2.0%	2.0%	0.800	$55.00	$61.95	$62.50	$70.40	$56.30
2028	2.0%	2.0%	0.800	$55.00	$63.20	$62.50	$71.80	$57.45
2029	2.0%	2.0%	0.800	$55.00	$64.45	$62.50	$73.25	$58.60
2030	2.0%	2.0%	0.800	$55.00	$65.75	$62.50	$74.70	$59.75
2031	2.0%	2.0%	0.800	$55.00	$67.05	$62.50	$76.20	$60.95
2032	2.0%	2.0%	0.800	$55.00	$68.40	$62.50	$77.70	$62.15
2033	2.0%	2.0%	0.800	$55.00	$69.75	$62.50	$79.25	$63.40
2034	2.0%	2.0%	0.800	$55.00	$71.15	$62.50	$80.85	$64.70
2035	2.0%	2.0%	0.800	$55.00	$72.55	$62.50	$82.45	$65.95
2036	2.0%	2.0%	0.800	$55.00	$74.00	$62.50	$84.10	$67.30
2037	2.0%	2.0%	0.800	$55.00	$75.50	$62.50	$85.80	$68.65
2038	2.0%	2.0%	0.800	$55.00	$77.00	$62.50	$87.50	$70.00
2039	2.0%	2.0%	0.800	$55.00	$78.55	$62.50	$89.25	$71.40
2040	2.0%	2.0%	0.800	$55.00	$80.10	$62.50	$91.05	$72.85
2040+	2.0%	2.0%	0.800	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 2021 dollars with no escalation considered

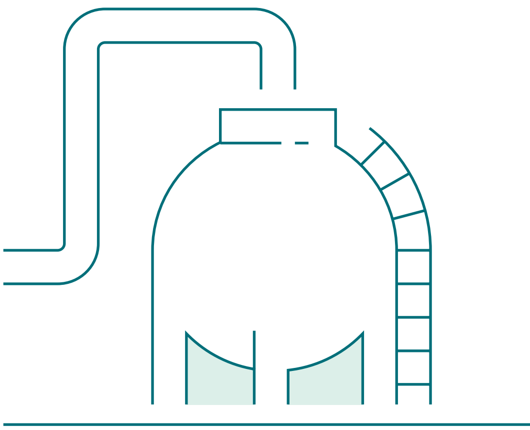
Year	Natural Gas Liquids Pricing Edmonton Par Prices				Natural Gas Pricing						Sulphur
	Ethane	Propane	Butane	Pentanes + Condensate	Alberta Reference Avg. Price	Alberta AECO Avg. Price	Alberta AECO Avg. Price	B.C. Direct Stn. 2 Sales	NYMEX Henry Hub	NYMEX Henry Hub	Alberta Plant Gate
	C$/bbl	C$/bbl	C$/bbl	C$/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											
2011	$10.30	$52.41	$86.98	$105.24	$3.46	$4.28	$3.63	$3.34	$4.72	$4.00	$101.60
2012	$6.73	$30.80	$75.47	$99.67	$2.25	$2.74	$2.39	$2.29	$3.15	$2.75	$126.81
2013	$8.68	$38.54	$77.44	$103.52	$2.98	$3.58	$3.17	$3.11	$4.21	$3.73	$62.17
2014	$12.46	$42.93	$59.43	$101.47	$4.22	$5.03	$4.50	$4.16	$4.91	$4.39	$88.99
2015	$7.49	$5.35	$33.70	$55.15	$2.56	$2.95	$2.69	$1.81	$2.88	$2.63	$107.45
2016	$6.04	$8.71	$31.45	$52.43	$1.93	$2.34	$2.16	$1.75	$2.73	$2.52	$45.40
2017	$6.11	$27.92	$40.98	$63.65	$2.13	$2.34	$2.19	$1.56	$3.19	$2.99	$41.85
2018	$6.90	$29.76	$46.17	$75.74	$1.36	$1.62	$1.54	$1.26	$3.33	$3.17	$89.25
2019	$5.00	$15.82	$21.40	$67.57	$1.48	$1.86	$1.81	$1.02	$2.64	$2.57	$37.54
2020	$6.20	$16.11	$20.93	$47.14	$2.00	$2.27	$2.25	$2.20	$2.05	$2.04	$2.60
2021											
3 Mths H	$9.04	$40.92	$37.26	$71.06	$2.79	$3.14	$3.14	$3.03	$3.59	$3.59	$18.88
9 Mths F	$7.30	$30.20	$36.90	$70.45	$2.40	$2.65	$2.65	$2.60	$2.70	$2.70	$15.00
Avg.	$7.73	$32.88	$36.99	$70.60	$2.50	$2.77	$2.77	$2.71	$2.92	$2.92	$15.97
Forecast											
2021	$7.30	$30.20	$36.90	$70.45	$2.40	$2.65	$2.65	$2.60	$2.70	$2.70	$15.00
2022	$7.45	$29.60	$42.70	$65.70	$2.45	$2.65	$2.70	$2.65	$2.80	$2.85	$30.60
2023	$7.60	$29.30	$42.30	$65.05	$2.50	$2.65	$2.75	$2.70	$2.90	$3.00	$31.20
2024	$7.75	$29.85	$43.15	$66.35	$2.55	$2.65	$2.80	$2.75	$2.90	$3.10	$31.85
2025	$7.90	$30.45	$44.00	$67.65	$2.60	$2.65	$2.85	$2.80	$2.90	$3.15	$32.45
2026	$8.05	$31.10	$44.90	$69.00	$2.65	$2.65	$2.95	$2.85	$2.90	$3.20	$33.10
2027	$8.20	$31.70	$45.80	$70.40	$2.70	$2.65	$3.00	$2.95	$2.90	$3.25	$33.80
2028	$8.40	$32.35	$46.70	$71.80	$2.75	$2.65	$3.05	$3.00	$2.90	$3.35	$34.45
2029	$8.55	$33.00	$47.65	$73.25	$2.80	$2.65	$3.10	$3.05	$2.90	$3.40	$35.15
2030	$8.70	$33.65	$48.60	$74.70	$2.85	$2.65	$3.15	$3.10	$2.90	$3.45	$35.85
2031	$8.90	$34.30	$49.55	$76.20	$2.95	$2.65	$3.25	$3.15	$2.90	$3.55	$36.55
2032	$9.10	$35.00	$50.55	$77.70	$3.00	$2.65	$3.30	$3.25	$2.90	$3.60	$37.30
2033	$9.25	$35.70	$51.55	$79.25	$3.05	$2.65	$3.35	$3.30	$2.90	$3.70	$38.05
2034	$9.45	$36.40	$52.60	$80.85	$3.10	$2.65	$3.45	$3.35	$2.90	$3.75	$38.80
2035	$9.65	$37.15	$53.65	$82.45	$3.15	$2.65	$3.50	$3.45	$2.90	$3.85	$39.60
2036	$9.80	$37.90	$54.70	$84.10	$3.25	$2.65	$3.55	$3.50	$2.90	$3.90	$40.40
2037	$10.00	$38.65	$55.80	$85.80	$3.30	$2.65	$3.65	$3.55	$2.90	$4.00	$41.20
2038	$10.20	$39.40	$56.90	$87.50	$3.35	$2.65	$3.70	$3.65	$2.90	$4.05	$42.00
2039	$10.45	$40.20	$58.05	$89.25	$3.45	$2.65	$3.80	$3.70	$2.90	$4.15	$42.85
2040	$10.65	$41.00	$59.20	$91.05	$3.50	$2.65	$3.85	$3.80	$2.90	$4.20	$43.70
2040+	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	2.0%	2.0%	0.0%	2.0%	2.0%

Notes:

- Data sources include: EIA, DOB, NRC, Flint Hills Resources, Alberta Government
- All prices are in Canadian dollars except WTI and NYMEX gas which are in US 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 2021 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

Additional crude reference prices

Year	Crude oil pricing Lt. Sour 35 Deg. API Cromer, SK	MSO 31 Deg. API Hardisty	Synbit (AWB) 70% Bitumen 30% Cond. 21 Deg. API	Natural gas pricing Ontario Dawn Reference Point
	C$/bbl	C$/bbl	C$/bbl	C$/mcf
	Current	Current	Current	Current
Historical				
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	$73.06	$62.82	$54.46	$4.07
2019	$69.68	$65.72	$58.85	$3.22
2020	$45.41	$43.55	$36.18	$2.51
2021				
3 Mths H	$61.24	$57.15	$48.89	$3.41
9 Mths F	$68.10	$63.10	$59.30	$3.20
Avg.	$66.38	$61.61	$56.70	$3.25
Forecast				
2021	$68.10	$63.10	$59.30	$3.20
2022	$66.70	$61.60	$55.00	$3.35
2023	$66.05	$60.85	$52.30	$3.60
2024	$67.40	$62.10	$53.35	$3.65
2025	$68.75	$63.30	$54.40	$3.75
2026	$70.10	$64.60	$55.50	$3.80
2027	$71.50	$65.90	$56.60	$3.90
2028	$72.95	$67.20	$57.70	$3.95
2029	$74.40	$68.55	$58.90	$4.05
2030	$75.90	$69.90	$60.05	$4.10
2031	$77.40	$71.30	$61.25	$4.20
2032	$78.95	$72.75	$62.50	$4.30
2033	$80.55	$74.20	$63.75	$4.40
2034	$82.15	$75.70	$65.00	$4.45
2035	$83.80	$77.20	$66.30	$4.55
2036	$85.45	$78.75	$67.65	$4.65
2037	$87.15	$80.30	$69.00	$4.75
2038	$88.90	$81.90	$70.35	$4.85
2039	$90.70	$83.55	$71.75	$4.95
2040	$92.50	$85.20	$73.20	$5.05
2040+	2.0%	2.0%	2.0%	2.0%



Notes:

- Data sources include: EIA, DOB, NRC, Flint Hills Resources, Alberta Government
- All prices are in Canadian dollars except WTI and NYMEX gas which are in US 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 2021 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

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 Merey	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
	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current
Forecast																
2021	$58.00	$52.50	$57.00	$56.00	$56.50	$56.00	$53.00	$62.00	$56.00	$61.50	$47.00	$62.00	$61.00	$57.00	$62.10	$59.50
2022	$57.65	$52.00	$56.60	$55.60	$56.10	$55.60	$52.55	$61.70	$55.60	$61.20	$46.40	$61.70	$60.70	$54.55	$61.80	$59.15
2023	$57.20	$51.50	$56.20	$55.15	$55.65	$55.15	$52.00	$61.40	$55.15	$60.85	$45.80	$61.40	$60.35	$54.10	$61.50	$58.80
2024	$58.35	$52.55	$57.30	$56.25	$56.75	$56.25	$53.05	$62.60	$56.25	$62.10	$46.70	$62.60	$61.55	$55.20	$62.70	$59.95
2025	$59.55	$53.60	$58.45	$57.35	$57.90	$57.35	$54.10	$63.85	$57.35	$63.30	$47.65	$63.85	$62.80	$56.30	$63.95	$61.15
2026	$60.70	$54.65	$59.60	$58.50	$59.05	$58.50	$55.20	$65.15	$58.50	$64.60	$48.60	$65.15	$64.05	$57.40	$65.25	$62.40
2027	$61.95	$55.75	$60.80	$59.70	$60.25	$59.70	$56.30	$66.45	$59.70	$65.90	$49.55	$66.45	$65.30	$58.55	$66.55	$63.65
2028	$63.20	$56.85	$62.05	$60.90	$61.45	$60.90	$57.45	$67.75	$60.90	$67.20	$50.55	$67.75	$66.60	$59.75	$67.90	$64.90
2029	$64.45	$58.00	$63.25	$62.10	$62.70	$62.10	$58.60	$69.15	$62.10	$68.55	$51.55	$69.15	$67.95	$60.95	$69.25	$66.20
2030	$65.75	$59.15	$64.55	$63.35	$63.95	$63.35	$59.75	$70.50	$63.35	$69.90	$52.60	$70.50	$69.30	$62.15	$70.65	$67.50
2031	$67.05	$60.35	$65.85	$64.60	$65.20	$64.60	$60.95	$71.90	$64.60	$71.30	$53.65	$71.90	$70.70	$63.40	$72.05	$68.85
2032	$68.40	$61.55	$67.15	$65.90	$66.50	$65.90	$62.15	$73.35	$65.90	$72.75	$54.70	$73.35	$72.10	$64.65	$73.50	$70.25
2033	$69.75	$62.80	$68.50	$67.20	$67.85	$67.20	$63.40	$74.85	$67.20	$74.20	$55.80	$74.85	$73.55	$65.95	$74.95	$71.65
2034	$71.15	$64.05	$69.85	$68.55	$69.20	$68.55	$64.70	$76.30	$68.55	$75.70	$56.90	$76.30	$75.05	$67.25	$76.45	$73.10
2035	$72.55	$65.30	$71.25	$69.95	$70.60	$69.95	$65.95	$77.85	$69.95	$77.20	$58.05	$77.85	$76.55	$68.60	$78.00	$74.55
2036	$74.00	$66.60	$72.70	$71.35	$72.00	$71.35	$67.30	$79.40	$71.35	$78.75	$59.20	$79.40	$78.05	$70.00	$79.55	$76.05
2037	$75.50	$67.95	$74.15	$72.75	$73.45	$72.75	$68.65	$81.00	$72.75	$80.30	$60.40	$81.00	$79.60	$71.40	$81.15	$77.55
2038	$77.00	$69.30	$75.60	$74.20	$74.90	$74.20	$70.00	$82.60	$74.20	$81.90	$61.60	$82.60	$81.20	$72.80	$82.75	$79.10
2039	$78.55	$70.70	$77.15	$75.70	$76.40	$75.70	$71.40	$84.25	$75.70	$83.55	$62.85	$84.25	$82.85	$74.25	$84.40	$80.70
2040	$80.10	$72.10	$78.65	$77.20	$77.95	$77.20	$72.85	$85.95	$77.20	$85.20	$64.10	$85.95	$84.50	$75.75	$86.10	$82.30
2040+	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Notes:

- Data sources include: EIA, OPEC, ARC Energy, Marex Spectron
- Venezuelan Merey replaced BCF-17 in the OPEC basket March 1, 2009.

Year	USD to GBP	USD to EUR	Natural Gas pricing NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mtn. Opal	UK NBP	India Domestic Gas	Ethanol US CBOT Ethanol
	Exchange rate	Exchange rate	US$/Mcf Current	US$/Mcf Current	US$/Mcf Current	US$/Mcf Current	US$/Mcf Current	US$/Mcf Current	US$/gal Current
Forecast									
2021	1.400	1.220	$2.70	$1.95	$2.35	$2.50	$5.95	$2.00	$1.80
2022	1.400	1.220	$2.85	$2.10	$2.50	$2.65	$5.65	$3.15	$1.85
2023	1.400	1.220	$3.00	$2.25	$2.65	$2.80	$5.60	$3.10	$1.85
2024	1.400	1.220	$3.10	$2.30	$2.70	$2.85	$5.75	$3.20	$1.90
2025	1.400	1.220	$3.15	$2.35	$2.75	$2.90	$5.85	$3.25	$1.95
2026	1.400	1.220	$3.20	$2.35	$2.80	$3.00	$5.95	$3.30	$2.00
2027	1.400	1.220	$3.25	$2.40	$2.85	$3.05	$6.10	$3.40	$2.05
2028	1.400	1.220	$3.35	$2.45	$2.95	$3.10	$6.20	$3.45	$2.05
2029	1.400	1.220	$3.40	$2.50	$3.00	$3.15	$6.35	$3.50	$2.10
2030	1.400	1.220	$3.45	$2.55	$3.05	$3.25	$6.45	$3.60	$2.15
2031	1.400	1.220	$3.55	$2.60	$3.10	$3.30	$6.60	$3.65	$2.20
2032	1.400	1.220	$3.60	$2.65	$3.15	$3.35	$6.70	$3.75	$2.25
2033	1.400	1.220	$3.70	$2.75	$3.25	$3.40	$6.85	$3.80	$2.30
2034	1.400	1.220	$3.75	$2.80	$3.30	$3.50	$7.00	$3.90	$2.35
2035	1.400	1.220	$3.85	$2.85	$3.35	$3.55	$7.15	$3.95	$2.40
2036	1.400	1.220	$3.90	$2.90	$3.45	$3.65	$7.25	$4.05	$2.40
2037	1.400	1.220	$4.00	$2.95	$3.50	$3.70	$7.40	$4.10	$2.45
2038	1.400	1.220	$4.05	$3.00	$3.55	$3.80	$7.55	$4.20	$2.50
2039	1.400	1.220	$4.15	$3.05	$3.65	$3.85	$7.70	$4.30	$2.55
2040	1.400	1.220	$4.20	$3.15	$3.70	$3.95	$7.85	$4.35	$2.60
2040+	1.400	1.220	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Notes:

- Data sources include: EIA, OPEC, ARC Energy, Marex Spectron
- Venezuelan Merey replaced BCF-17 in the OPEC basket March 1, 2009.

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 US 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.

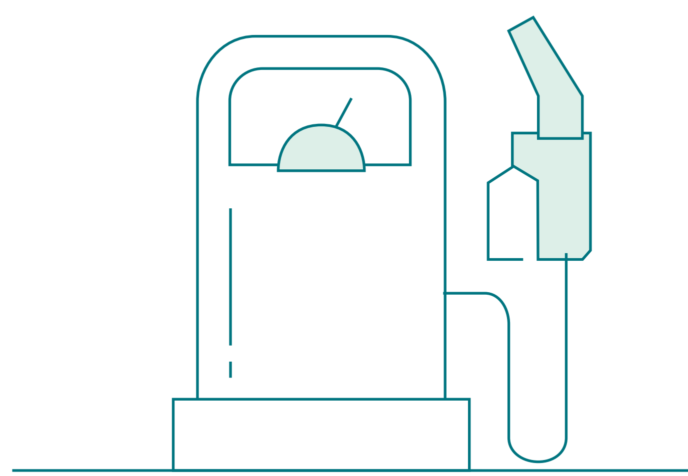
Deloitte prepares our price and market forecasts based on information we collect from numerous government agencies, industry publications, oil refineries, natural gas marketers and industry trends. Inflation forecasts and exchange rates are also an integral part of the forecast.

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



Contacts

Andrew Botterill
403-648-3239
abotterill@deloitte.ca

Lesley Mitchell
403-648-3215
lemitchell@deloitte.ca

Jamie Avey
403-613-4948
javey@deloitte.ca

Sarah Clowes
587-293-3201
saclowes@deloitte.ca

Jonathan Listoe
403-648-3254
jlistoe@deloitte.ca

Deloitte
Bankers Court
700, 850 - 2 Street SW
Calgary AB T2P 0R8
Canada

Tel: 403-267-1700
Fax: 587-774-5398

www.deloitte.ca/priceforecast