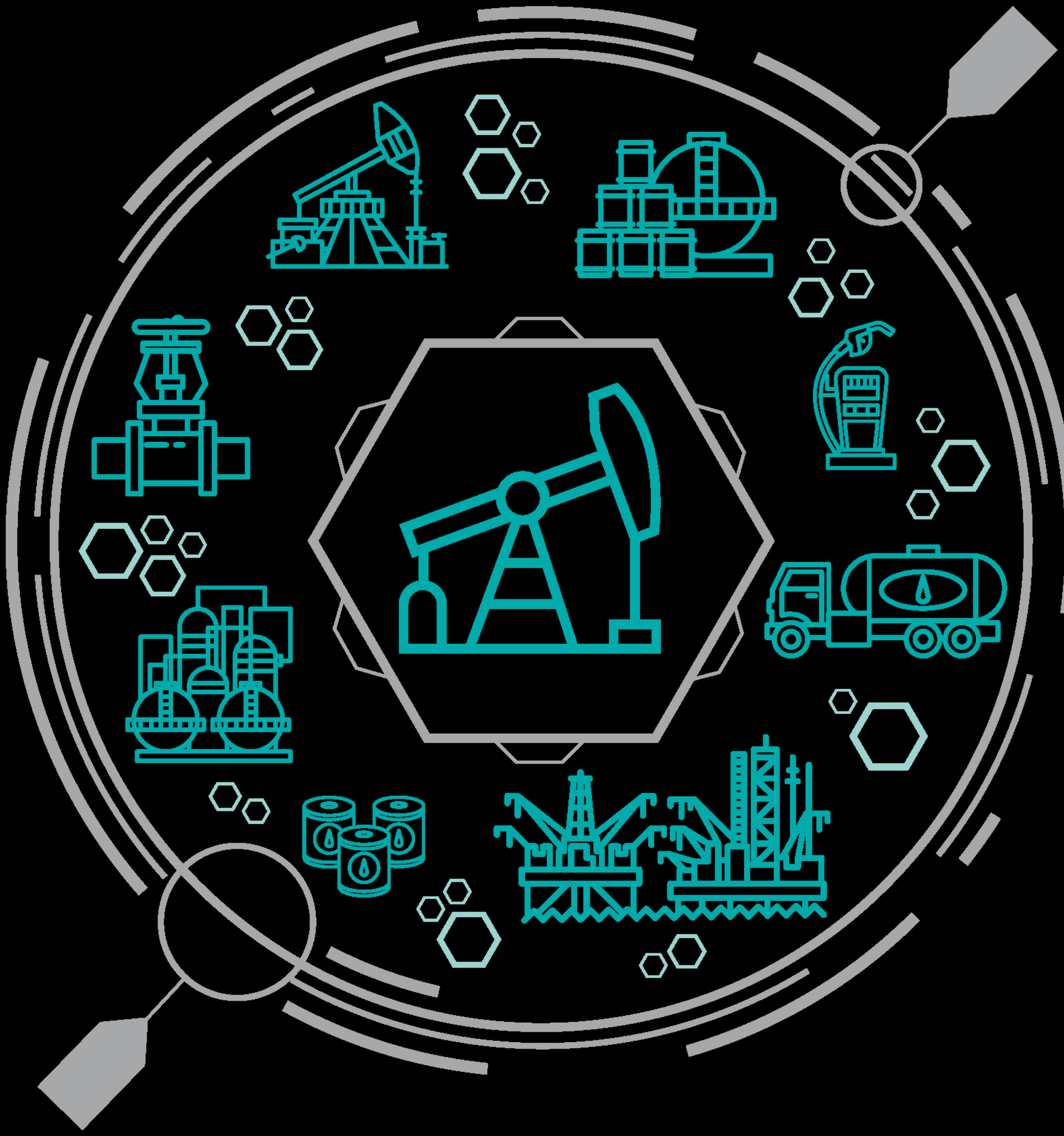


Price forecast

Oil, Gas & Chemicals

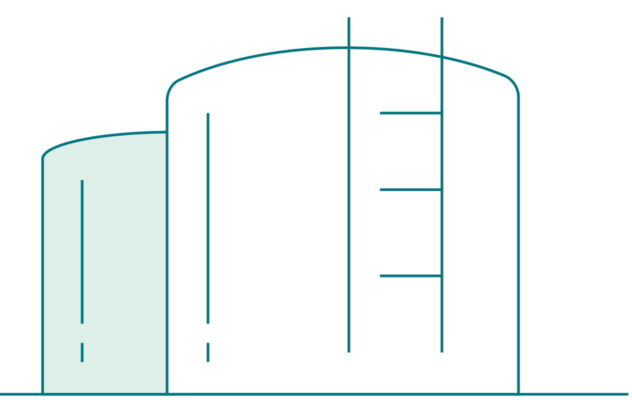
December 31, 2019

Forecast commentary

Global oil prices

Global oil prices trended upwards over the last quarter of 2019, even while trade tensions and threats of crude oversupply loomed. In December 2019, OPEC announced a 500 Mbbl/d increase in production cuts lasting until March 2020, in an attempt to balance market volumes and increase crude prices. Saudi Arabia has also disclosed that they will reduce their output by another 400 Mbbl/d beyond their required cut. However, as condensates are now exempt from the crude volume cuts, and some members' production rates continue to exceed target rates, there may be limited changes in global supply and demand balances. WTI prices have increased from a low of $52/bbl at the beginning of the quarter to just over $60/bbl by the end. Crude oil exports continue to increase month over month, allowing for additional outlets for domestically unconsumed production volumes.

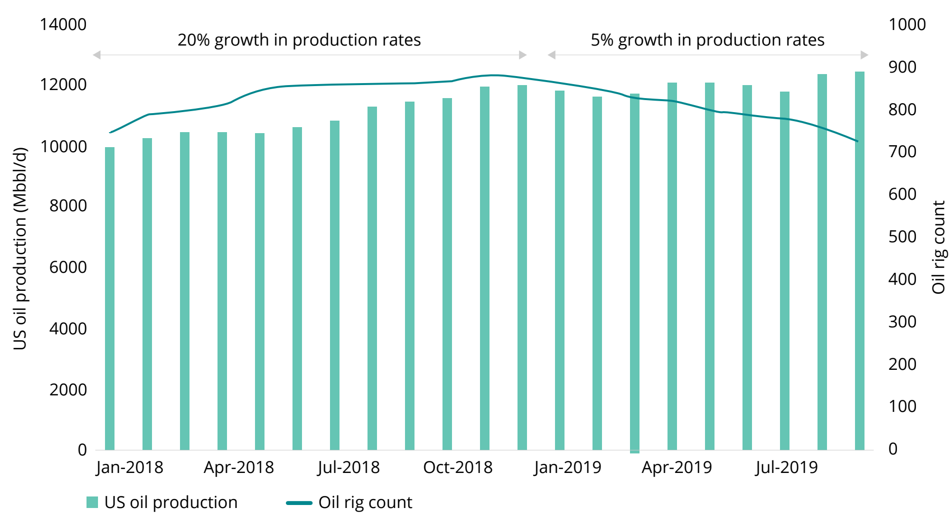
In December 2019, OPEC announced a 500 Mbbl/d increase in production cuts lasting until March 2020, in an attempt to balance market volumes and increase crude prices.



United States oil development activity

US oil production growth has slowed, with Q4 production rates increasing by only ive percent from the beginning of 2019. This is a sharp contrast to the 20 percent growth seen throughout 2018. While the Permian basin continued to show the largest growth profiles, the increased volumes pale in comparison to previous annual growth rates, primarily in the Wolfcamp and Bonespring plays. New wells in tight oil plays have also underperformed in recent months. This has caused companies to rethink field development strategies as producers have observed limited return on invested capital due to increased drilling costs, decreased natural gas prices, and lower volumes. A change in strategy to develop fields with better economic viability has led to declining rig rates across the United States: these have dropped 16 percent since the beginning of the year. Like Canada, the United States is also feeling the tightening of purse strings as the oil and gas industry continues to receive opposition regarding carbon intensity. The result has been limited access to capital, increased debt levels, and uncertainty around the sustainability of future US shale oil development. The EIA, however, expects 2020 US oil production 2020 to grow at similar rates to 2019, which should relieve some downward pressure on WTI prices. Major oil producers will likely play the largest role in continued Permian basin development as they are less susceptible to lower pricing, have larger capital budgets, and are able to apply a scaled, assembly-line approach, allowing for lower field development and operating costs.

United States oil production and activity



Source: EIA, Baker Hughes

IMO 2020 impact

Crude oil exports continue to increase in the United States, as additional pipeline and export facility capacities were brought onstream along the US Gulf Coast in 2019. Once new International Maritime Organization (IMO) regulations come into effect in January 2020, demand for US light sweet crude is expected to grow, resulting in increased export volumes. In an effort to reduce emissions in the shipping industry, the new IMO regulations require all transport ships not equipped with scrubbers to use low sulphur fuel. This change in regulations has encouraged some refineries, primarily in Asia, to adjust crude slates to include larger volumes of light sweet crude, as these produce lower sulphur content bunker fuel for use in shipping. It is not certain how the new regulations will affect medium and heavy crude prices as large global refineries will continue to process high sulphur crudes due to existing operational crude slate inputs. As the year progresses, the degree to which the shipping industry complies with the new IMO regulations will determine the effects on crude markets and will be reflected in commodity prices at that point.

Once new International Maritime Organization (IMO) regulations come into effect in January 2020, demand for US light sweet crude is expected to grow, resulting in increased export volumes.

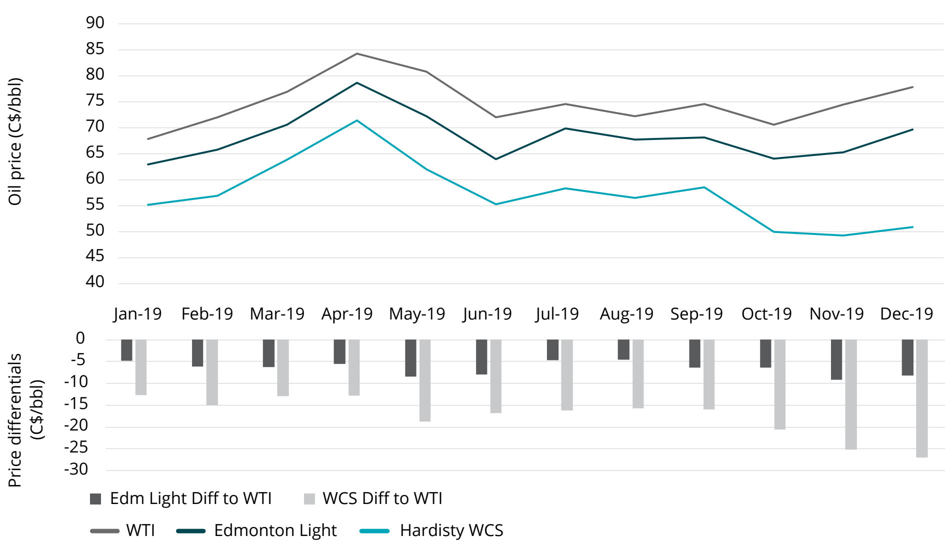
Canadian oil prices

In Canada, oil prices saw higher differentials to WTI in Q4 2019 as issues with rail and pipeline transportation routes restricted oil shipments. The shut-in of the Keystone XL pipeline and delayed shipments due to the CN Rail strike have highlighted the limited egress optionality for Canadian crude oil markets and, once again, their sensitivity to transportation disruptions.

The CN Rail strike was particularly worrisome as producers looked to increase shipments of crude by rail after the Alberta government announced rail shipping volumes would not be included in curtailment limits. As the Alberta government looks to sell their crude by rail contracts to third parties, increased risk associated with disrupted rail service could affect negotiations and willingness of producers to purchase. Although both pipeline and rail operations have returned to their full capacities, the events compounded to create a crude oil supply glut that will require time to clear and further stressed egress routes. In an attempt to decrease current crude storage volumes and stabilize price differentials, the Alberta government has stated the curtailment limit for January 2020 will not increase from December 2019 levels.

Although the extension of curtailed volumes into 2020 should have a positive impact on Canadian oil prices, Canadian merger and acquisition markets have softened due to the government imposed limitations. Many junior and intermediate producers have struggled to develop their assets as capital has become increasingly difficult to access, and there is little incentive to make a deal if a previously exempt company would now be under curtailment due to the transaction. Only $600 million of M&A activity occurred in Q3 2019, compared to $2.9 billion over the same period in 2018.

Canadian oil prices



Source: DOB

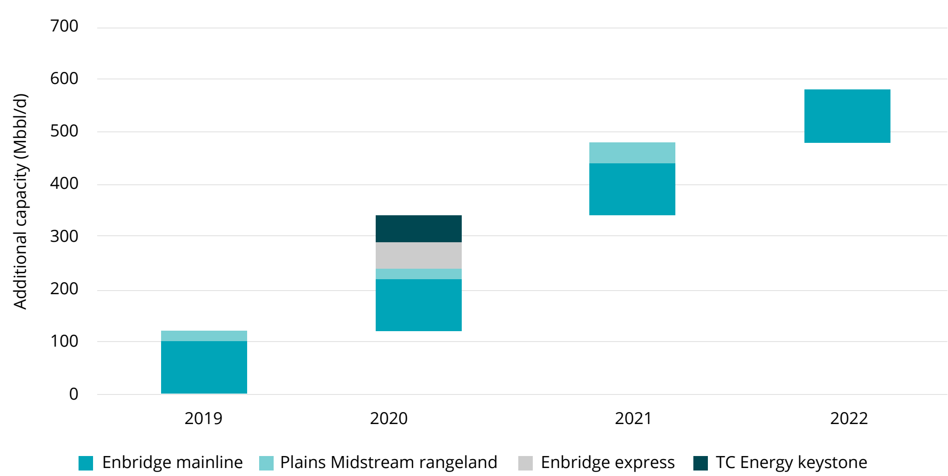
Note: The source for the above graph is different from the historical prices Deloitte uses, resulting in varied values.

Canadian pipeline capacity

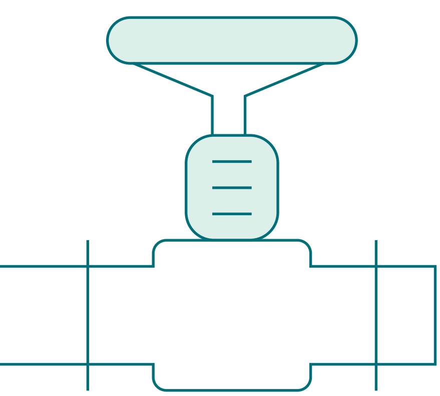
In an effort to increase Canadian takeaway capacity, and possibly remove the curtailments on production from Alberta, pipeline companies continue to identify areas of optimization on existing routes. Within the next three years, crude debottlenecking projects could add up to 580 Mbbl/d, pending investment decisions and regulatory approval. The projects include additional pumping stations to increase line pressure, line looping-in areas with limited available capacity, and improvements to scheduling and terminal operations.

These projects are meant to boost capacity and provide relief until new capacity is available through pipeline projects in the coming years, including the restoration of Enbridge Line 3 and the construction of TMX. Pipeline companies believe the projects will provide low cost, incremental capacity while requiring minimal capital investment to construct and operate. These proposed increases in pipeline capacity represent a short-term solution to egress bottlenecks and are welcomed by Canadian producers.

Additional capacity due to optimization of crude oil pipelines



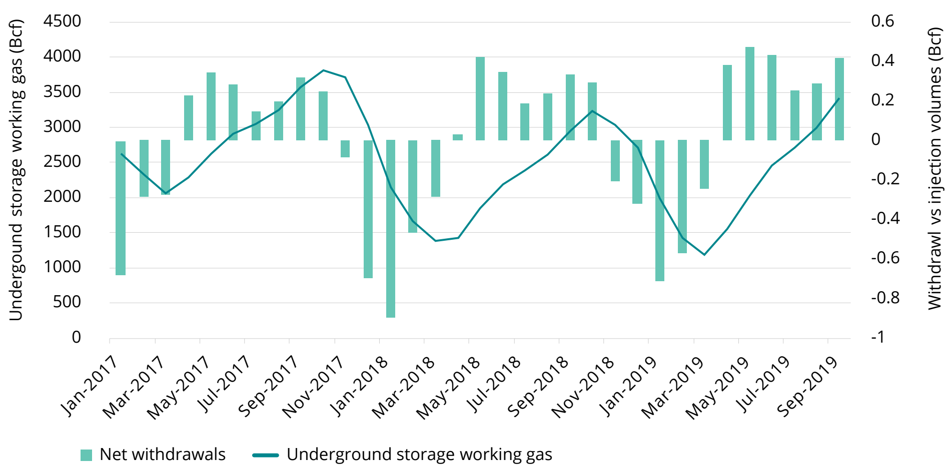
Source: DOB, Company disclosures



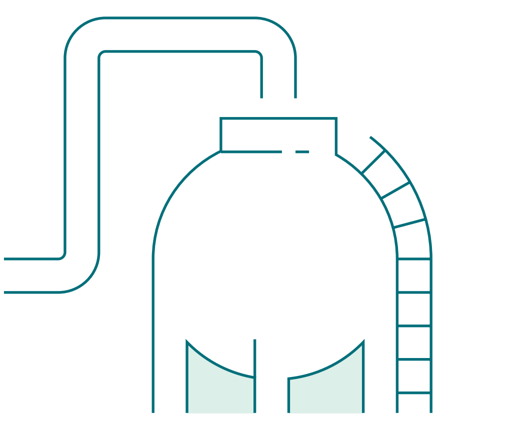
United States natural gas production and prices

Natural gas production continued to increase in the United States throughout 2019, however growth rates were low in comparison to previous years. The limited growth is attributed to lower volumes of associated gas from oil plays and reduced natural gas drilling due to depressed prices in Q3/Q4 2019. Henry Hub prices have continued to decline in recent months as storage levels rose amid domestic oversupply. The United States injected near record volumes of natural gas into storage this summer, using over 70 percent of total storage capacity in all regions, with the east coast using 91 percent of its available storage. As gas storage is cyclical, levels are expected to decrease in coming months, especially since the arrival of colder weather heralds increased domestic consumer demand for natural gas.

United States gas storage



Source: EIA

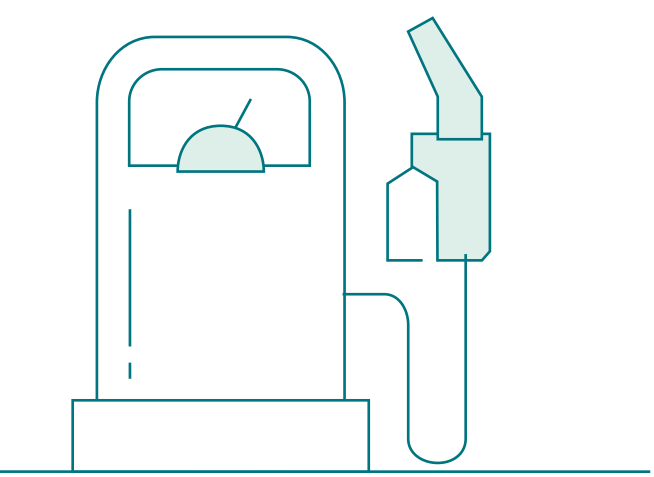


United States natural gas exports

The United States continues to export record amounts of natural gas through both pipeline infrastructure and LNG facilities. A global natural gas supply glut, however, could hamper future exports. Although Asian demand continues to increase, trade wars between China and the United States have caused China to look elsewhere for LNG volumes. Multiple tankers are seeking longer routes in order to find better pricing for US LNG volumes as international prices have collapsed somewhat in recent months.

For US LNG suppliers, the situation may worsen once additional US LNG export facilities come on-stream in 2020, increasing export capacities by approximately 3 Bcf/d. As Qatar and Australia require buyers to enter a take or pay agreement, the United States may see decreased volumes due to 30 and 60 day opt out clauses in American long-term LNG contracts. The United States is typically considered a swing provider and rather than operate at a loss, it may be required to shutter some operations due to low European and Asian prices.

As Qatar and Australia require buyers to enter a take or pay agreement, the United States may see decreased volumes due to 30 and 60 day opt out clauses in American long-term LNG contracts.



Canadian natural gas activity and prices

Long-term natural gas demand is expected to grow as countries transition to clean natural gas from other fuel sources such as coal. Canadian exports are in a prime position to provide Asian markets with natural gas off the west coast. LNG Canada, the only large project to receive final investment decision to date, has superior market access compared to most US LNG facilities, and shorter travel distances to Asia mean lower freight costs and more competitive pricing. The recent approval by the Canadian Energy Regulator of the Kitimat LNG export license shows Canada is looking to add LNG capacity. However, with some companies involved in that project looking to sell their stake, another interested party is required to make any meaningful progress. As countries look to reduce emissions, Canadian supply may be considered the best option. This is due to stringent regulatory guidelines, environmental standards, and regional stability compared to some other suppliers.

Canadian gas production remained relatively stable in 2019, with production volumes three percent lower than 2018 values. The drop in production is mostly attributed to lower capital investment and reduced rig counts during depressed and volatile AECO pricing months. In 2019, companies continued to drill liquid-rich areas to maximize returns on investment and increase revenues during low gas price periods.

With lower production volumes, natural gas storage levels in western Canada fell below 2018 volumes and have now reached a 5-year low. This led to high Q3/Q4 AECO pricing, allowing some companies to accelerate 2020 drilling schedules into Q4 2019. In previous years, producers would start ramping up drilling operations in late summer; this year, that typical activity cycle did not materialize for natural gas development. Only in late Q4 did gas-targeted rigs start to increase. This could mean that Western Canada will see higher AECO prices for longer than just the winter months i storage is not sufficiently replenished before spring break-up. That would give natural gas producers a chance to enjoy some higher netbacks and provide relief to stressed balance sheets.

Canadian price versus rig counts

Source: Baker Hughes, DOB

Thriving through innovation in the Oil and Gas sector

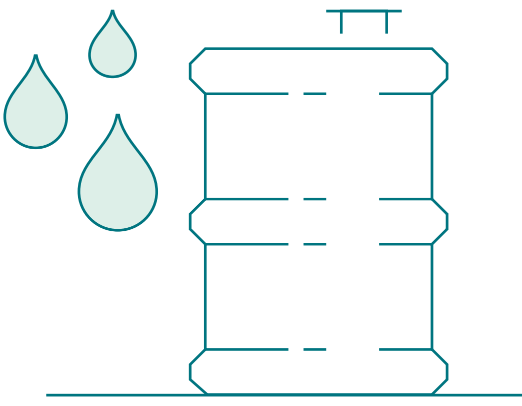
- Ian Proctor, *Partner, Consulting and* ***Andrew McHardy****,*
Senior Manager, Omnia AI

Contemporary trends in the Oil and Gas sector point towards increasing investments in digital and innovation programs. However, the conversation still centres on the potential value of digital, with many questioning how to maximize the impact of digital programs and initiatives within the Oil and Gas sector.

Another common trend is the deteriorating focus of an organization's innovation strategy. Solutions that solve business problems must anchor an organization's innovation program, or they risk losing sight of the driving factors behind each innovation's initial development. For example, building an app to locate trucks in the yard might be useful, but only if there are existing problems with locating trucks. Without a problem to solve, what return does the app deliver? Has the organization solved a problem that doesn't exist?

For every proposed digital initiative, it is imperative that the organization consider the value proposition. They must make sure innovative solutions tie back to the overall innovation strategy and digital aspirations. Most importantly, they should always consider how each digital program links to their broader business strategy and value drivers. At present, there is a disconnect in many organizations, exemplified by the inability to explain why a particular digital innovation makes sense for that organization.

We are not saying, "don't embrace digital", businesses must innovate to thrive. Success in digital programs will hinge on an organization's ability to make strategic, deliberate choices about where, and why, they choose to innovate.



Here are some questions to consider:

- Are the digital initiatives identified first, before the value drivers are determined?
- Once the value drivers are established, do they align with overall strategy?
- How does an organization quantify whether digital programs deliver real value against business strategy?
- Are there mechanism to measure and monitor the business impacts as digital initiatives are implemented?

Through our client relationships, we know that it can be difficult to measure the value digital innovation can bring. It's vital, therefore, that organizations not only establish targets in a meaningful way, but also advocate for sound fundamentals before making any investment. Entering the digital realm requires agility above all else. Iterating, learning, repeating, and scaling are all critical steps on the path to digitalization.

Many fear the Oil and Gas industry is too slow in digitizing. In response, some businesses have built digital tools without a coherent and coordinated approach. This reactionary strategy will not drive success. Moving forward, Oil and Gas must use innovation to improve health & safety, increase profitability, reduce operating expenses, and enable the workforce. We don't forecast high commodity prices returning so, with volatility caused by environmental policies and regulatory roadblocks in the future, innovations must deliver value.

Digital may pose different challenges, but that doesn't mean sound business fundamentals should be ignored. Organizations must have a clear understanding of their market position, as well as the appetite for change. Preparing for a digital transformation means staying agile, embracing uncertainty, and taking calculated risks. Put sound management techniques to work with your innovation portfolio, and make sure you conduct early experiments to determine value.

While the phrase "innovate or die" may seem like hyperbole, it does ring true. Organizations must embrace digital, as long this modernization stays grounded in their brand purpose. One way to avoid this pitfall is to approach digital programs with a proven to *Imagine, Deliver, and Run* mindset.

Deloitte's Digital Studio is a full-service digital partner with the ability to assist organizations to Imagine, by defining new or existing strategies. More importantly, we can help identify the value these strategies will generate so the path towards Deliver by building momentum, and Run to operate independently becomes straight, smooth, and easy to follow.

Start your journey with digital today. Deloitte can help you develop a digital approach that aligns with your business strategy, and work with you to execute it purposefully.

Economic outlook

- Craig Alexander, *Deloitte's Chief Economist*

The outlook for 2020 is for continued modest economic growth in the global and Canadian economies, but with a reminder that the advanced world is in the late stages of a business-cycle expansion. In addition, the most acute political risks from BREXIT and US-China trade tensions appear to have diminished, but the political landscape remains shaped by populism and nationalist tendencies. The international political pendulum has swung away from policies aimed at promoting greater trade and open markets, which poses risks for Canada and Canadian businesses.

How should businesses respond? The behaviour of equity markets in 2019 carry a message. Heading into last year, equity markets corrected with one of the worst December experiences on record. Markets were convinced there would be a recession in 2019. But any investor that sold at the start of the year and remained out of the market missed a strong double-digit increase in stock indexes. True, the global economy slowed down and considerable political risks fuelled market volatility over the course of the year, but those who were not paralyzed by the risks and looked for opportunity did well.

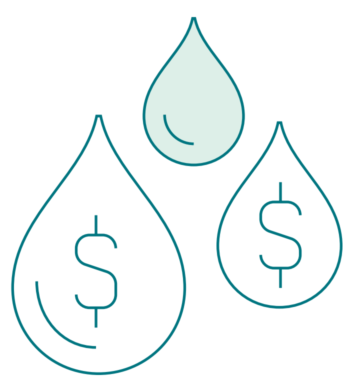
The message is the same for businesses in 2020: make key investments and hiring aligned with your long-term strategic goals, but be prepared for unexpected turns in the economy and financial markets. From a business-planning perspective, our base case forecast—based on what we believe to be reasonable assumptions—is for continued moderate growth, stable interest rates, and a Canadian dollar averaging around 75.50 US cents.

In terms of the economic details, global manufacturing slumped in 2019 and global trade contracted. The key concern was whether the weakness in manufacturing would feed through to a decline in services, triggering a global recession. Growth in the services sector did slow but not enough to prompt a downturn.

A significant development in 2019 that will have a lasting positive impact is the easing of monetary policy by many central banks. Heading into the year, central banks were strongly telegraphing that rates would be heading higher. Luckily, the monetary authorities reversed direction. The Federal Reserve and more than 20 other central banks cut rates. The Bank of Canada did not, but it stopped raising rates. Most importantly, Canada benefitted from the easing because it reduced recession risks and improved financial market sentiment. Monetary policy is expected to be largely unchanged in 2020, but the lower bond yields and reduced borrowing costs will have an impact over a 12- to-18-month horizon. In other words, the Canadian economy will still be benefitting in 2020.

The Canadian economic outlook is unfolding in line with our prior quarterly forecast, so our projections have not changed significantly. The economy is expected to have grown by 1.7 percent in 2019 and is anticipated to improve to 1.9 percent in 2020. Domestic consumer fundamentals remain supportive, with low unemployment and rising wages, but high household debt will still be a headwind on consumer spending. Real estate activity has improved and is contributing to economic growth. Exports will grow at a modest pace, reflecting the weaker global economy. Business investment is a key wild card. After being weak in recent years, business capital spending jumped higher in the third quarter of 2019. The question is whether it has turned a corner and ratification of the United States Mexico Canada Agreement will trigger delayed investment, or whether investment will soften again. Given its behaviour as a source of serial disappointment, we have used conservative assumptions on investment growth. Alberta economic growth is projected to rise from 0.5 percent in 2019 to 1.5 percent in 2020–still a sub-par performance.

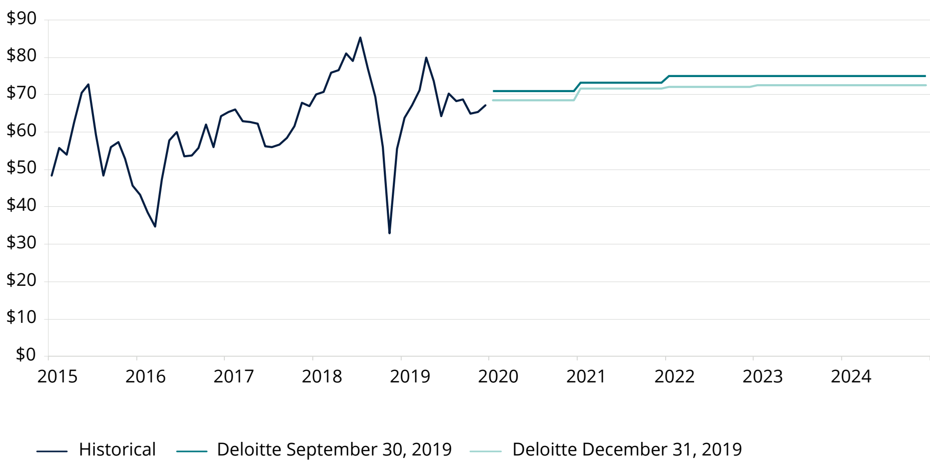
So far, we have navigated the political risks and avoided the worst-case scenarios. A soft BREXIT now seems likely and the US-China trade war cooled heading into 2020. Nevertheless, heightened political risks will be a major business challenge for years to come as we move into a multipolar world that will be less dominated by the United States. Globalization will not reverse but it will likely stall, and populism will continue to shape political decisions. This is the reality businesses will have to factor into their planning and risk management exercises.



Canadian domestic price forecast

Crude oil price and market demand forecast

Edmonton par (real $)



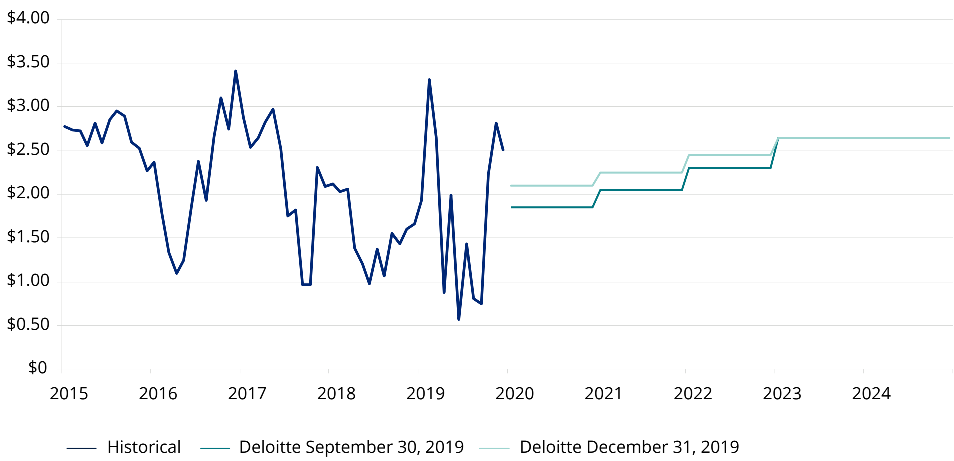
Forecast comments

- 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								
2016	$45.53	$43.15	$55.09	$52.22	$38.90	$34.08	1.4%	0.755
2017	$52.91	$50.88	$64.35	$61.88	$50.53	$45.01	1.6%	0.771
2018	$66.44	$64.94	$70.70	$69.10	$49.68	$45.34	2.3%	0.772
2019								
12 Mths H	$56.80	$56.80	$68.78	$68.78	$58.41	$55.93	1.9%	0.753
0 Mths F	-	-	-	-	-	-	-	-
Avg.	$56.80	$56.80	$68.78	$68.78	$58.41	$55.93	-	0.753
Forecast								
2020	$58.00	$58.00	$68.40	$68.40	$53.95	$49.95	0.0%	0.760
2021	$60.00	$61.20	$71.70	$73.15	$57.75	$52.65	2.0%	0.760
2022	$63.00	$65.55	$72.10	$75.00	$59.35	$54.15	2.0%	0.780
2023	$63.00	$66.85	$72.50	$76.95	$61.00	$55.70	2.0%	0.800
2024	$63.00	$68.20	$72.50	$78.50	$62.25	$56.85	2.0%	0.800
2025	$63.00	$69.55	$72.50	$80.05	$63.50	$57.95	2.0%	0.800
2026	$63.00	$70.95	$72.50	$81.65	$64.75	$59.10	2.0%	0.800
2027	$63.00	$72.35	$72.50	$83.30	$66.05	$60.30	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$/Mcf Current	C$/Mcf Real	C$/Mcf Current	C$/Mcf Current	US$/Mcf Real	US$/Mcf Current
Historical						
2016	$1.93	$2.28	$2.16	$1.75	$2.65	$2.52
2017	$2.13	$2.28	$2.19	$1.56	$3.10	$2.99
2018	$1.36	$1.57	$1.54	$1.26	$3.24	$3.17
2019						
12 Mths H	$1.45	$1.82	$1.82	$1.02	$2.58	$2.58
0 Mths F	-	-	-	-	-	-
Avg.	$1.45	$1.82	$1.82	$1.02	$2.58	$2.58
Forecast						
2020	$1.85	$2.10	$2.10	$1.40	$2.40	$2.40
2021	$2.05	$2.25	$2.30	$1.60	$2.50	$2.55
2022	$2.30	$2.45	$2.55	$1.80	$2.70	$2.80
2023	$2.55	$2.65	$2.80	$2.05	$2.90	$3.10
2024	$2.60	$2.65	$2.85	$2.10	$2.90	$3.15
2025	$2.65	$2.65	$2.95	$2.15	$2.90	$3.20
2026	$2.70	$2.65	$3.00	$2.20	$2.90	$3.25
2027	$2.75	$2.65	$3.05	$2.25	$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	$58.00	$62.00	$59.00	$61.00	$63.25	$56.00	$61.75
2021	$60.00	$64.00	$61.00	$63.00	$65.25	$57.00	$63.75
2022	$63.00	$67.00	$64.00	$66.00	$68.25	$59.00	$66.75
2023	$63.00	$67.00	$64.00	$66.00	$68.25	$59.00	$66.75
2024	$63.00	$67.00	$64.00	$66.00	$68.25	$59.00	$66.75
2025	$63.00	$67.00	$64.00	$66.00	$68.25	$59.00	$66.75
2026	$63.00	$67.00	$64.00	$66.00	$68.25	$59.00	$66.75
2027	$63.00	$67.00	$64.00	$66.00	$68.25	$59.00	$66.75

- 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 percent 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

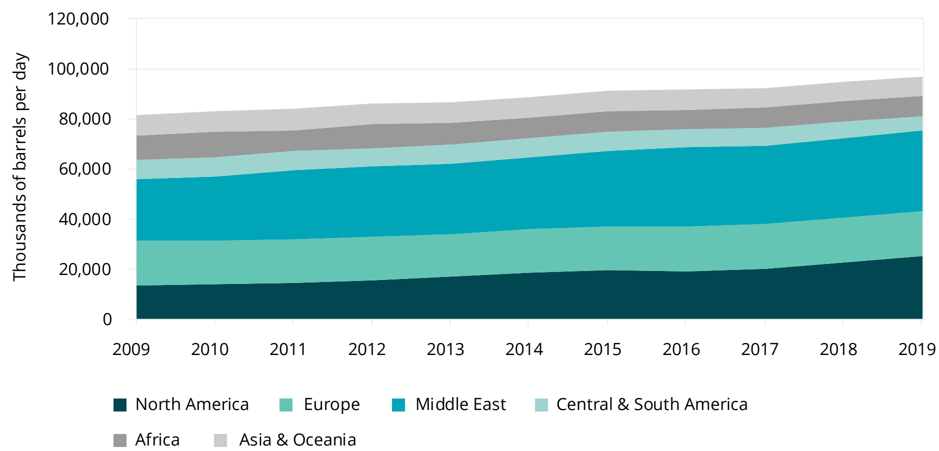
Year	USD to GBP Exchange	USD to EUR Exchange	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mountain Opal	UK NBP	India Domestic Gas
			US$/Mcf	US$/Mcf	US$/Mcf	US$/Mcf	US$/Mcf	US$/Mcf
	Rate	Rate	Real	Real	Real	Real	Real	Real
Forecast								
2020	1.30	1.13	$2.40	$1.40	$1.90	$1.95	$4.90	$3.00
2021	1.30	1.13	$2.50	$1.50	$2.00	$2.05	$5.00	$2.60
2022	1.30	1.13	$2.70	$1.70	$2.20	$2.25	$5.20	$2.70
2023	1.30	1.13	$2.90	$1.90	$2.40	$2.45	$5.40	$2.85
2024	1.30	1.13	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00
2025	1.30	1.13	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00
2026	1.30	1.13	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00
2027	1.30	1.13	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00

Global trends

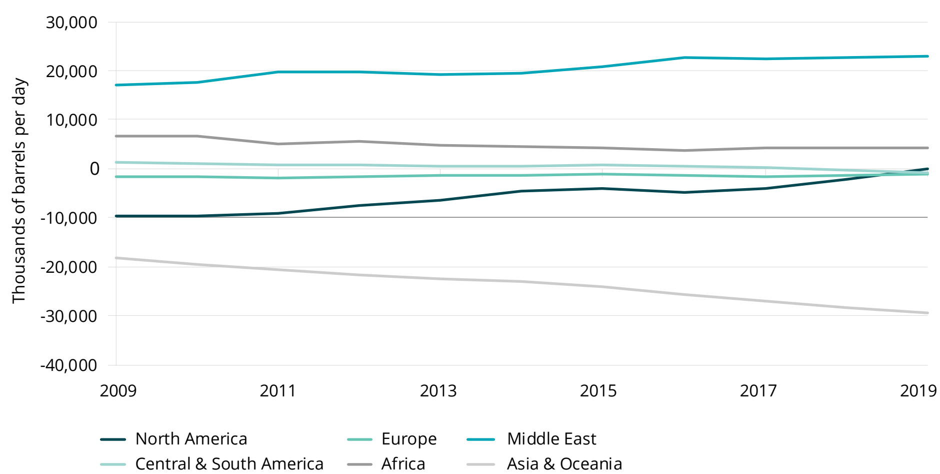
Oil

- Global oil production has continued to grow reaching over 95,000 bbl/d in 2019, representing a two percent increase from the previous year. The Middle East still holds the largest share of production at 33 percent with North America increasing to 26 percent of the market share.
- North America continues to move towards becoming a net exporter of oil with production growth outpacing consumption. Asia has continued movement towards increasing reliance on importing oil with consumption significantly outweighing the production capacity of the region.

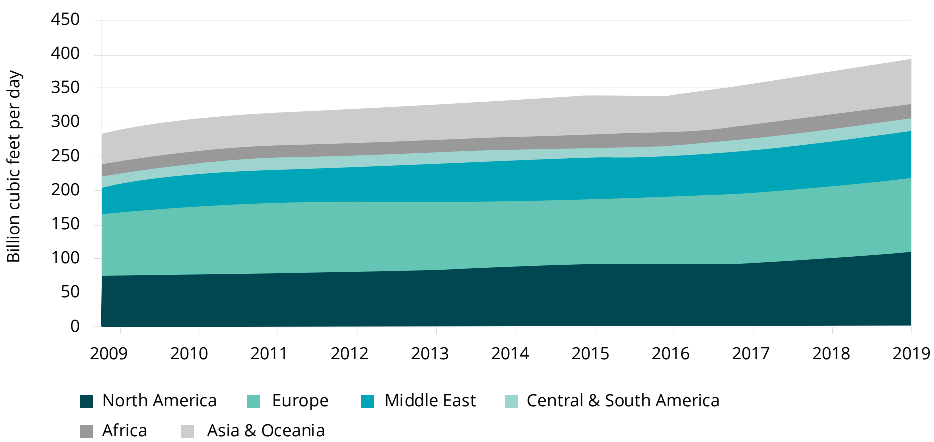
World oil production



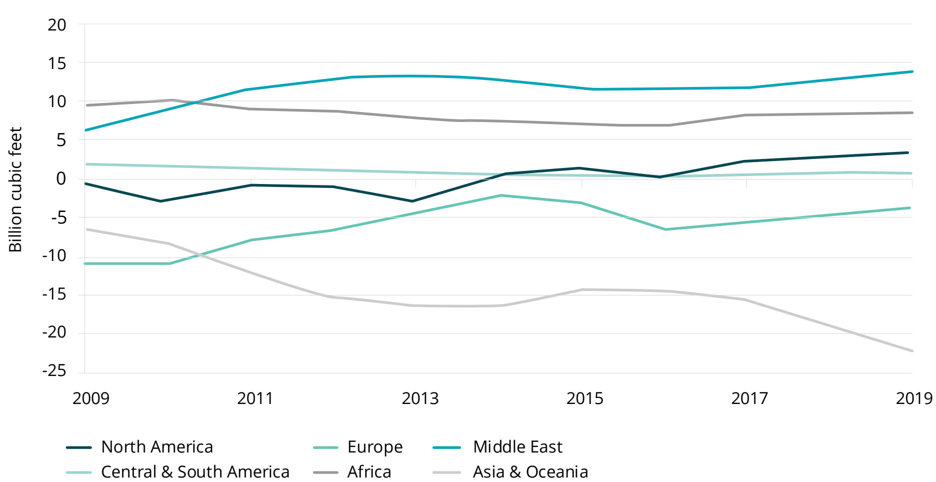
World net oil (Production minus consumption)



World gas production

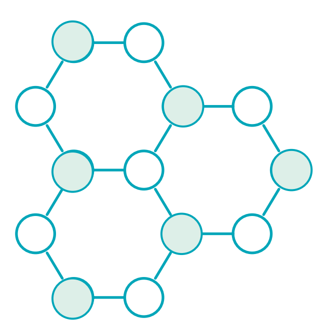


World net gas (Production minus consumption)



Gas

- Global gas production continued to grow more rapidly than oil, with a five percent increase in 2019. North America represents the largest growth market, with natural gas production increasing by 10 percent in 2019. Europe currently holds approximately 27 percent of global natural gas production, with North America gaining throughout 2019 to overtake the market at 28 percent.
- With the increases in production outpacing demand growth, North America shifted to become a net exporter of natural gas in 2019. Rapidly increasing consumption volumes in Asia, indicate that they will continue to be the main target of LNG exports in the future.



Storage

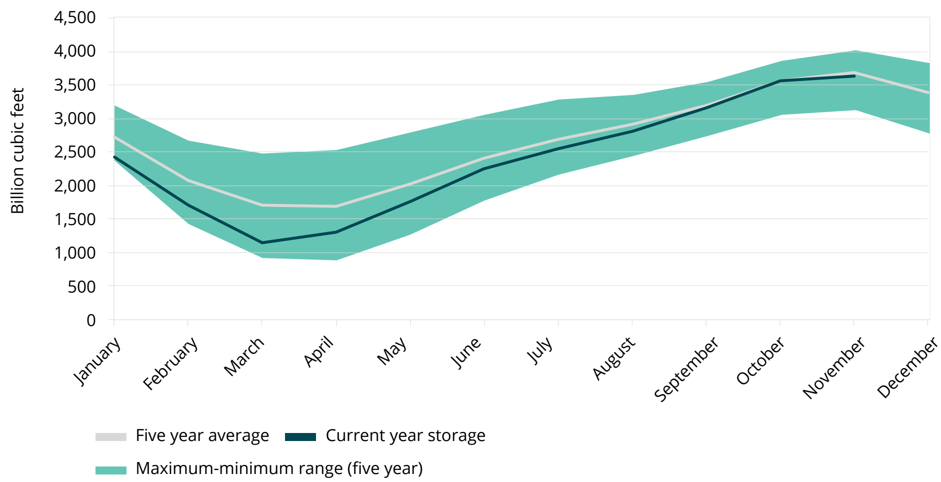
United States

- Natural gas storage in the United States has narrowed to be in line with the five year average as production continues to grow faster than demand.

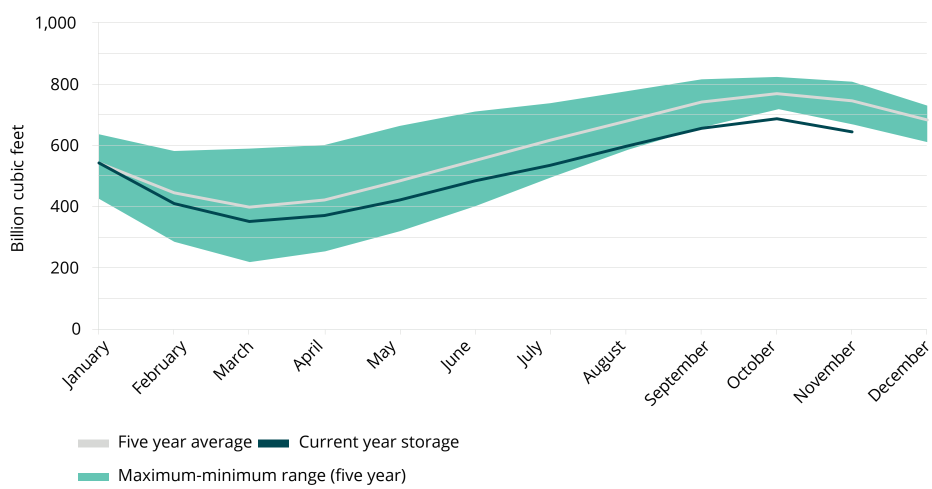
Canada

- Canadian natural gas storage fell below the five year average range in 2019. Production growth has slowed due to continued low prices, while demand growth continues to be strong.

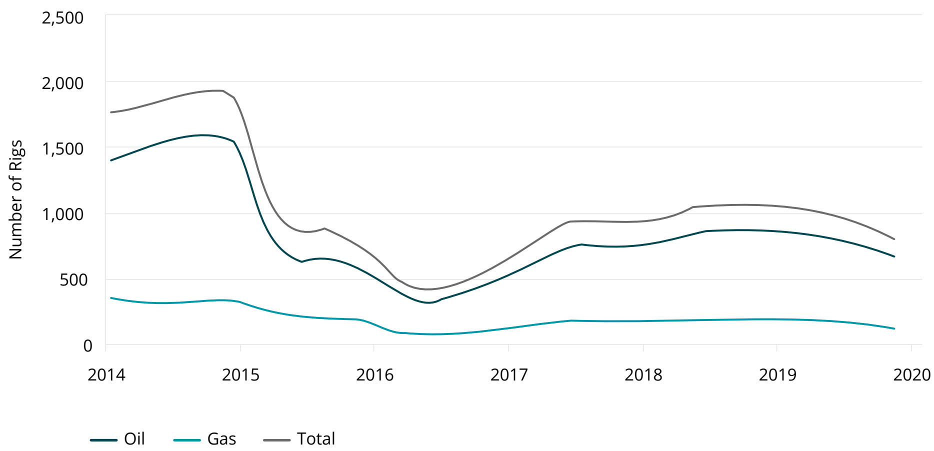
United States natural gas storage



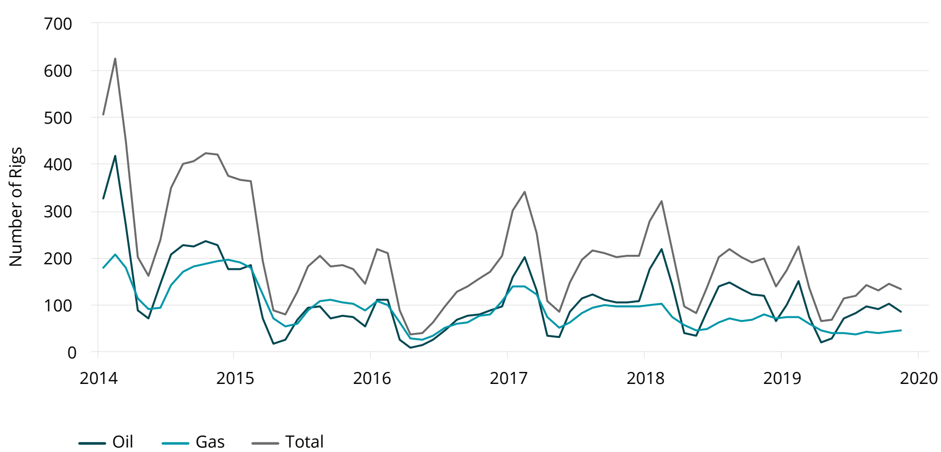
Canada natural gas storage



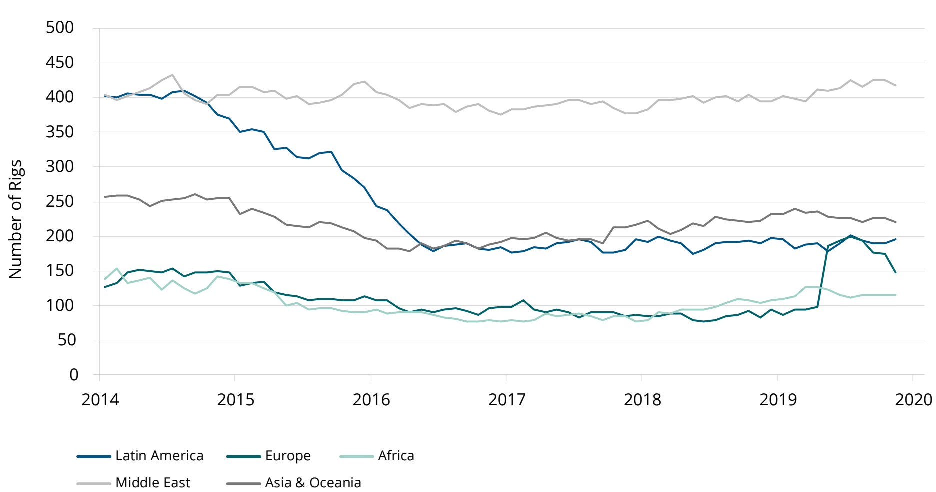
United States rig counts



Canada rig counts



International rig counts



Rigs

United States

- Rig counts in the United States have dropped throughout this year. With both WTI and Henry Hub weakening over the last quarter, this trend is likely to continue in the coming months.

Canada

- Weak gas prices and the extensions of oil production curtailments have contributed to the lowest total rig counts in over 20 years.

International

- International rig counts continue to remain steady in most regions. The European count saw a large increase in 2019 due to data set changes. The addition of rigs from Ukraine added approximately 85 rigs into the data set. Rigs in the Middle East increased over the year as production increased.

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								
2009	0.3%	0.3%	0.880	$72.30	$61.65	$77.51	$66.10	$58.66
2010	1.8%	1.8%	0.971	$92.82	$79.40	$90.96	$77.80	$67.22
2011	2.9%	2.9%	1.012	$108.98	$94.88	$109.73	$95.54	$77.12
2012	1.5%	1.5%	1.001	$104.94	$94.11	$96.53	$86.57	$73.10
2013	0.9%	0.9%	0.972	$107.51	$97.91	$102.52	$93.36	$74.97
2014	1.9%	1.9%	0.906	$101.45	$93.26	$102.25	$94.00	$81.06
2015	1.1%	1.1%	0.783	$51.95	$48.69	$60.82	$57.00	$44.80
2016	1.4%	1.4%	0.755	$45.53	$43.15	$55.09	$52.22	$38.90
2017	1.6%	1.6%	0.771	$52.91	$50.88	$64.35	$61.88	$50.53
2018	2.3%	2.3%	0.772	$66.44	$64.94	$70.70	$69.10	$49.68
2019								
12 Mths H	1.9%	1.9%	0.753	$56.80	$56.80	$68.78	$68.78	$58.41
0 Mths F	0.0%	0.0%	-	-	-	-	-	-
Avg.	N/A	N/A	0.753	$56.80	$56.80	$68.78	$68.78	$58.41
Forecast								
2020	0.0%	0.0%	0.760	$58.00	$58.00	$68.40	$68.40	$53.95
2021	2.0%	2.0%	0.760	$60.00	$61.20	$71.70	$73.15	$57.75
2022	2.0%	2.0%	0.780	$63.00	$65.55	$72.10	$75.00	$59.35
2023	2.0%	2.0%	0.800	$63.00	$66.85	$72.50	$76.95	$61.00
2024	2.0%	2.0%	0.800	$63.00	$68.20	$72.50	$78.50	$62.25
2025	2.0%	2.0%	0.800	$63.00	$69.55	$72.50	$80.05	$63.50
2026	2.0%	2.0%	0.800	$63.00	$70.95	$72.50	$81.65	$64.75
2027	2.0%	2.0%	0.800	$63.00	$72.35	$72.50	$83.30	$66.05
2028	2.0%	2.0%	0.800	$63.00	$73.80	$72.50	$84.95	$67.35
2029	2.0%	2.0%	0.800	$63.00	$75.30	$72.50	$86.65	$68.70
2030	2.0%	2.0%	0.800	$63.00	$76.80	$72.50	$88.40	$70.10
2031	2.0%	2.0%	0.800	$63.00	$78.35	$72.50	$90.15	$71.50
2032	2.0%	2.0%	0.800	$63.00	$79.90	$72.50	$91.95	$72.90
2033	2.0%	2.0%	0.800	$63.00	$81.50	$72.50	$93.80	$74.40
2034	2.0%	2.0%	0.800	$63.00	$83.15	$72.50	$95.65	$75.85
2035	2.0%	2.0%	0.800	$63.00	$84.80	$72.50	$97.60	$77.40
2036	2.0%	2.0%	0.800	$63.00	$86.50	$72.50	$99.55	$78.95
2037	2.0%	2.0%	0.800	$63.00	$88.20	$72.50	$101.50	$80.50
2038	2.0%	2.0%	0.800	$63.00	$90.00	$72.50	$103.55	$82.10
2039	2.0%	2.0%	0.800	$63.00	$91.80	$72.50	$105.60	$83.75
2039+	2.0%	2.0%	0.800	0.0%	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 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
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- NGL prices have been switched from a mix reference to a spec reference

	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											
2009	$11.61	$34.62	$56.21	$69.49	$3.85	$4.64	$3.96	$4.17	$4.63	$3.95	($5.08)
2010	$11.53	$45.19	$68.79	$84.02	$3.76	$4.69	$4.01	$4.01	$5.13	$4.39	$56.94
2011	$10.30	$52.41	$86.98	$105.24	$3.46	$4.17	$3.63	$3.34	$4.59	$4.00	$101.60
2012	$6.73	$30.80	$75.47	$99.67	$2.25	$2.66	$2.39	$2.29	$3.07	$2.75	$126.81
2013	$8.68	$38.54	$77.44	$103.52	$2.98	$3.48	$3.17	$3.11	$4.09	$3.73	$62.17
2014	$12.46	$42.93	$59.43	$101.47	$4.22	$4.90	$4.50	$4.16	$4.78	$4.39	$88.99
2015	$7.49	$5.35	$33.70	$55.15	$2.56	$2.87	$2.69	$1.81	$2.81	$2.63	$107.45
2016	$6.04	$8.71	$31.45	$52.43	$1.93	$2.28	$2.16	$1.75	$2.65	$2.52	$45.40
2017	$6.11	$27.92	$40.98	$63.65	$2.13	$2.28	$2.19	$1.56	$3.10	$2.99	$41.85
2018	$6.90	$29.76	$46.17	$75.74	$1.36	$1.57	$1.54	$1.26	$3.24	$3.17	$89.25
2019											
12 Mths H	$5.28	$14.81	$20.82	$65.83	$1.45	$1.82	$1.82	$1.02	$2.58	$2.58	$45.55
0 Mths F	-	-	-	-	-	-	-	-	-	-	-
Avg.	$5.28	$14.81	$20.82	$65.83	$1.45	$1.82	$1.82	$1.02	$2.58	$2.58	$45.55
Forecast											
2020	$5.90	$17.10	$23.95	$66.35	$1.85	$2.10	$2.10	$1.40	$2.40	$2.40	$50.00
2021	$6.45	$25.60	$36.55	$73.15	$2.05	$2.25	$2.30	$1.60	$2.50	$2.55	$51.00
2022	$7.15	$33.75	$48.75	$75.00	$2.30	$2.45	$2.55	$1.80	$2.70	$2.80	$52.00
2023	$7.85	$34.65	$50.05	$76.95	$2.55	$2.65	$2.80	$2.05	$2.90	$3.10	$53.05
2024	$8.00	$35.35	$51.05	$78.50	$2.60	$2.65	$2.85	$2.10	$2.90	$3.15	$54.10
2025	$8.15	$36.05	$52.05	$80.05	$2.65	$2.65	$2.95	$2.15	$2.90	$3.20	$55.20
2026	$8.35	$36.75	$53.10	$81.65	$2.70	$2.65	$3.00	$2.20	$2.90	$3.25	$56.30
2027	$8.50	$37.50	$54.15	$83.30	$2.75	$2.65	$3.05	$2.25	$2.90	$3.35	$57.45
2028	$8.65	$38.25	$55.25	$84.95	$2.80	$2.65	$3.10	$2.30	$2.90	$3.40	$58.60
2029	$8.85	$39.00	$56.35	$86.65	$2.85	$2.65	$3.15	$2.35	$2.90	$3.45	$59.75
2030	$9.00	$39.80	$57.50	$88.40	$2.95	$2.65	$3.25	$2.40	$2.90	$3.55	$60.95
2031	$9.20	$40.60	$58.65	$90.15	$3.00	$2.65	$3.30	$2.40	$2.90	$3.60	$62.15
2032	$9.40	$41.40	$59.80	$91.95	$3.05	$2.65	$3.35	$2.45	$2.90	$3.70	$63.40
2033	$9.55	$42.25	$61.00	$93.80	$3.10	$2.65	$3.45	$2.50	$2.90	$3.75	$64.70
2034	$9.75	$43.10	$62.20	$95.65	$3.15	$2.65	$3.50	$2.55	$2.90	$3.85	$65.95
2035	$9.95	$43.95	$63.45	$97.60	$3.25	$2.65	$3.55	$2.60	$2.90	$3.90	$67.30
2036	$10.15	$44.80	$64.75	$99.55	$3.30	$2.65	$3.65	$2.70	$2.90	$4.00	$68.65
2037	$10.35	$45.70	$66.00	$101.50	$3.35	$2.65	$3.70	$2.75	$2.90	$4.05	$70.00
2038	$10.55	$46.65	$67.35	$103.55	$3.45	$2.65	$3.80	$2.80	$2.90	$4.15	$71.40
2039	$10.80	$47.55	$68.70	$105.60	$3.50	$2.65	$3.85	$2.85	$2.90	$4.20	$72.85
2039+	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	2.0%	2.0%	0.0%	2.0%	2.0%

Notes:

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- All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
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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				
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	$73.06	$62.82	$54.46	$4.07
2019				
12 Mths H	$69.90	$65.45	$58.90	$3.24
0 Mths F	-	-	-	-
Avg.	$69.90	$65.45	$58.90	$3.24
Forecast				
2020	$69.40	$64.40	$54.85	$2.95
2021	$74.15	$68.05	$58.80	$3.15
2022	$76.05	$69.80	$60.40	$3.40
2023	$78.00	$71.65	$62.10	$3.65
2024	$79.55	$73.05	$63.30	$3.75
2025	$81.15	$74.55	$64.60	$3.80
2026	$82.75	$76.00	$65.90	$3.90
2027	$84.45	$77.55	$67.20	$3.95
2028	$86.10	$79.10	$68.55	$4.05
2029	$87.85	$80.65	$69.90	$4.10
2030	$89.60	$82.30	$71.30	$4.20
2031	$91.40	$83.95	$72.75	$4.30
2032	$93.20	$85.60	$74.20	$4.40
2033	$95.10	$87.30	$75.70	$4.45
2034	$97.00	$89.05	$77.20	$4.55
2035	$98.90	$90.85	$78.75	$4.65
2036	$100.90	$92.65	$80.30	$4.75
2037	$102.90	$94.50	$81.90	$4.85
2038	$105.00	$96.40	$83.55	$4.95
2039	$107.10	$98.35	$85.20	$5.05
2039+	2.0%	2.0%	2.0%	2.0%

Notes:

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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 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	$58.00	$57.00	$62.00	$62.00	$61.00	$59.00	$54.00	$62.00	$59.00	$61.00	$52.00	$63.25	$61.00	$56.00	$61.75	$59.00
2021	$60.00	$59.00	$64.00	$64.00	$63.00	$61.00	$56.00	$64.00	$61.00	$63.00	$56.00	$65.25	$63.00	$57.00	$63.75	$61.00
2022	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2023	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2024	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2025	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2026	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2027	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2028	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2029	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2030	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2031	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2032	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2033	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2034	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2035	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2036	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2037	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2038	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
2039	$63.00	$62.00	$67.00	$67.00	$66.00	$64.00	$59.00	$67.00	$64.00	$66.00	$59.00	$68.25	$66.00	$59.00	$66.75	$64.00
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	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mtn. Opal	UK NBP	India Domestic Gas	US CBOT Ethanol
			Natural Gas pricing						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	1.300	1.130	$2.40	$1.40	$1.90	$1.95	$4.90	$3.00	$1.40
2021	1.300	1.130	$2.50	$1.50	$2.00	$2.05	$5.00	$2.60	$1.40
2022	1.300	1.130	$2.70	$1.70	$2.20	$2.25	$5.20	$2.70	$1.40
2023	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$2.85	$1.40
2024	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2025	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2026	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2027	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2028	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2029	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2030	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2031	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2032	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2033	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2034	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2035	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2036	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2037	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2038	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2039	1.300	1.130	$2.90	$1.90	$2.40	$2.45	$5.40	$3.00	$1.40
2039+	1.300	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.

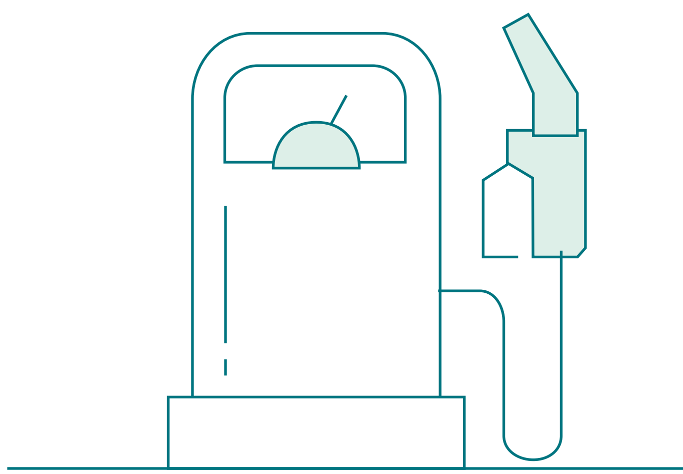
Deloitte prepares our price and market forecasts based on information we collect from numerous government agencies, industry publications, oil refineries, natural gas marketers and industry trends. Inflation forecasts and exchange rates are also an integral part of the forecast.

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



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