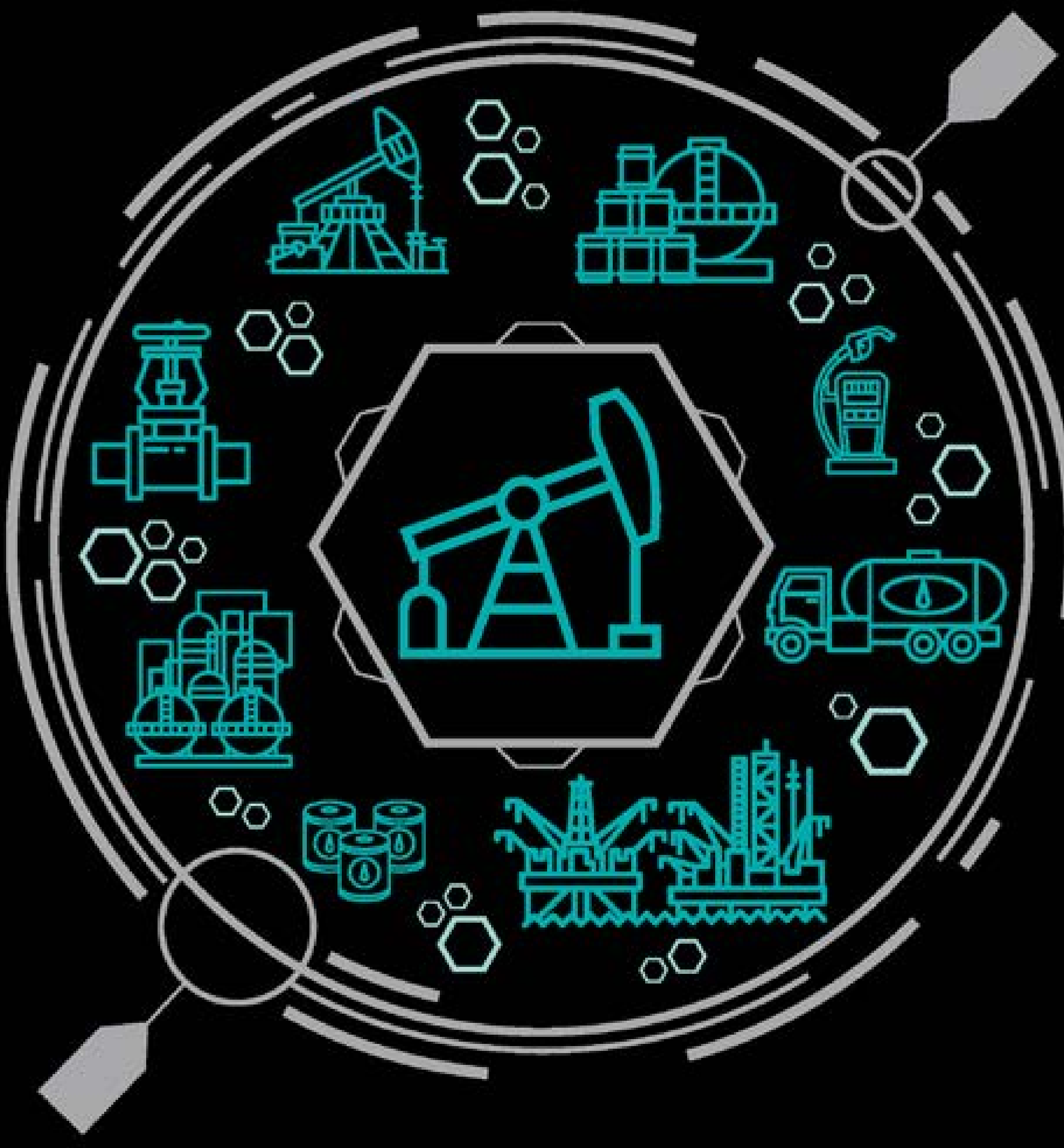
Deloitte.



Price forecast

Oil, gas & chemicals

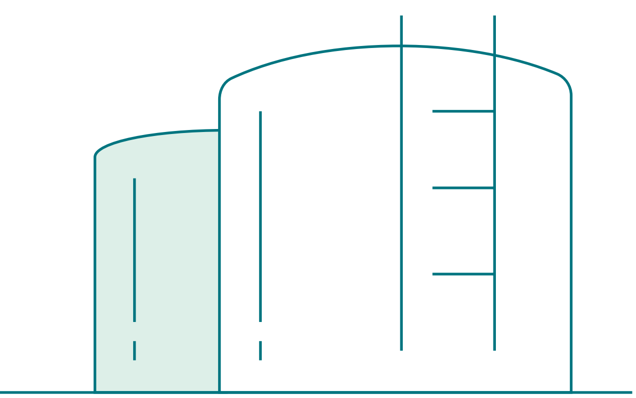
June 30, 2020

Forecast commentary

Demand starting to turn a corner, but industry could be slow to accelerate....
Three months of dramatic disruption due to the COVID-19 pandemic has created major shakeups in many industries in Q2, as detailed by our Chief Economist Craig Alexander in his latest **quarterly economic report**. The oil and gas sector was particularly hard hit, suffering its largest demand shock in history. With supply volumes significantly outpacing demand, crude oil storage capacities filled and prices fell to record lows. Crude oil market dynamics and the accumulated global oversupply forced producers to cut crude oil supply by nearly 12 MMbbl/d[1], with OPEC+ countries[2] shutting in 9.4 MMbbl/d for May and maintaining production cuts of 9.7 MMbbl/d through July.

There is some light at the end of the tunnel, however, as countries emerging from COVID-19 lockdowns improved crude oil demand over the past few weeks. Crude oil oversupply volumes will begin to draw down and prices should improve in the latter half of the year as businesses begin to resume operations and governments lift more restrictions. The sector's recovery will ultimately depend on the diligence of nations during the easing of lockdown restrictions, the duration and timing of the eventual reduction of the global production shut-ins, and disruptions to recovery efforts if there is a second wave of the virus.

There is some light at the end of the tunnel, however, as countries emerging from COVID-19 lockdowns improved crude oil demand over the past few weeks.



[1] IEA, IEA Oil Market Report - June 2020, accessed June 17, 2020 https://www.iea.org/reports/oil-market-report-june-2020
[2] OPEC+ includes OPEC member countries plus Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, and Sudan.

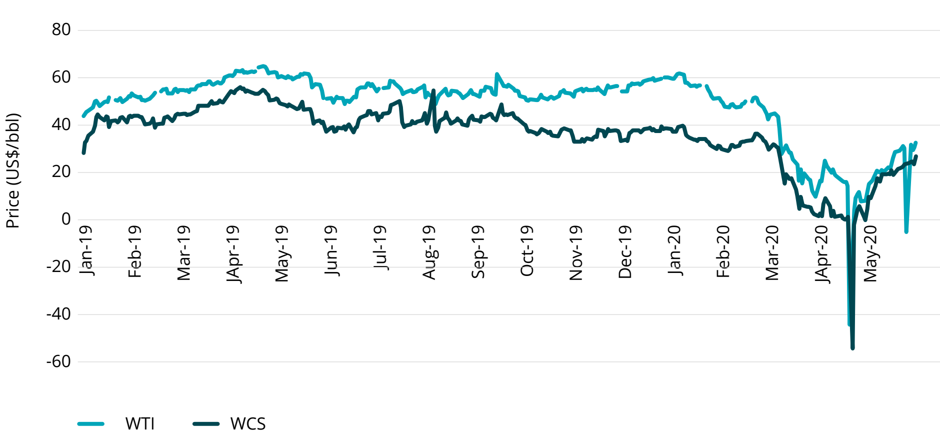
Oil: Behavioural shifts may have long-lasting impact

In April 2020, crude oil prices fell to record lows, with WTI and WCS prices even posting in negative territory. This price volatility led North American producers to force shut in 2.4 MMbbl/d[3] of crude oil production in an effort to mitigate limited access to storage capacity amid supply and demand imbalances.

As Canadian and US authorities eased restrictions, a rising demand for refined product for road transportation has resulted in increased refinery utilization rates compared to prior weeks, although those rates are still trending well below historical values. A positive for Canadian heavy oil producers could be increased government infrastructure spending as a way to jump-start economies after COVID-19. Road construction in North America typically uses asphalt, which requires heavy crude inputs for refining, using this somewhat niche market for oil sands producers.

The upward trend in crude oil demand has begun to draw down storage levels. As demand continues to increase and prices rise, producers have started easing curtailment efforts and volumes have returned on-stream. This will cause more volatility over the next few months as the market grapples with the correct pace to return supply. The competition between drilled uncompleted wells (DUCs) in US shale plays and oil sands projects will be driven by unique company choices around sunk costs to date and prudent management of overall balance-sheet strength. The costs of bringing production volumes back online, including any well remediation or facility start-up, will also be a factor when determining the price required for specific field types to return on-stream.

Historical oil prices



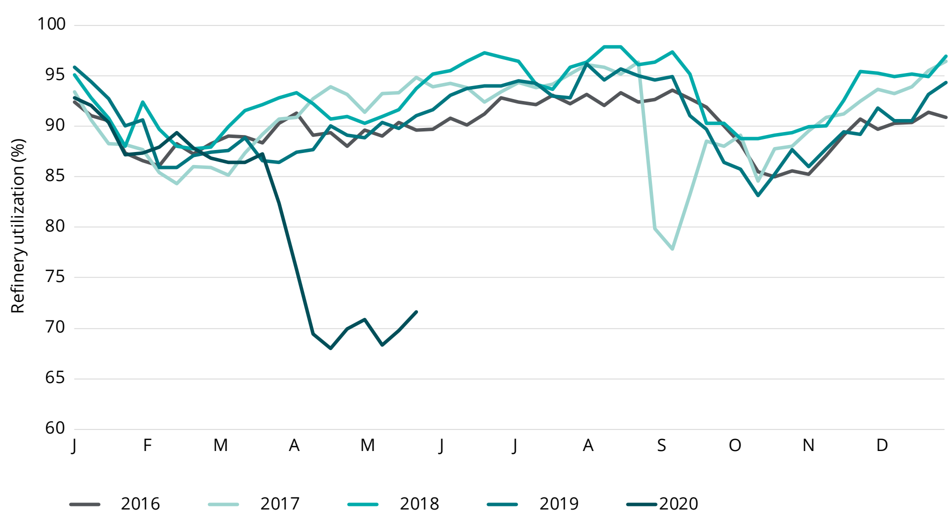
Source: DOB/EIA

[3] Rystad Energy, Forced oil field shut-in tracker dashboard (paid subscription), accessed May 26, 2020. http://https//www.rystadenergy.com/clients/cube-dashboards/workflow/?did=109

The majority of producers have shelved any material development plans for the year as they try to stem bleeding cash flows. Capital spending in the Canadian energy sector has been slashed by $13.7 billion[4] from initial 2020 budgets, with the majority of those reductions attributed to delayed field development, cancelled projects, and scope revisions for facility expansions because of the pandemic. Decreased capital investment in the sector has limited supply growth as companies are no longer replacing volumes through drilling. Companies will look to maintain flat production levels in the latter half of the year to hold cash flow levels, satisfy reserve-based lending commitments, and maximize hedge contracts. Producers are expected to use existing DUCs to fill short-term production gaps as those wells can be brought on-stream with lower capital investment. Delayed field development will affect production levels for the remainder of 2020 and into 2021, leading to stagnant growth of the North American crude oil supply.

Consumer behavioural shifts regarding commuter traffic and business travel along with weakening global trade may change the shape of the demand curve for global crude oil. While the total extent of COVID-19 and the pandemic's lasting impacts on the world are not yet known, this historic event has changed the outlooks for the oil and gas industry and will likely affect the sector for years to come.

US refinery utilization rates



Source: EIA

[4] CBC, *Oil and gas spending estimates adjusted lower as uncertainties persist*, accessed June 16, 2020 https://www.cbc.ca/news/canada/calgary/oil-gas-energy-spending-capp-aer-alberta-1.5603706

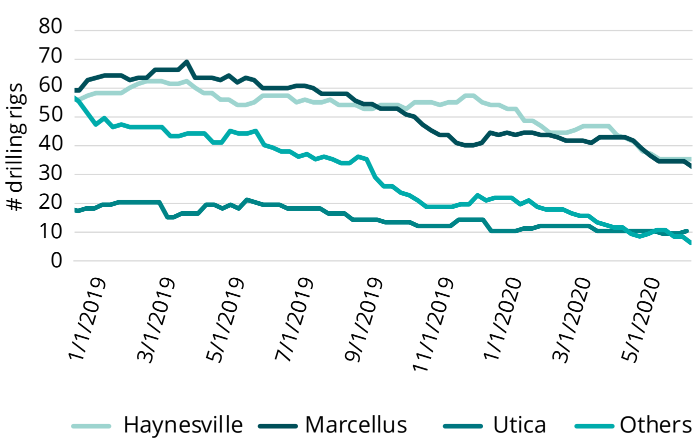
Natural gas: some bright spots in North America

Natural gas has been the bright spot for some producers, with North American domestic AECO and Henry Hub prices expected to rise over the rest of the year. Drilling activity for wells has been on the decline in all United States basins since 2019, even while production had been steadily climbing due to associated volumes from drilling in the Permian and other oil basins. Now that Permian activity has taken a steep dive, associated gas production will drop as well.

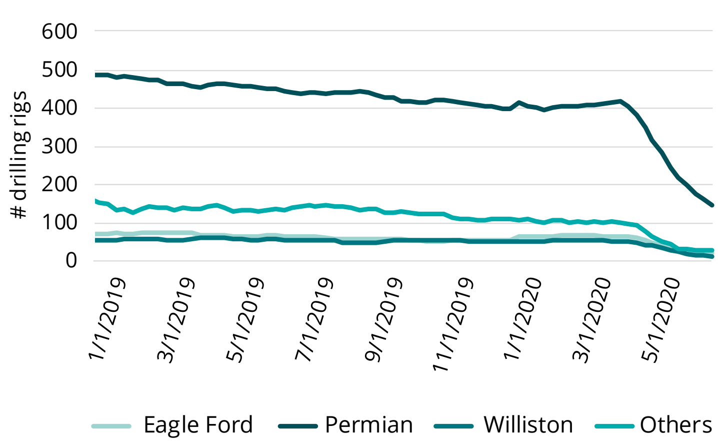
Natural gas production in the United States has fallen by almost 7 percent from a peak of 103 Bcf/d in late 2019. The EIA expects production to drop to 92 Bcf/d by the end of 2020, representing a 10 percent decrease from the start of the year. All major basins in the country are seeing contractions in natural gas production, including the Appalachia and Haynesville basins that target only natural gas. This contraction in volume will strengthen Henry Hub prices, which have been below $2.00/Mcf for most of 2020 but struggled with much lower prices in 2018/2019.

In Canada, natural gas production had been on a downward trend for some time, even with seasonal bumps due to increased activity. Drilling activity has fallen almost as much as oil activity amid low prices for natural gas liquids (NGLs) and industry financing uncertainty. The continued decrease in production, along with stable access to storage, has substantially strengthened AECO prices this year and will continue to do so. There is some concern, however, regarding loss of demand in natural gas as oil sands projects remain shut-in, resulting in less "local" natural gas consumption. The burning of natural gas to generate steam for in-situ operations is the primary concern as fewer thermal projects are currently operating at full capacity, creating less natural gas demand. It is unclear exactly how much natural gas is directly consumed in thermal operations, but we have estimated it to be around 15 percent of all Canadian natural gas production and 25 percent of Alberta natural gas production. Nevertheless, futures do not appear overly concerned with this demand loss even though oil sands production has dropped by almost 20 percent in recent months.

US natural gas drilling activity



US oil drilling activity

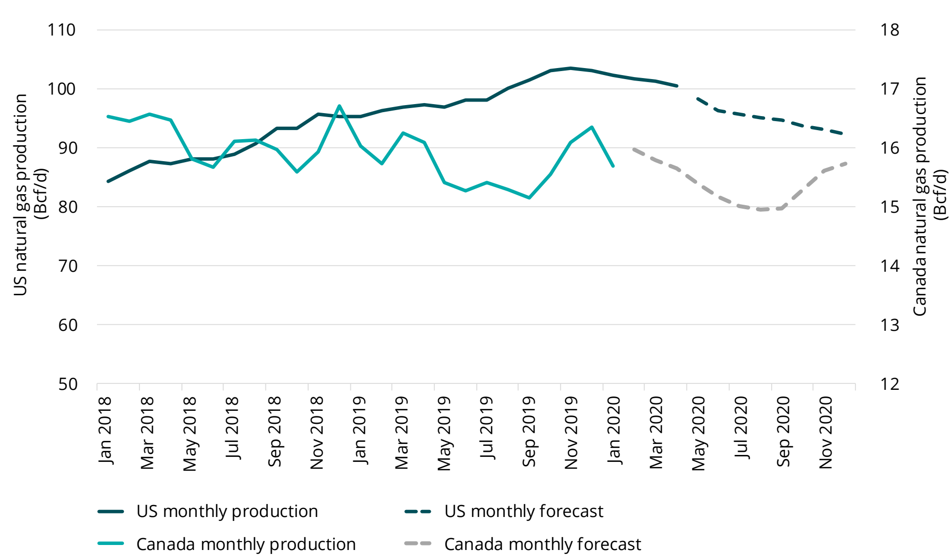


Source: Baker Hughes

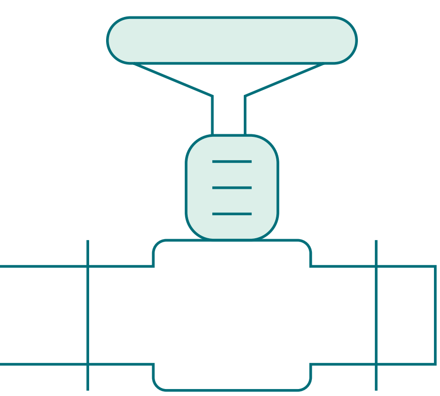
Canadian natural gas producers have managed with very low commodity prices for years, but the main concern to current revenues is the pricing of NGLs such as propane, butane, and condensate, which generate a significant portion of the revenue stream for many natural gas producers (for some, more than 50 percent of their revenue). NGL prices, as reported by the Alberta government, have fallen in a similar pattern as oil prices, resulting in the economic erosion of natural gas wells at a time of strong domestic natural gas prices. Even with these supply and demand concerns and NGL price fallouts, however, the Canadian natural gas market is stronger than it has been for some time.

European gas markets have not fared as well as those in North America. Oversupplied markets and limited available natural gas storage resulted in low European gas prices in Q2 2020. Global LNG market prices have also been very soft this quarter, falling on par with domestic gas prices, although this was anticipated as LNG import regions (Asia and Europe) imposed pandemic restrictions that resulted in much lower demand. With restrictions easing in many parts of the world, we expect prices will improve, but it will take time to recover with overseas storage levels almost to the brim.

North American natural gas production



Source: EIA, CER



O&G sector challenges

In September 2019, we published a series of articles, **Decoding the downturn**, that explores the impacts to each subsector since the downturn in 2014. Although the oil and gas sectors are interconnected, there are specific pressures on each during this current demand shock.

The impact on the upstream sector is primarily price-related. With low prices due to the imbalance of supply and demand, high-cost production assets such as heavy oil operations are being shut-in. Producers are struggling with cash flow as revenues plunge, and companies are assessing the optimal duration of curtailed production in an unpredictable market. The lack of demand has led to high storage levels, which will drag out the price recovery long after the demand recovery is underway.

Many smaller upstream producers are feeling the liquidity pinch as lenders determine their borrowing capacity based on the current price environment. The unpredictability of lending value has resulted in a lack of ability to invest confidently in development, which has a direct implication for oilfield services. The service sector was the hardest hit through the downturn in 2014 and suffered another blow with crude oil curtailment practices that affected development plans. As with previous price downturns in recent years, service companies are again being pushed to provide cost decreases, but unlike previous downturns, margins were already tight for many companies coming into COVID-19. Government fiscal packages that allow for decommissioning activities will support the oilfield service sector, but it will take time to work through the enormous number of applications that reportedly have been submitted.

The midstream sector has typically been the most stable one in Canada, with most of the volatility related to new project approvals. With the current environment, third-party risk has become a major concern (producing companies that may not be able to fulfill their obligations). The lack of investment and shut-in volumes will lead to lower production through midstream infrastructure, which will stress the economics of operating pipelines and processing plants since these assets have very high fixed costs.

As we emphasized in our September 2019 forecast, creative solutions that bring sector participants together to share risk will allow for a healthier industry in the long term, no matter what challenges arise along the way.

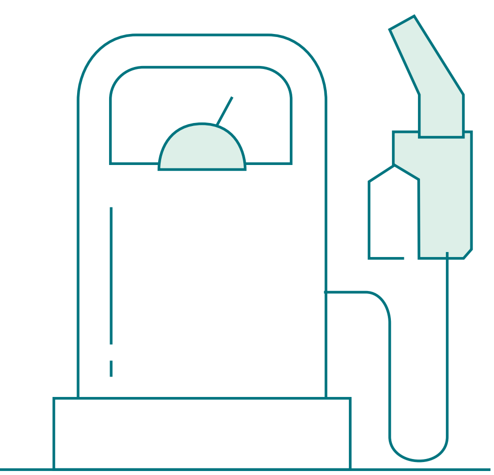
Project execution and COVID-19

- ***Guy Lembach,*** *Partner, Capital Projects and*
Amandeep Singh, *Senior Manager, Capital Projects*

The COVID-19 pandemic and the oil price crash it generated have affected people involved in all aspects of project execution, from those building the project to equipment and material vendors to contractors to the owners making the investment. As a result, fully understanding the repercussions of the pandemic shutdown can be a daunting task in the already complex multi-dimensional environment that is project execution.

Maintaining health and safety is paramount

The primary focus is, of course, on safeguarding everyone's well-being. Ongoing updates to health and safety plans will be required to ensure compliance with local requirements and guidelines on social distancing, testing, and reporting. Given that these requirements and guidelines are evolving, it will become vital to frequently update and implement health and safety protocols. Companies should also consider updating their health and safety metrics to include COVID-19-related indicators such as known cases, known exposure, and persons under quarantine.



Impact of potential claims

After the health and safety framework is updated, the prudent thing to do is to review contracts to fully understand the force majeure clauses and what they mean for the business. The pandemic may qualify as a force majeure event, but different contracts define it differently. Understanding their own contract clauses well will better position companies to respond to claims or notices related to the pandemic.

While developing claim strategies and response plans, companies should consider the impact these may have on the financial health of the relevant parties and any potential repercussions these may have on the project in question. For example, a vendor that is financially stressed may be forced to declare bankruptcy, which would require finding another vendor and shouldering the additional costs associated with retendering, potential rework, and a delay that these activities will cause. It's critical to be balanced, fair, and reasonable with vendors, for everyone's sake.

Companies should also think about what additional progress-monitoring the project team should now start to document in the form of daily logs to support any analysis, such as planned progress versus actual, required for future claims.

Impact on the project

Both new health and safety protocols and potential claims are likely going to affect project objectives in terms of schedule and possible cost overruns. Organizations should conduct an analysis to understand the impact on completion dates and estimated cost to complete, paying particular attention to the impact on productivity, the likelihood and impact of claims, and the increased overhead. The other significant uncertainty is when the pandemic will be over. Therefore, developing and studying a few scenarios—such as a quick return to full-site capacity or prolonged social distancing or prolonged closures—is a smart plan.

The different scenarios and the fluctuating commodity prices will affect the projected project benefits differently, so leaders should prepare various courses of action. If the benefits are severely curtailed, by either price or pandemic, does it still make sense to follow through with the project? What are the options? Should the project be postponed or even cancelled? For projects that are still viable, what is the restart and ramp-up plan?

In developing the restart or ramp-up plans project teams should consider how the workforce will be trained in the new health and safety requirements for social distancing and how these guidelines will be enforced. How will talent be sourced in light of travel restrictions and mandatory quarantine periods for overseas travel? How can emerging technologies be used to enhance remote collaboration?

The bottom line is that the health and safety of employees, vendors, and anyone else working on the project should be driving all decision-making at this time. As the lockdowns enacted to contain the pandemic continue to affect capital project and construction programs, project stakeholders should continue to be vigilant and active in navigating the uncertain situation. Communication among stakeholders is critical. Understanding contractual rights and carefully documenting delays or other impacts can better position a company to re-establish execution as the project recovers and business returns to normal.

Canadian domestic price forecast

Crude oil price and market demand forecast

Edmonton par (real $)

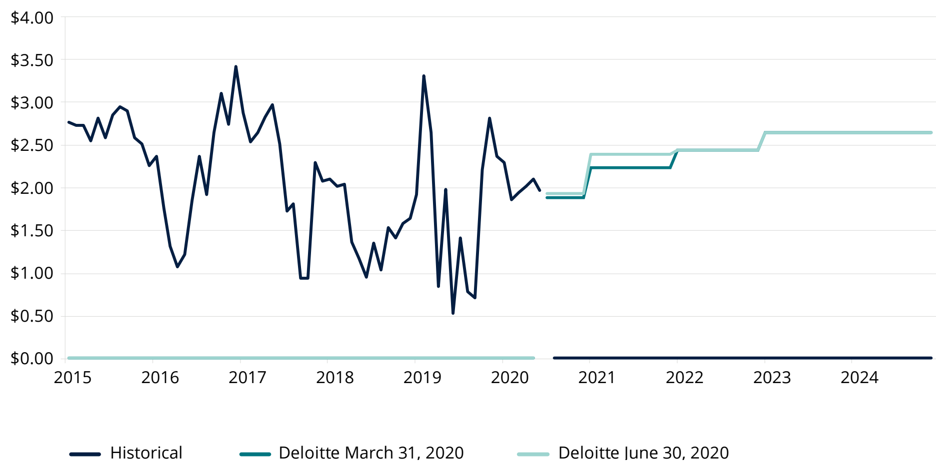
Forecast comments

- 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$/bbl	US$/bbl	C$/bbl	C$/bbl	C$/bbl	C$/bbl		
	Real	Current	Real	Current	Current	Current	Rate	Rate
Historical								
2017	$53.96	$50.88	$65.62	$61.88	$50.53	$45.01	1.6%	0.771
2018	$67.76	$64.94	$72.10	$69.10	$49.68	$45.34	2.3%	0.772
2019	$58.11	$56.98	$70.39	$69.02	$58.75	$55.11	1.9%	0.754
2020								
6 Mths H	$36.65	$36.65	$39.79	$39.79	$29.61	$21.63	1.6%	0.734
6 Mths F	$35.00	$35.00	$40.55	$40.55	$31.10	$26.10	0.0%	0.740
Avg.	$35.83	$35.83	$40.17	$40.17	$30.35	$23.86	-	0.737
Forecast								
2020	$35.00	$35.00	$40.55	$40.55	$31.10	$26.10	0.0%	0.740
2021	$42.50	$43.35	$50.25	$51.25	$38.95	$33.85	2.0%	0.746
2022	$50.00	$52.00	$58.45	$60.80	$47.30	$42.10	2.0%	0.770
2023	$60.00	$63.65	$68.75	$72.95	$59.70	$54.40	2.0%	0.800
2024	$60.00	$64.95	$68.75	$74.40	$60.90	$55.45	2.0%	0.800
2025	$60.00	$66.25	$68.75	$75.90	$62.10	$56.60	2.0%	0.800
2026	$60.00	$67.55	$68.75	$77.40	$63.35	$57.70	2.0%	0.800
2027	$60.00	$68.90	$68.75	$78.95	$64.60	$58.85	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						
2017	$2.13	$2.32	$2.19	$1.56	$3.17	$2.99
2018	$1.36	$1.61	$1.54	$1.26	$3.30	$3.17
2019	$1.48	$1.85	$1.81	$1.02	$2.62	$2.57
2020						
6 Mths H	$1.78	$2.05	$2.05	$1.99	$1.82	$1.82
6 Mths F	$1.70	$1.95	$1.95	$1.85	$2.10	$2.10
Avg.	$1.74	$2.00	$2.00	$1.92	$1.96	$1.96
Forecast						
2020	$1.70	$1.95	$1.95	$1.85	$2.10	$2.10
2021	$2.20	$2.40	$2.45	$2.35	$2.50	$2.55
2022	$2.30	$2.45	$2.55	$2.45	$2.70	$2.80
2023	$2.55	$2.65	$2.80	$2.70	$2.90	$3.10
2024	$2.60	$2.65	$2.85	$2.75	$2.90	$3.15
2025	$2.65	$2.65	$2.95	$2.80	$2.90	$3.20
2026	$2.70	$2.65	$3.00	$2.85	$2.90	$3.25
2027	$2.75	$2.65	$3.05	$2.95	$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
	Real	Real	Real	Real	Real	Real	Real
Forecast							
2020	$35.00	$39.00	$36.00	$38.50	$40.25	$32.00	$38.00
2021	$42.50	$46.50	$43.50	$45.00	$47.75	$39.50	$46.00
2022	$50.00	$54.00	$51.00	$52.50	$55.25	$47.00	$53.50
2023	$60.00	$64.00	$61.00	$62.50	$65.25	$57.00	$63.50
2024	$60.00	$64.00	$61.00	$62.50	$65.25	$57.00	$63.50
2025	$60.00	$64.00	$61.00	$62.50	$65.25	$57.00	$63.50
2026	$60.00	$64.00	$61.00	$62.50	$65.25	$57.00	$63.50
2027	$60.00	$64.00	$61.00	$62.50	$65.25	$57.00	$63.50

- 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% 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								
2020	1.25	1.13	$2.10	$1.10	$1.60	$1.90	$3.10	$2.30
2021	1.25	1.13	$2.50	$1.50	$2.00	$2.30	$4.25	$1.85
2022	1.25	1.13	$2.70	$1.95	$2.20	$2.50	$4.95	$2.40
2023	1.25	1.13	$2.90	$2.15	$2.40	$2.70	$5.15	$2.75
2024	1.25	1.13	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90
2025	1.25	1.13	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90
2026	1.25	1.13	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90
2027	1.25	1.13	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90

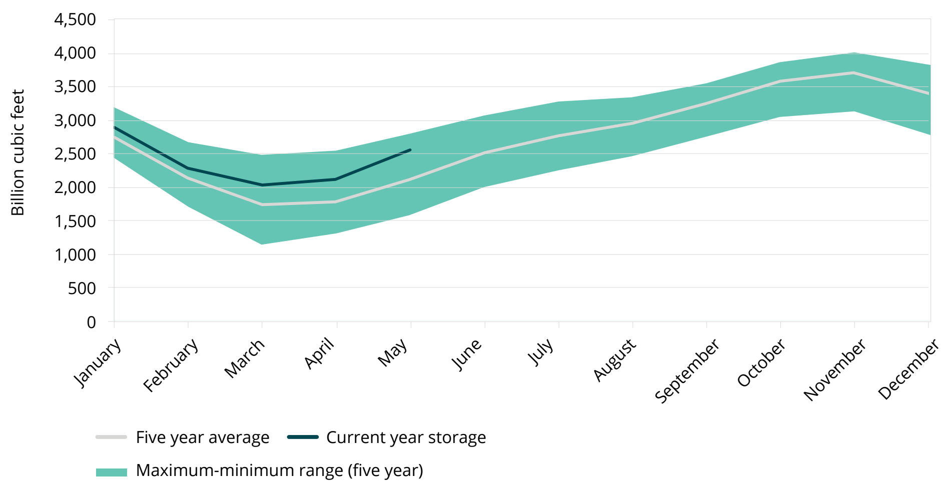
Global trends

Storage

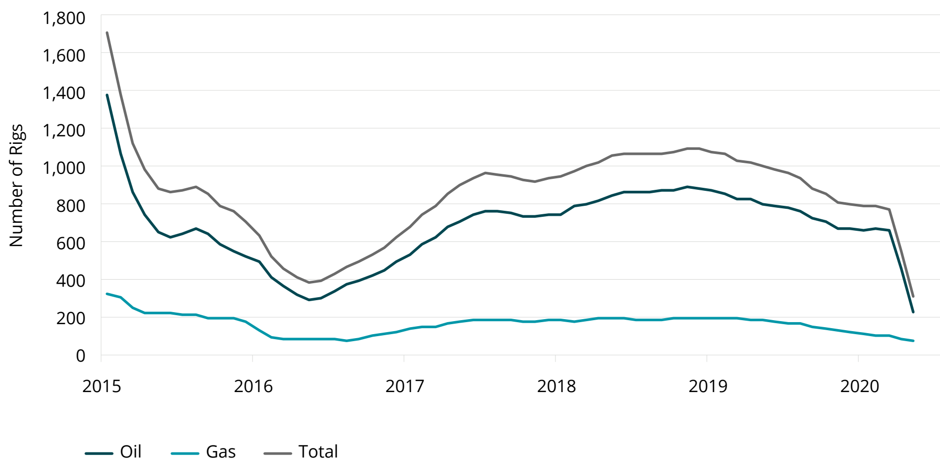
United States

- Natural gas storage in the United States is trending above the five year average as production continues to grow faster than demand. We expect that with lower associated gas production, this trend will shift to align closer to the five year average.

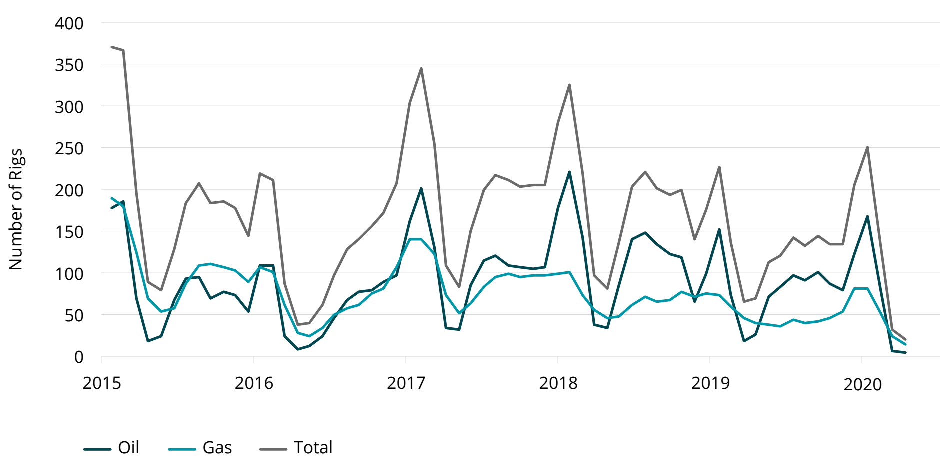
US natural gas storage



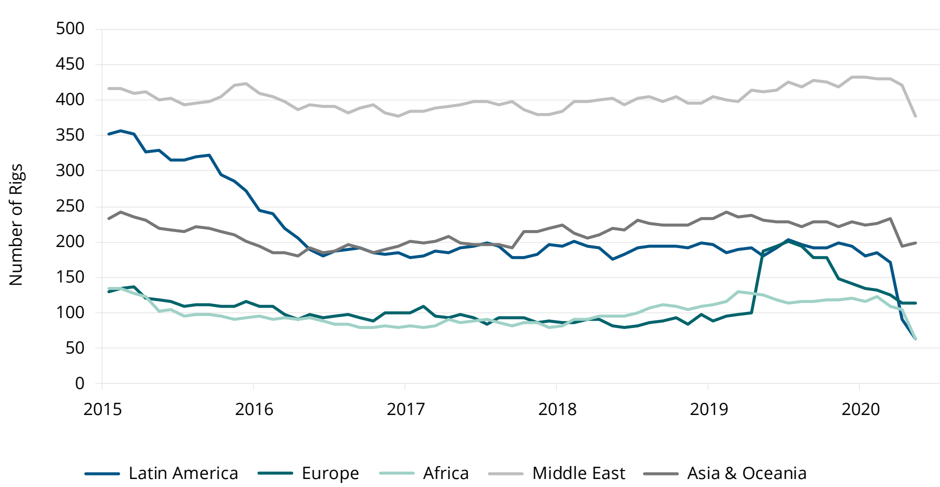
US rig counts



Canada rig counts



International rig counts



Rigs

United States

- Oil rig counts fell dramatically, by over 60 percent from the Q1 2020 average, as the price shock forced companies to cut their capital expenditures. Gas rig counts fell by 25 percent from the Q1 2020 average, a much more muted impact than oil, but natural gas activity have been dropping since early 2019.

Canada

- After a stronger winter drilling season, rig counts plummeted in Q2 to the lowest levels in the last 20 years. Oil rigs are 75 percent lower than this time in 2019 and natural gas rigs are 60 percent lower.

International

- International rig counts fell in all regions along with North America, with Latin America and Africa taking the largest hits to activity in Q2. The European rig count saw a large increase in 2019 due to the addition of Ukraine data, but has since been on a declining trajectory. Middle Eastern rig counts dropped by 15 percent during Q2 as production cuts were agreed to by OPEC nations.

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. API Hardisty
				US$/bbl	US$/bbl	C$/bbl	C$/bbl	C$/bbl
	Rate	Rate	Rate	Real	Current	Real	Current	Current
Historical								
2010	1.8%	1.8%	0.971	$94.66	$79.40	$92.76	$77.80	$67.22
2011	2.9%	2.9%	1.012	$111.14	$94.88	$111.90	$95.54	$77.12
2012	1.5%	1.5%	1.001	$107.02	$94.11	$98.44	$86.57	$73.10
2013	0.9%	0.9%	0.972	$109.64	$97.91	$104.55	$93.36	$74.97
2014	1.9%	1.9%	0.906	$103.46	$93.26	$104.27	$94.00	$81.06
2015	1.1%	1.1%	0.783	$52.98	$48.69	$62.02	$57.00	$44.80
2016	1.4%	1.4%	0.755	$46.43	$43.15	$56.18	$52.22	$38.90
2017	1.6%	1.6%	0.771	$53.96	$50.88	$65.62	$61.88	$50.53
2018	2.3%	2.3%	0.772	$67.76	$64.94	$72.10	$69.10	$49.68
2019	1.9%	1.9%	0.754	$58.11	$56.98	$70.39	$69.02	$58.75
2020								
6 Mths H	1.6%	1.6%	0.734	$36.65	$36.65	$39.79	$39.79	$29.61
6 Mths F	0.0%	0.0%	0.740	$35.00	$35.00	$40.55	$40.55	$31.10
Avg.	N/A	N/A	0.737	$35.83	$35.83	$40.17	$40.17	$30.35
Forecast								
2020	0.0%	0.0%	0.740	$35.00	$35.00	$40.55	$40.55	$31.10
2021	2.0%	2.0%	0.746	$42.50	$43.35	$50.25	$51.25	$38.95
2022	2.0%	2.0%	0.770	$50.00	$52.00	$58.45	$60.80	$47.30
2023	2.0%	2.0%	0.800	$60.00	$63.65	$68.75	$72.95	$59.70
2024	2.0%	2.0%	0.800	$60.00	$64.95	$68.75	$74.40	$60.90
2025	2.0%	2.0%	0.800	$60.00	$66.25	$68.75	$75.90	$62.10
2026	2.0%	2.0%	0.800	$60.00	$67.55	$68.75	$77.40	$63.35
2027	2.0%	2.0%	0.800	$60.00	$68.90	$68.75	$78.95	$64.60
2028	2.0%	2.0%	0.800	$60.00	$70.30	$68.75	$80.55	$65.90
2029	2.0%	2.0%	0.800	$60.00	$71.70	$68.75	$82.15	$67.20
2030	2.0%	2.0%	0.800	$60.00	$73.15	$68.75	$83.80	$68.55
2031	2.0%	2.0%	0.800	$60.00	$74.60	$68.75	$85.50	$69.95
2032	2.0%	2.0%	0.800	$60.00	$76.10	$68.75	$87.20	$71.35
2033	2.0%	2.0%	0.800	$60.00	$77.60	$68.75	$88.95	$72.75
2034	2.0%	2.0%	0.800	$60.00	$79.15	$68.75	$90.70	$74.20
2035	2.0%	2.0%	0.800	$60.00	$80.75	$68.75	$92.55	$75.70
2036	2.0%	2.0%	0.800	$60.00	$82.35	$68.75	$94.40	$77.20
2037	2.0%	2.0%	0.800	$60.00	$84.00	$68.75	$96.25	$78.75
2038	2.0%	2.0%	0.800	$60.00	$85.70	$68.75	$98.20	$80.35
2039	2.0%	2.0%	0.800	$60.00	$87.40	$68.75	$100.15	$81.95
2039+	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 2020 dollars with no escalation considered

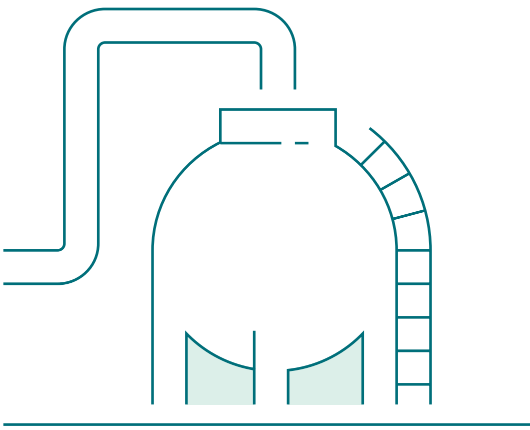
	Natural Gas Liquids Pricing Edmonton Par Prices				Natural Gas Pricing						Sulphur
Year	**Ethane**	**Propane**	**Butane**	**Pentanes + Condensate**	**Alberta Reference Avg. Price**	**Alberta AECO Avg. Price**	**Alberta AECO Avg. Price**	**B.C. Direct Stn. 2 Sales**	**NYMEX Henry Hub**	**NYMEX Henry 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											
2010	$11.53	$45.19	$68.79	$84.02	$3.76	$4.78	$4.01	$4.01	$5.23	$4.39	$56.94
2011	$10.30	$52.41	$86.98	$105.24	$3.46	$4.25	$3.63	$3.34	$4.69	$4.00	$101.60
2012	$6.73	$30.80	$75.47	$99.67	$2.25	$2.72	$2.39	$2.29	$3.13	$2.75	$126.81
2013	$8.68	$38.54	$77.44	$103.52	$2.98	$3.55	$3.17	$3.11	$4.18	$3.73	$62.17
2014	$12.46	$42.93	$59.43	$101.47	$4.22	$5.00	$4.50	$4.16	$4.87	$4.39	$88.99
2015	$7.49	$5.35	$33.70	$55.15	$2.56	$2.93	$2.69	$1.81	$2.86	$2.63	$107.45
2016	$6.04	$8.71	$31.45	$52.43	$1.93	$2.32	$2.16	$1.75	$2.71	$2.52	$45.40
2017	$6.11	$27.92	$40.98	$63.65	$2.13	$2.32	$2.19	$1.56	$3.17	$2.99	$41.85
2018	$6.90	$29.76	$46.17	$75.74	$1.36	$1.61	$1.54	$1.26	$3.30	$3.17	$89.25
2019	$5.00	$15.82	$21.40	$67.57	$1.48	$1.85	$1.81	$1.02	$2.62	$2.57	$37.54
2020											
6 Mths H	$5.67	$9.75	$15.30	$46.90	$1.78	$2.05	$2.05	$1.99	$1.82	$1.82	$18.30
6 Mths F	$5.25	$12.15	$16.20	$38.50	$1.70	$1.95	$1.95	$1.85	$2.10	$2.10	$10.00
Avg.	$5.46	$10.95	$15.75	$42.70	$1.74	$2.00	$2.00	$1.92	$1.96	$1.96	$14.15
Forecast											
2020	$5.25	$12.15	$16.20	$38.50	$1.70	$1.95	$1.95	$1.85	$2.10	$2.10	$10.00
2021	$6.65	$17.95	$25.65	$51.25	$2.20	$2.40	$2.45	$2.35	$2.50	$2.55	$30.60
2022	$6.85	$27.35	$39.55	$60.80	$2.30	$2.45	$2.55	$2.45	$2.70	$2.80	$31.20
2023	$7.60	$32.85	$47.45	$72.95	$2.55	$2.65	$2.80	$2.70	$2.90	$3.10	$31.85
2024	$7.75	$33.50	$48.40	$74.40	$2.60	$2.65	$2.85	$2.75	$2.90	$3.15	$32.45
2025	$7.90	$34.15	$49.35	$75.90	$2.65	$2.65	$2.95	$2.80	$2.90	$3.20	$33.10
2026	$8.05	$34.85	$50.35	$77.40	$2.70	$2.65	$3.00	$2.85	$2.90	$3.25	$33.80
2027	$8.20	$35.55	$51.35	$78.95	$2.75	$2.65	$3.05	$2.95	$2.90	$3.35	$34.45
2028	$8.40	$36.25	$52.35	$80.55	$2.80	$2.65	$3.10	$3.00	$2.90	$3.40	$35.15
2029	$8.55	$37.00	$53.40	$82.15	$2.85	$2.65	$3.15	$3.05	$2.90	$3.45	$35.85
2030	$8.70	$37.75	$54.50	$83.80	$2.95	$2.65	$3.25	$3.10	$2.90	$3.55	$36.55
2031	$8.90	$38.50	$55.60	$85.50	$3.00	$2.65	$3.30	$3.15	$2.90	$3.60	$37.30
2032	$9.05	$39.25	$56.70	$87.20	$3.05	$2.65	$3.35	$3.25	$2.90	$3.70	$38.05
2033	$9.25	$40.05	$57.80	$88.95	$3.10	$2.65	$3.45	$3.30	$2.90	$3.75	$38.80
2034	$9.45	$40.85	$59.00	$90.70	$3.15	$2.65	$3.50	$3.35	$2.90	$3.85	$39.60
2035	$9.60	$41.65	$60.15	$92.55	$3.25	$2.65	$3.55	$3.45	$2.90	$3.90	$40.40
2036	$9.80	$42.50	$61.35	$94.40	$3.30	$2.65	$3.65	$3.50	$2.90	$4.00	$41.20
2037	$10.00	$43.35	$62.60	$96.25	$3.35	$2.65	$3.70	$3.55	$2.90	$4.05	$42.00
2038	$10.20	$44.20	$63.85	$98.20	$3.45	$2.65	$3.80	$3.65	$2.90	$4.15	$42.85
2039	$10.40	$45.10	$65.10	$100.15	$3.50	$2.65	$3.85	$3.70	$2.90	$4.20	$43.70
2039+	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 2020 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$/bbl Current	C$/bbl Current	C$/bbl Current	C$/mcf Current
Historical				
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	$73.06	$62.82	$54.46	$4.07
2019	$69.68	$65.72	$58.85	$3.22
2020				
6 Mths H	$40.46	$39.27	$29.21	$2.35
6 Mths F	$41.55	$37.55	$29.80	$2.65
Avg.	$41.00	$38.41	$29.51	$2.50
Forecast				
2020	$41.55	$37.55	$29.80	$2.65
2021	$52.30	$47.20	$39.05	$3.20
2022	$61.85	$56.65	$47.70	$3.45
2023	$74.00	$68.70	$59.95	$3.65
2024	$75.50	$70.10	$61.15	$3.75
2025	$77.00	$71.50	$62.40	$3.80
2026	$78.55	$72.90	$63.65	$3.90
2027	$80.10	$74.40	$64.90	$3.95
2028	$81.70	$75.85	$66.20	$4.05
2029	$83.35	$77.40	$67.50	$4.10
2030	$85.00	$78.95	$68.85	$4.20
2031	$86.75	$80.50	$70.25	$4.30
2032	$88.45	$82.10	$71.65	$4.40
2033	$90.25	$83.75	$73.10	$4.45
2034	$92.05	$85.45	$74.55	$4.55
2035	$93.85	$87.15	$76.05	$4.65
2036	$95.75	$88.90	$77.55	$4.75
2037	$97.65	$90.65	$79.10	$4.85
2038	$99.60	$92.50	$80.70	$4.95
2039	$101.60	$94.35	$82.30	$5.05
2039+	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 2020 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

Year	Crude Oil Pricing 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
	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real	Real
Forecast																
2020	$35.00	$34.75	$37.00	$38.00	$37.00	$36.00	$30.00	$39.00	$36.00	$38.50	$27.00	$40.25	$38.00	$32.00	$38.00	$36.00
2021	$42.50	$42.25	$44.50	$45.50	$44.50	$43.50	$37.50	$46.50	$43.50	$45.00	$36.50	$47.75	$45.50	$39.50	$46.00	$43.50
2022	$50.00	$49.75	$52.00	$53.00	$52.00	$51.00	$45.00	$54.00	$51.00	$52.50	$44.00	$55.25	$53.00	$47.00	$53.50	$51.00
2023	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2024	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2025	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2026	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2027	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2028	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2029	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2030	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2031	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2032	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2033	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2034	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2035	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2036	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2037	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2038	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2039	$60.00	$59.75	$62.00	$63.00	$62.00	$61.00	$55.00	$64.00	$61.00	$62.50	$54.00	$65.25	$63.00	$57.00	$63.50	$61.00
2039+	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:

- 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$/Mcf Real	US$/Mcf Real	US$/Mcf Real	US$/Mcf Real	US$/Mcf Real	US$/Mcf Real	US$/gal Real
Forecast									
2020	1.250	1.130	$2.10	$1.10	$1.60	$1.90	$3.10	$2.30	$1.30
2021	1.250	1.130	$2.50	$1.50	$2.00	$2.30	$4.25	$1.85	$1.30
2022	1.250	1.130	$2.70	$1.95	$2.20	$2.50	$4.95	$2.40	$1.30
2023	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.75	$1.30
2024	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2025	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2026	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2027	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2028	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2029	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2030	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2031	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2032	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2033	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2034	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2035	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2036	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2037	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2038	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2039	1.250	1.130	$2.90	$2.15	$2.40	$2.70	$5.15	$2.90	$1.30
2039+	1.250	1.130	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

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.

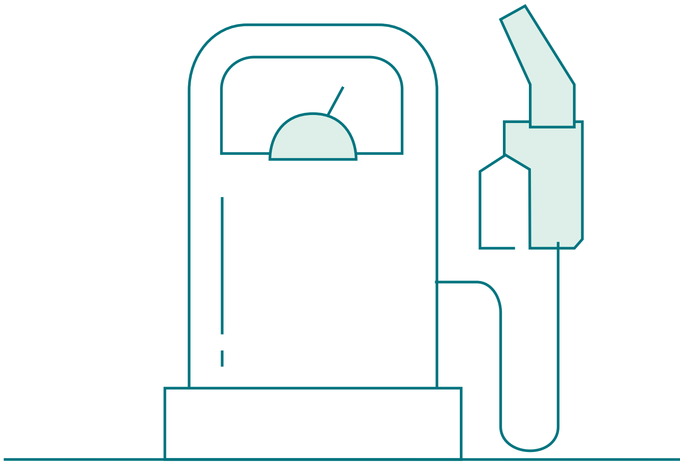
Deloitte prepares our price and market forecasts based on information we collect from numerous government agencies, industry publications, oil refineries, natural gas marketers and industry trends. Inflation forecasts and exchange rates are also an integral part of the forecast.

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

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

Deloitte.

www.deloitte.ca/priceforecast

About Deloitte
Deloitte provides audit and assurance, consulting, financial advisory, risk advisory, tax, and related services to public and private clients spanning multiple industries. Deloitte serves four out of five Fortune Global 500® companies through a globally connected network of member firms in more than 150 countries and territories bringing world-class capabilities, insights, and service to address clients' most complex business challenges. Deloitte LLP, an Ontario limited liability partnership, is the Canadian member firm of Deloitte Touche Tohmatsu Limited. Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee, and its network of member firms, each of which is a legally separate and independent entity. Please see www.deloitte.com/about for a detailed description of the legal structure of Deloitte Touche Tohmatsu Limited and its member firms.

Our global Purpose is making an impact that matters. At Deloitte Canada, that translates into building a better future by accelerating and expanding access to knowledge. We believe we can achieve this Purpose by living our shared values to lead the way, serve with integrity, take care of each other, foster inclusion, and collaborate for measurable impact.

To learn more about how Deloitte's approximately 312,000 professionals, over 12,000 of whom are part of the Canadian firm, please connect with us on LinkedIn, Twitter, Instagram, or Facebook