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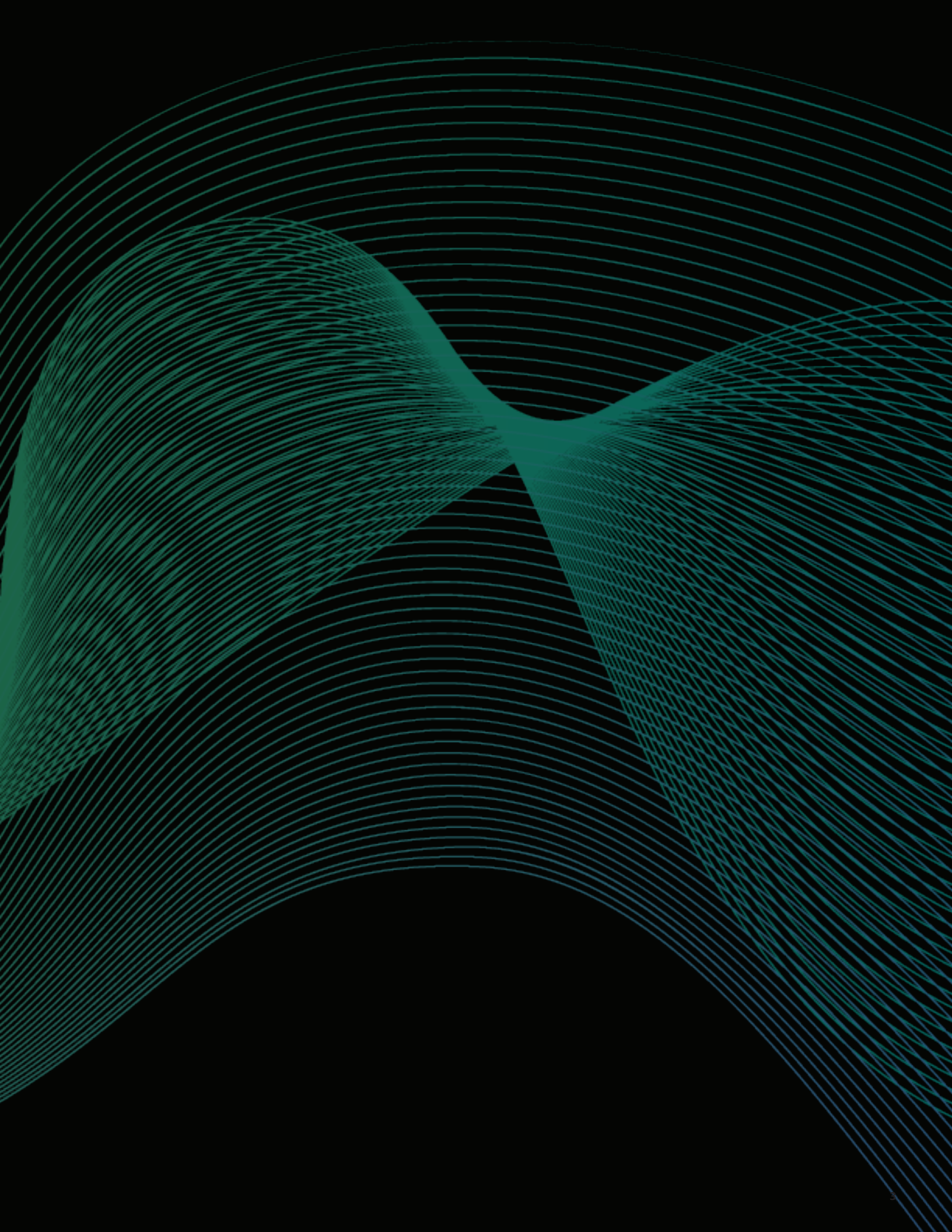
Oil and gas price forecast

Strategic transitioning: The future
of oil and gas in a decarbonized world

March 31, 2022



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Forecast commentary

Global oil and gas prices soared in Q1 2022 as Russia invaded Ukraine and many countries rallied together to implement global economic sanctions against the aggressors in place. Several Western countries and refiners agreed to ban imports of Russian oil and gas as an economic lever. The announcement by OPEC that it would adhere to its supply agreement amid the turmoil elevated crude oil prices even more at the beginning of March.

In response, 31 member nations of the International Energy Agency (IEA) committed to emergency drawdowns of 60 million barrels of crude oil from strategic reserves, with the United States committed to releasing 30 million barrels. This is the first time since Libyan disruptions in 2011 that IEA members have agreed to emergency drawdowns to

ensure adequate global supply. The impact, however, will be minimal as these releases represents only a single day's worth of combined global demand. Russia is the third -largest producer of liquid fuels in the world and exports a large percentage of production.

The various bans on Russian oil resulted in West Texas Intermediate (WTI) spot prices well above US\$100 per barrel. It seems unlikely the global crude oil market will ever return to where it was before the Russian invasion of Ukraine. With major producers announcing intentions to sell off stakes in Russian operations, and many countries' national energy policies shifting away from Russian supply, the future of crude oil supply routes remains undetermined as war rages on.

Western Canadian Select (WCS) prices have maintained a narrow differential to WTI in Q1 2022, even while Canadian oil production reached record highs.

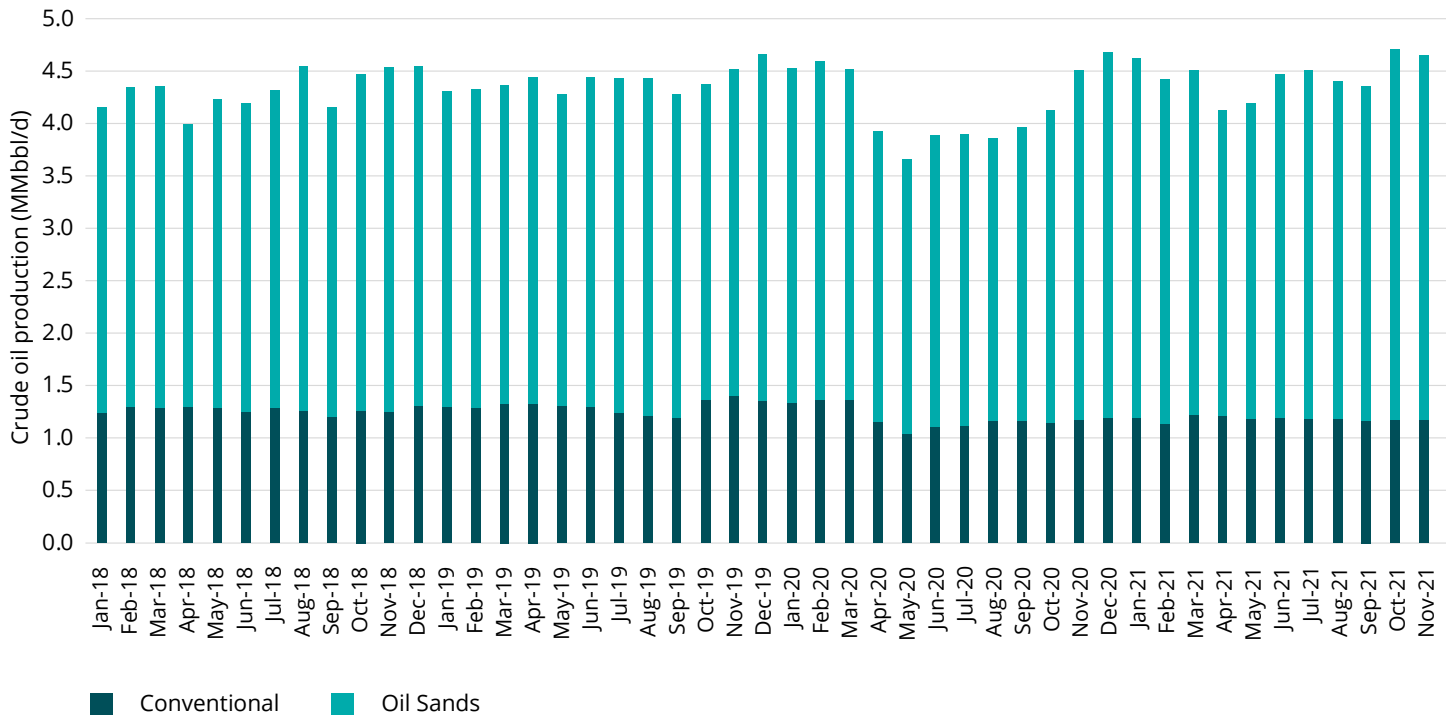
Oil prices were already trending upward prior to the war, with stronger crude oil demand due to the ease of COVID-19 restrictions in many places. The misalignment of supply and demand is well illustrated by global crude oil inventories, where Organization for Economic Co-operation and Development (OECD) countries' total oil stocks dropped to the lowest levels since 2014.

The high price environment and import sanctions against Russian oil has spurred North American producers to increase production. Although US crude oil production has not yet returned to pre-pandemic levels, US operator discipline is waning, and producers have indicated plans to increase capital spending for the year. In its March 2022 short-term energy outlook release, the

US Energy Information Administration (EIA) predicts that US production will average 12 million barrels per day in 2022, an increase of 0.4 million barrels from December 2021 rates but still below peak production of 13 million barrels per day in March 2020.

Western Canadian Select (WCS) prices have maintained a narrow differential to WTI in Q1 2022, even while Canadian oil production reached record highs. Canadian producers are likely to replace a portion of US import volumes from Russia, but, with oilsands operators already running near capacity in 2022, they may need to defer spring maintenance activities to increase outputs for export to the United States.

Canadian crude production



Source: CER; production volumes do not include condensate production.

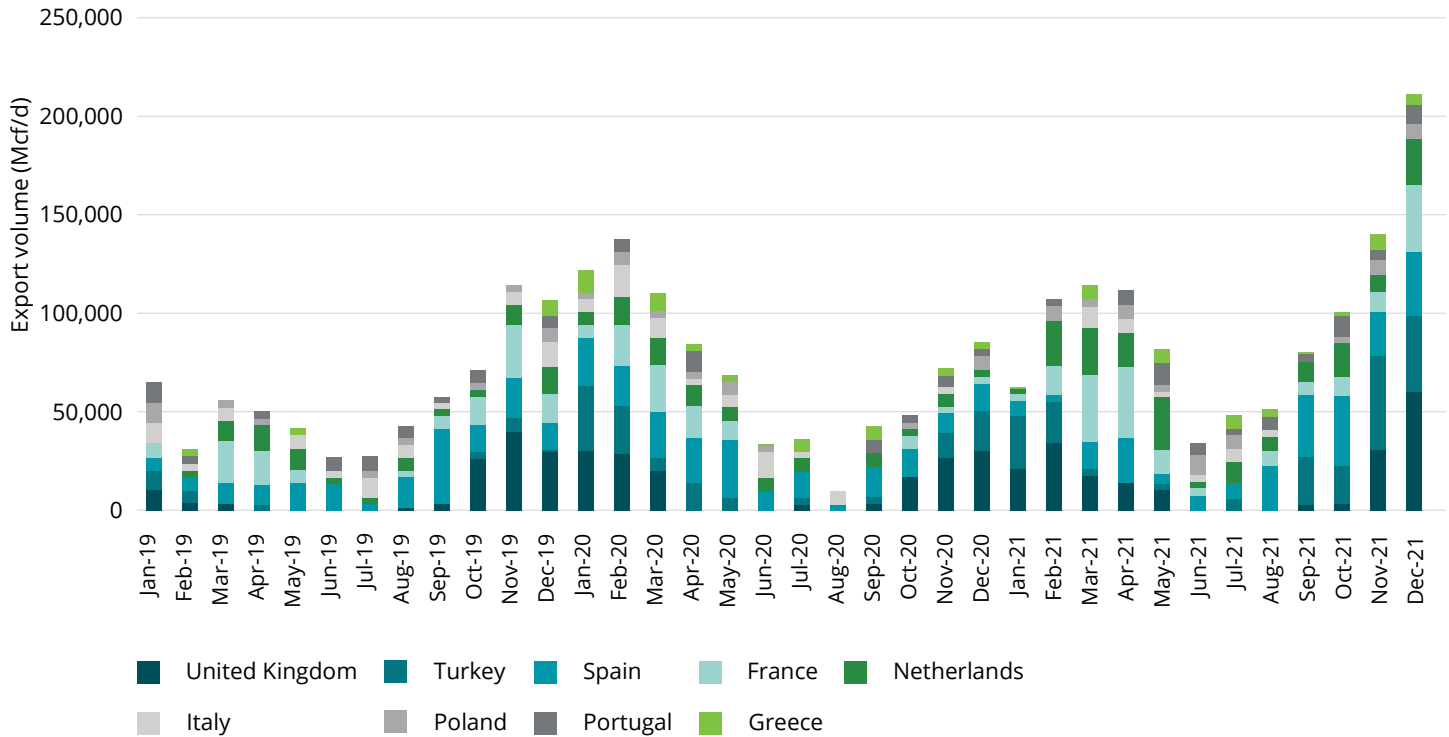
Conventional assets are not typically as carbon intensive as oil sands production so increasing production here in the short term is not likely to challenge Canada's ability to meet our climate goals significantly. Investment in decarbonization technology for existing and future production is accelerating and is the foundation of the industry supporting those goals.

Deloitte expects oil prices will be as volatile over the next several years as the previous few, but for different reasons. Tight supply as a result of companies decarbonizing their portfolios will create upward pressure on prices. Managing the energy transition while meeting crude demand and energy security

will present many challenges for countries and organizations. High crude oil prices may accelerate investment in alternative sources of fuel as consumers look to move away from elevated commodities, which could alleviate some of the upward pressure.

Energy security within the European Union (EU) and United Kingdom has become a major concern as western European nations attempt to dissociate from Russian natural gas; in 2021, 40% of total gas consumption in the EU was supplied by Russian imports.¹ The Russian invasion resulted in record jumps in the price of natural gas, with UK National Balancing Point (NBP) hitting \$41.94/ per million British thermal units in March 2022.

US LNG exports to select European nations



Source: EIA.

¹ IEA March 3, 2022 publication "A 10-Point Plan to Reduce the European Union's Reliance on Russian Natural Gas"

The IEA has introduced a ten-point plan to reduce Europe's reliance on Russian natural gas, which includes switching to liquified natural gas (LNG) from other suppliers, the introduction of minimum gas storage requirements within Europe, and the development of alternative energy sources, such as wind and solar. The European Commission also added their voice to calls for a move away from Russian natural gas. With these plans calling for increased investment in renewables, natural gas may lose its place as a primary energy source. That will depend on whether the renewable investment case is more promising than the case for increasing European regasification capacity or domestic natural gas production.

LNG providers are set to benefit from the pivot away from Russia's natural gas supply, with the United States well positioned within

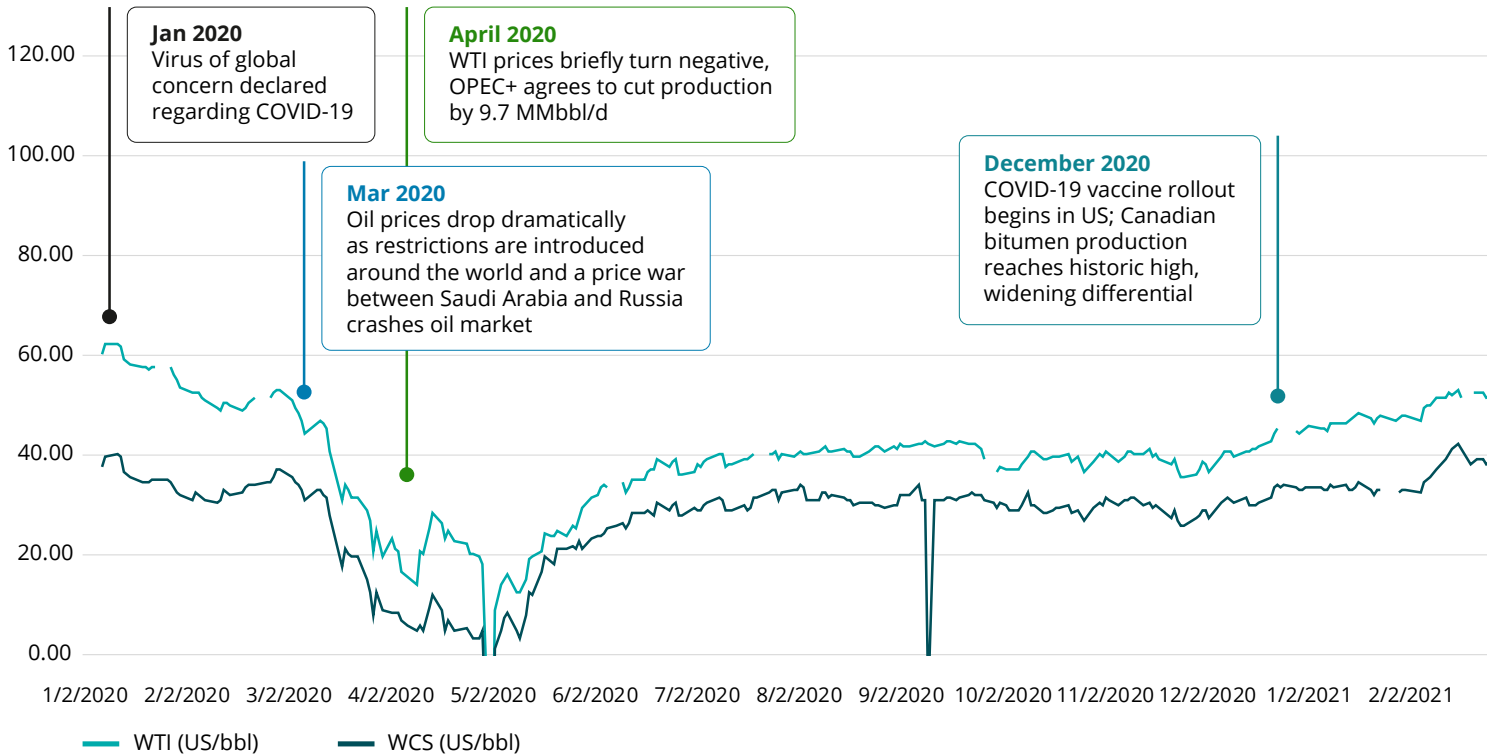
the market. In 2021, US LNG accounted for 26% of EU and UK LNG imports, followed by Qatar at 24% and Russia at 20%. By January 2022, the United States supplied more than 50% of all LNG imports into Europe, a record 6.5 billion cubic feet per day. LNG exports from the United States to Europe increased in Q1 2022 as a result of EU supply concerns and high European trading hub prices. This trend is expected to continue as the United States ramps up liquification capacity in 2022 and the EU looks to secure supply from alternative sources.

North American gas markets look strong heading into the spring and prices are expected to remain elevated into Q2 2022. With the current domestic development rates in the United States, Canadian natural gas is well positioned to be a supply source for US LNG exports.

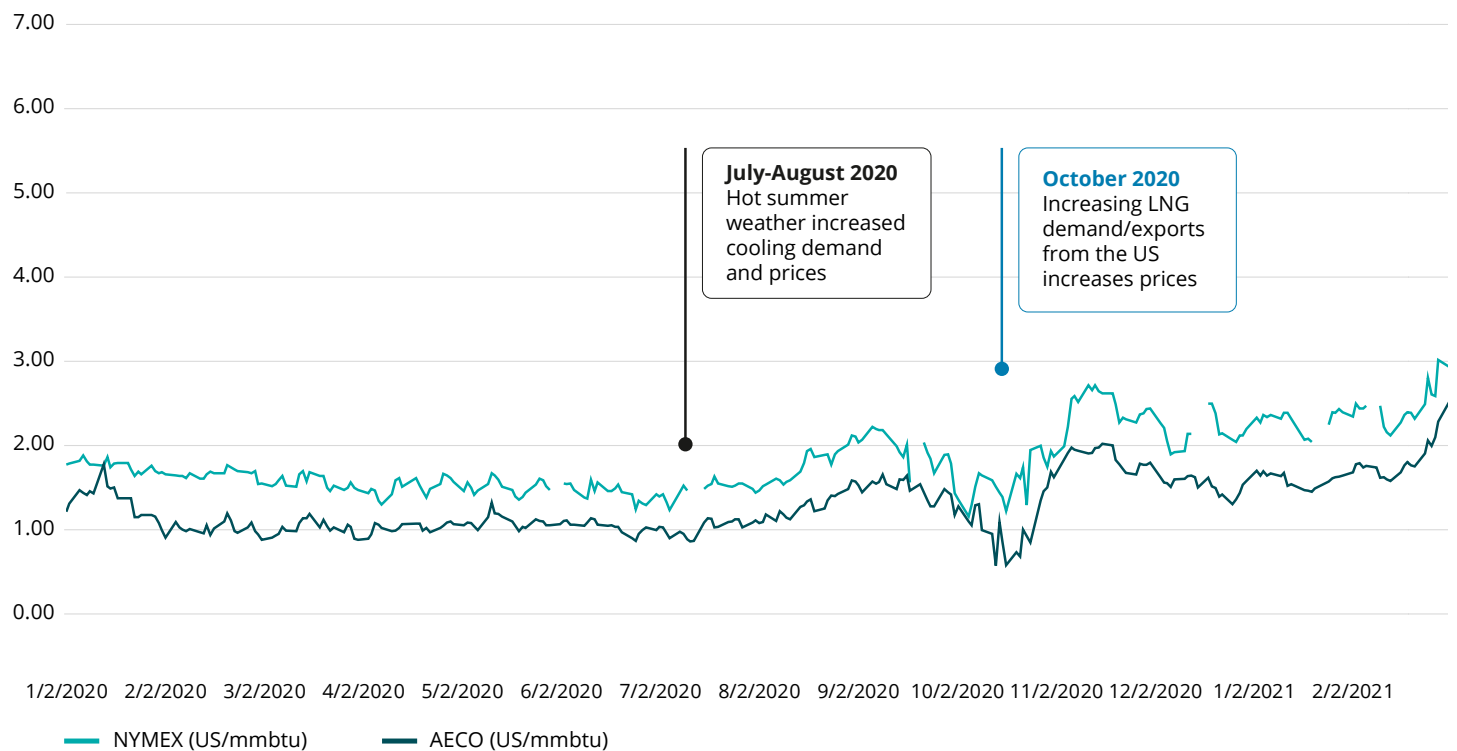
Lookback on oil and gas price drivers and major events and milestones since January 2020

It has been a historic two years for commodity prices as the world grappled with a demand shock from a global pandemic, energy transition investments competing against supply concerns, and supply disruptions with Russia sanctions.

Oil prices



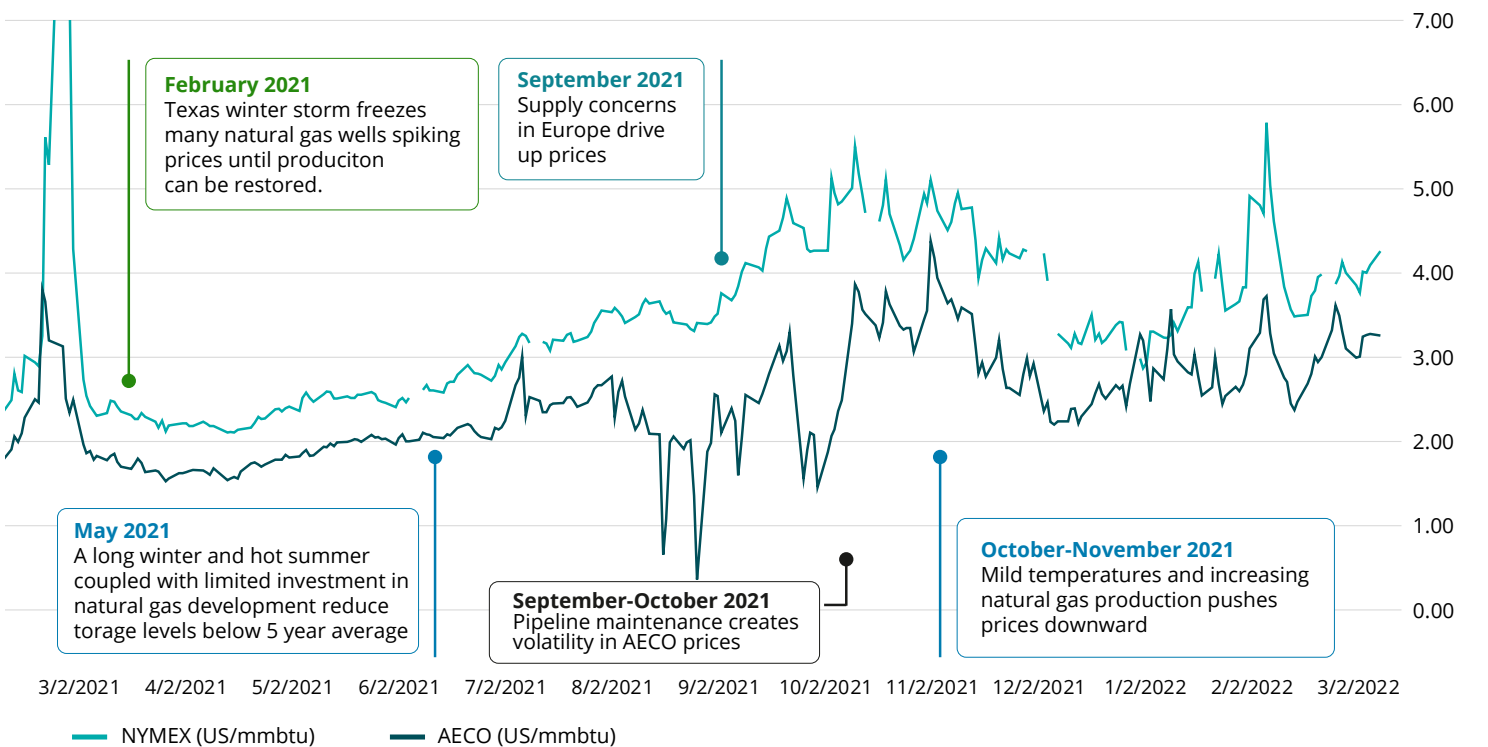
Gas prices



Oil prices



Gas prices



Strategic transitioning: The future of oil and gas in a decarbonized world

Introduction

The global response to the Russian invasion of Ukraine quickly pushed the prices of oil and gas toward uncharted territory.

The United States, a net exporter of energy, placed a total ban on Russian oil imports.

The UK plans to phase out Russian oil imports by the end of this year. The fact that the 27 countries that make up the European Union have not followed suit speaks to their continued deep dependence on oil and gas for meeting their energy needs and maintaining their economies.

For Canadian producers, the soaring price of oil could result in record-high revenues in 2022. Many companies will be tempted to maximize profits from existing assets and reward shareholders with higher dividends. In fact, with so many countries in Europe turning off the taps for Russian energy, Canadian companies may find themselves selling into new markets (albeit not in the short term).

However, the situation in Ukraine and Europe's sourcing issues do not change the fact that the oil industry is under enormous pressure to continue to work toward global decarbonization goals. Indeed, Europe is now more incentivized than ever—both politically and economically—to find domestic energy alternatives for the long term. This, combined with the increasing value capital markets

are placing on environmental, social, and governance (ESG) factors, is leading companies to consider investing current profits into projects that will help them transition to greener portfolios.

Broadly speaking, investing in a greener portfolio will allow these companies to continue as energy providers well into the future. Finding the right investments and the right mix for capital allocation, however, presents several challenges. An effective approach to making those difficult decisions will be key to finding the most robust solutions on what could be a volatile and variable transition path.

Ready, steady, go green

The oil and gas industry has never been as well positioned for the major transition required for it to continue to supply energy for a decarbonized future.

The strength of the industry's balance sheets, especially among the largest producers, is a key factor here. High crude prices mean that many energy producers have cash on hand to strategically deploy for decarbonization. And make no mistake, the transition to net-zero will be expensive. The Intergovernmental Panel on Climate Change (IPCC) estimates that annual investments of almost \$3 trillion are needed to limit warming to 2°C by 2050, or \$3.5 trillion to limit warming to 1.5°C.¹

Going green has never been so appealing to capital markets. Investors are placing a premium on ESG factors and rewarding companies that are leading the industry in decarbonization as well as those making the technologies other organizations will need for their own net-zero goals.² This is not exclusive to public markets; projects with a green angle are also seen as more attractive to many private equity or venture capital investors.³

In short, this is an excellent time for companies to consider their roles in an increasingly decarbonized economy. Even without the situation in Ukraine, the world is putting a lot of energy into efforts to achieve net-zero. Technologies for alternatives to oil and gas are developing

Other industries, noting market support for ESG, are seeking to reduce their carbon footprints. Major utilities, for example, expect to rely less on hydrocarbons to generate electricity in the future.

Challenges of the green pivot

Transforming to a decarbonized economy is not a matter of flipping a switch. While goals have been set, the timetables for specific transformations remain uncertain. Major oil and gas consumers—including utilities, airlines, shippers, and manufacturers—have different expectations for their own transformations. Those timetables will depend on the availability of alternatives and the capital and economics to make the shift possible.

An effective approach to making those difficult decisions will be key to finding the most robust solutions on what could be a volatile and variable transition path.

rapidly. Battery capacity for electric vehicles (EVs) is increasing and major automakers are including more EVs in their offerings. Investments in carbon capture, utilization, and storage (CCUS) facilities continue to grow.

Of course, EV batteries and CCUS facilities are only part of the story. The race to develop alternative energy sources is far from over. The intriguing opportunities offered by hydrogen as a fuel source continue to support the viability of hydrogen cells. At the same time, solar and wind energy prices continue to fall and, in some areas, are becoming more competitive than hydrocarbons.

Similarly, countries are working on different timetables for achieving net-zero. Germany, where support for renewables is strong, put itself in a difficult position when it moved away from nuclear power generation without replacing it with sufficient generation or storage capacity of renewable sources to make the transition viable. As a result, Germany continues to rely on natural gas supplies from Russia.

With the ongoing situation in Ukraine, German authorities would like nothing more than to end their dependence. Diversifying sources by purchasing from safer geographies is one option, but there are major hurdles for Germany if it adheres to its plan to transition to renewables. Take Canadian liquified natural gas (LNG) as an example. Apart from the challenge of attracting the long-term investment required to build and run LNG terminals, any new project would take about five years to construct once approved.⁴ Other countries in Europe, to differing degrees, are facing similar dilemmas.

Another obstacle is infrastructure. The level of investment needed for a net-zero ecosystem is too great for any single entity. Building the necessary infrastructure will require collaboration among private industry, utilities, governments, Indigenous groups, and citizens. While Canada has invested \$376 million⁵ in EV charging systems, a much larger investment will be needed to build out all the necessary infrastructure. Leveraging a US analysis, Electric Autonomy Canada estimates the total investment required for

charging infrastructure to be about \$10.5 billion, with approximately \$4.5 billion of that figure going to public spaces.⁵

Regulations could also hamper efforts to build this infrastructure. For example, the mining of copper, an essential metal in electrification, may be limited by environmental regulators and, ironically, slow the transition from hydrocarbons. Sanctions blocking Russian imports boost the prices of other commodities, such as nickel, aluminum, and palladium, which could also hinder infrastructure projects.

Another constraint could be consumer buy-in. While most people agree that climate change must be controlled, not everyone is aware of or prepared for the disruptions this may entail. The recent spike in the price of gas has the US government considering ways to increase supply and ease the impact on consumers. It's unlikely any short-term measures will be aligned with net-zero goals. Consumer buy-in could also be affected in the long term if alternatives to oil and gas fail to provide the same level of reliability.

Companies should study the markets where transitions are making solid progress and understand what challenges may apply to transitioning in their own markets.

Over the next decade, oil and gas price volatility could also impact transition timelines, depending on the industry and geography. As mentioned earlier, geopolitical pressures have amplified calls in Europe and the UK for greater energy security. Other than depending less on Russian suppliers, the path to energy security for Europe is far from certain. Solutions could prove disruptive to decarbonization efforts. Canadian energy suppliers are watching developments with keen interest.

No straight paths

The process of decarbonization and the transition away from hydrocarbons is already underway in many markets. However, the path is far from straight. The transition will occur in stages influenced by many factors, including shifts in demand, technology developments, infrastructure needs, government policies, and consumer sentiment.

For oil and gas companies, the way forward is crowded with options. Companies considering how to allocate capital should take a holistic approach to their decision-making. They should study the markets where transitions are making solid progress and understand what challenges may apply to transitioning in their own markets.

Strategies should be thoroughly tested and modelled to determine the viability of specific products and services for a net-zero future. This will go a long way toward recognizing the possible risks and rewards of any potential investment and help companies decide where to invest, now and into the decarbonized future.

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¹ “Powering the Transition to Net Zero,” Brookfield, February 2021

² Garela, Alexandre and Arthur Petit-Romecb, “Investor rewards to environmental responsibility: Evidence from the COVID-19 crisis,” ScienceDirect, Vol. 28, June 2021

³ Prete, Ryan, “Apollo's \$100B sustainable investing platform looks beyond private equity,” PitchBook, February 25, 2022.

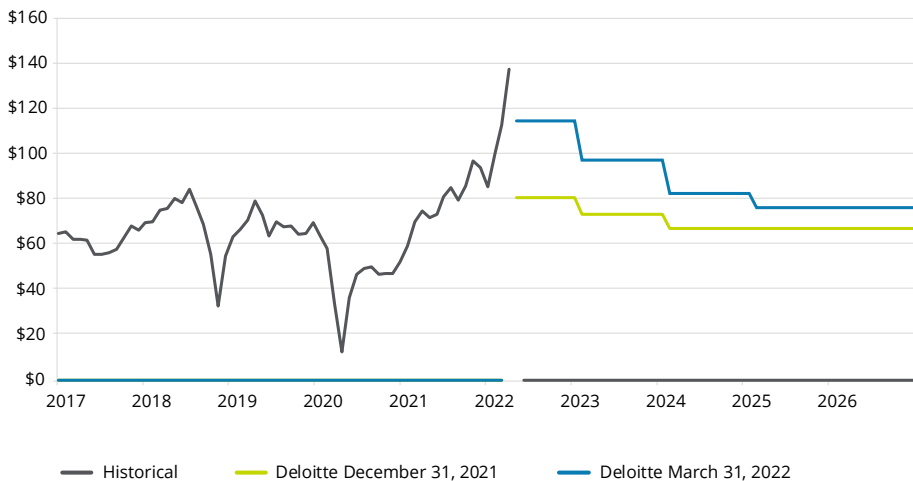
⁴ Disavino, Scott, “For LNG developers, another year of canceled projects,” Reuters, May 18, 2021.

⁵ “New U.S. study suggests Canada needs to significantly ramp up investment in public EV charging infrastructure,” Electric Autonomy Canada, April 26, 2021.

Canadian domestic price forecast

Crude oil price and market demand forecast

Edmonton par (real \$)



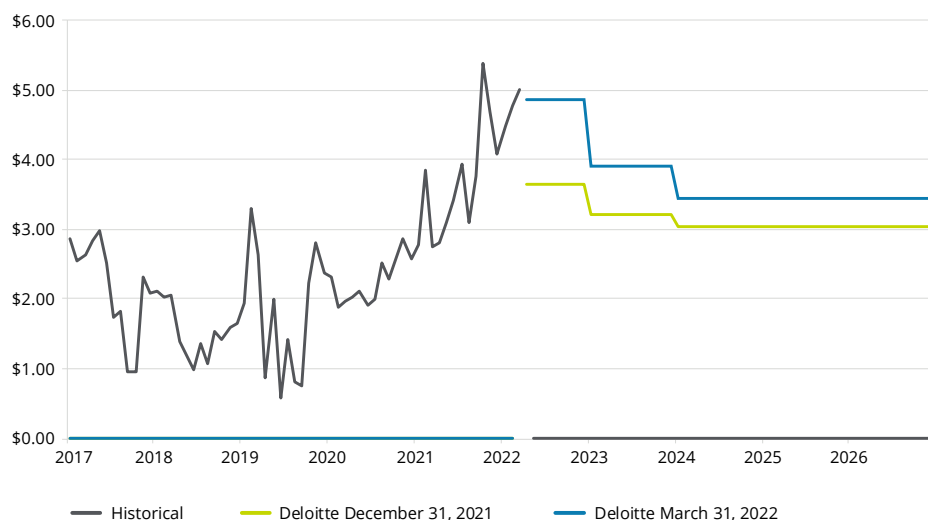
Forecast comments

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

Year	WTI Cushing, OK (40 API) US\$/bbl Real	WTI Cushing, OK (40 API) US\$/bbl Current	Edmonton City Gate (40 API) C\$/bbl Real	Edmonton City Gate (40 API) C\$/bbl Current	WCS Hardisty (20.5 API) C\$/bbl Current	Heavy Oil Hardisty (12 API) C\$/bbl Current	Cost Inflation Rate	CAD to USD Exchange Rate
Historical								
2019	\$60.60	\$56.98	\$73.40	\$69.02	\$57.33	\$55.11	1.9%	0.754
2020	\$40.90	\$39.23	\$47.64	\$45.69	\$36.09	\$31.48	0.7%	0.746
2021	\$70.38	\$67.99	\$83.27	\$80.44	\$68.21	\$63.82	3.4%	0.798
2022								
3 Mths H	\$94.27	\$94.27	\$117.95	\$117.95	\$103.68	\$92.68	5.3%	0.789
9 Mths F	\$92.50	\$92.50	\$115.40	\$115.40	\$104.50	\$100.00	0.0%	0.780
Avg.	\$92.94	\$92.94	\$116.04	\$116.04	\$104.30	\$98.17	-	0.782
Forecast								
2022	\$92.50	\$92.50	\$115.40	\$115.40	\$104.50	\$100.00	0.0%	0.780
2023	\$80.00	\$81.60	\$98.10	\$100.05	\$88.30	\$83.70	2.0%	0.780
2024	\$70.00	\$72.85	\$83.35	\$86.70	\$73.35	\$68.65	2.0%	0.780
2025	\$65.00	\$69.00	\$76.90	\$81.60	\$68.00	\$63.25	2.0%	0.780
2026	\$65.00	\$70.35	\$76.90	\$83.25	\$69.40	\$64.50	2.0%	0.780
2027	\$65.00	\$71.75	\$76.90	\$84.90	\$70.75	\$65.80	2.0%	0.780
2028	\$65.00	\$73.20	\$76.90	\$86.60	\$72.20	\$67.10	2.0%	0.780
2029	\$65.00	\$74.65	\$76.90	\$88.35	\$73.65	\$68.45	2.0%	0.780

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 C\$/Mcf Current	AB AECO Avg. Price C\$/Mcf Real	AB AECO Avg. Price C\$/Mcf Current	BC Direct Station 2 Sales C\$/Mcf Current	NYMEX Henry Hub US\$/Mcf Real	NYMEX Henry Hub US\$/Mcf Current
Historical						
2019	\$1.48	\$1.93	\$1.81	\$1.02	\$2.73	\$2.57
2020	\$2.00	\$2.35	\$2.25	\$2.20	\$2.12	\$2.04
2021	\$3.27	\$3.77	\$3.64	\$3.34	\$4.05	\$3.91
2022						
3 Mths H	\$4.37	\$4.75	\$4.75	\$4.74	\$4.58	\$4.58
9 Mths F	\$4.45	\$4.85	\$4.85	\$4.75	\$4.90	\$4.90
Avg.	\$4.43	\$4.83	\$4.83	\$4.75	\$4.82	\$4.82
Forecast						
2022	\$4.45	\$4.85	\$4.85	\$4.75	\$4.90	\$4.90
2023	\$3.55	\$3.90	\$4.00	\$3.90	\$4.00	\$4.10
2024	\$3.15	\$3.45	\$3.60	\$3.50	\$3.50	\$3.65
2025	\$3.25	\$3.45	\$3.65	\$3.55	\$3.50	\$3.70
2026	\$3.30	\$3.45	\$3.75	\$3.65	\$3.50	\$3.80
2027	\$3.35	\$3.45	\$3.80	\$3.70	\$3.50	\$3.85
2028	\$3.45	\$3.45	\$3.90	\$3.75	\$3.50	\$3.95
2029	\$3.50	\$3.45	\$3.95	\$3.85	\$3.50	\$4.00

International price forecast

Crude oil price and market demand forecast

Year	Av. WTI Spot	Brent Spot (38.3 API with 0.37% sulphur content)	Gulf Coast ASC	Avg. OPEC Basket	Nigerian Bonny Light (33.4 API FOB)	Mexico Maya (21.8 API FOB)	Russia Urals (31.7 API FOB)
	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl	US\$/bbl
	Current	Current	Current	Current	Current	Current	Current
Forecast							
2022	\$92.50	\$95.50	\$90.50	\$94.50	\$95.50	\$88.25	\$70.50
2023	\$81.60	\$84.65	\$79.55	\$83.65	\$84.65	\$77.25	\$69.35
2024	\$72.85	\$75.95	\$70.75	\$74.90	\$75.95	\$68.40	\$68.65
2025	\$69.00	\$72.15	\$66.85	\$71.10	\$72.15	\$64.45	\$69.00
2026	\$70.35	\$73.60	\$68.20	\$72.50	\$73.60	\$65.75	\$70.35
2027	\$71.75	\$75.10	\$69.55	\$73.95	\$75.10	\$67.05	\$71.75
2028	\$73.20	\$76.60	\$70.95	\$75.45	\$76.60	\$68.40	\$73.20
2029	\$74.65	\$78.10	\$72.35	\$76.95	\$78.10	\$69.80	\$74.65

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

Natural gas price and market demand forecast

Year	USD to GBP Exchange	USD to EUR Exchange	NYMEX Henry Hub	Permian Waha	San Juan Ignacio	Rocky Mountain Opal	UK NBP	India Domestic Gas
			US\$/Mcf	US\$/Mcf	US\$/Mcf	US\$/Mcf	US\$/Mcf	US\$/Mcf
	Rate	Rate	Current	Current	Current	Current	Current	Current
Forecast								
2022	1.33	1.10	\$4.90	\$4.50	\$4.65	\$4.75	\$34.90	\$7.65
2023	1.33	1.10	\$4.10	\$3.65	\$3.85	\$3.95	\$24.50	\$14.35
2024	1.33	1.10	\$3.65	\$3.25	\$3.40	\$3.50	\$14.05	\$10.25
2025	1.33	1.10	\$3.70	\$3.30	\$3.45	\$3.55	\$14.35	\$6.30
2026	1.33	1.10	\$3.80	\$3.35	\$3.50	\$3.65	\$14.60	\$6.45
2027	1.33	1.10	\$3.85	\$3.40	\$3.60	\$3.70	\$14.90	\$6.55
2028	1.33	1.10	\$3.95	\$3.50	\$3.65	\$3.75	\$15.20	\$6.70
2029	1.33	1.10	\$4.00	\$3.55	\$3.75	\$3.85	\$15.50	\$6.85

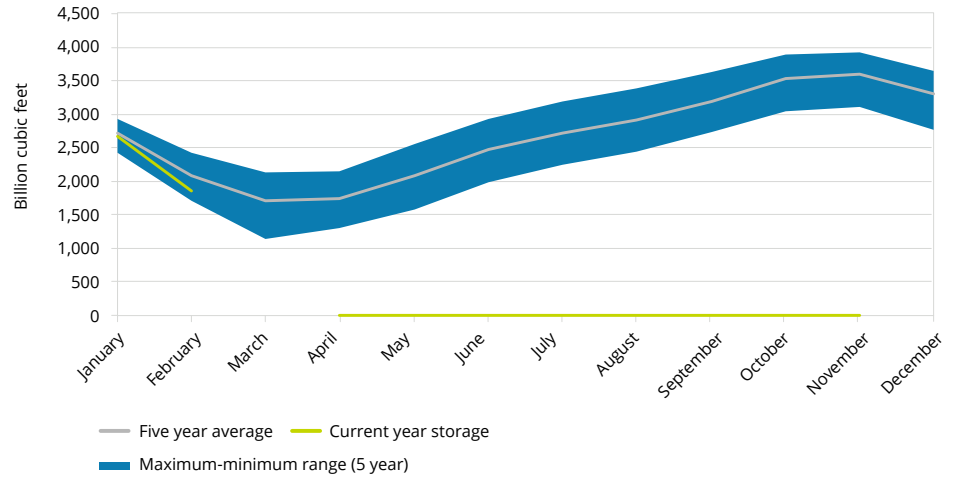
Global trends

Storage

United States

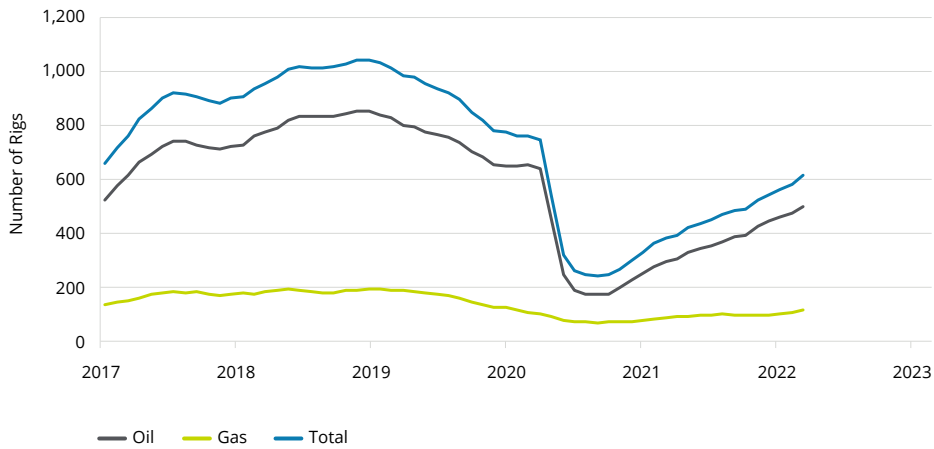
Natural gas storage in the United States is below the five year average and close to a five year low. This sets the stage for continued strong prices moving into spring.

US natural gas storage



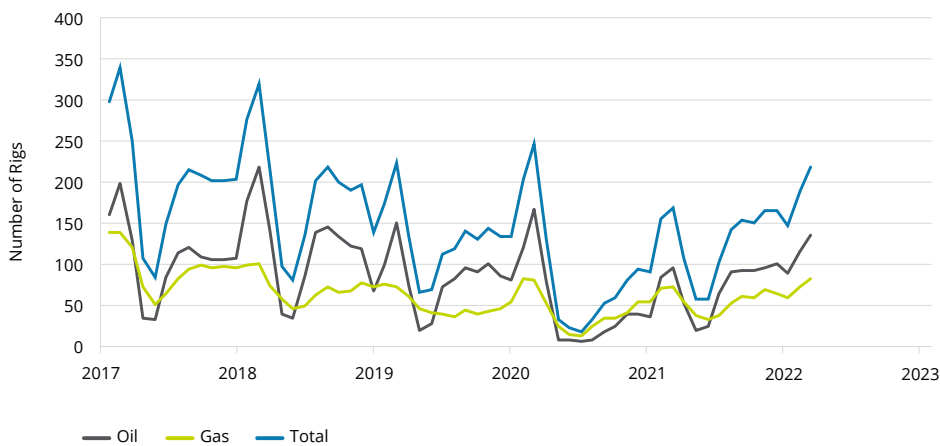
Source: EIA.

US rig counts



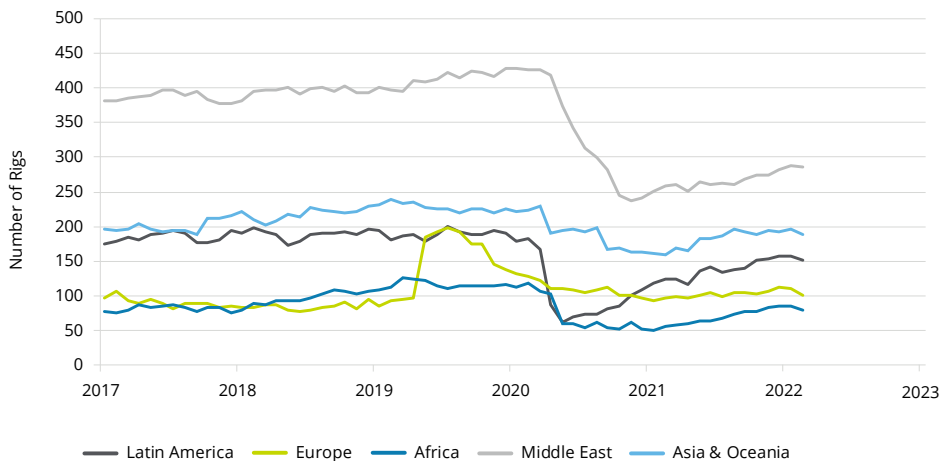
Source: Baker Hughes.

Canada rig counts



Source: Baker Hughes.

International rig counts



Source: Baker Hughes.

Rigs

United States

Oil rig counts continue to grow as oil prices remain strong. Gas rig counts have also begun to climb after remaining flat through much of 2021.

Canada

Oil and gas rig counts reached a similar peak to those seen in 2019 as companies looked to capitalize on stronger oil and gas prices.

International

Strength in both oil and gas markets has led to rig counts increasing across much of the globe. Global rig activity outside of North America appears to have temporarily peaked in January 2022, in spite of continued growth in prices.

Canadian domestic price tables

Year	Crude Oil Pricing								
	Price Inflation	Cost Inflation	CAD to USD Exchange	WTI at Cushing Oklahoma	WTI at Cushing Oklahoma	Edmonton City Gate	Edmonton City Gate	WCS 20.5 Deg. API Hardisty	
	Rate	Rate	Rate	US\$/bbl Real	US\$/bbl Current	C\$/bbl Real	C\$/bbl Current	C\$/bbl Current	
Historical									
2012	1.5%	1.5%	1.001	\$111.59	\$94.11	\$102.65	\$86.57	\$73.10	
2013	0.9%	0.9%	0.972	\$114.33	\$97.91	\$109.02	\$93.36	\$74.97	
2014	1.9%	1.9%	0.906	\$107.88	\$93.26	\$108.73	\$94.00	\$81.06	
2015	1.1%	1.1%	0.783	\$55.25	\$48.69	\$64.68	\$57.00	\$44.80	
2016	1.4%	1.4%	0.755	\$48.42	\$43.15	\$58.59	\$52.22	\$38.90	
2017	1.6%	1.6%	0.771	\$56.27	\$50.88	\$68.69	\$62.12	\$49.51	
2018	2.3%	2.3%	0.772	\$70.66	\$64.94	\$75.18	\$69.10	\$49.89	
2019	1.9%	1.9%	0.754	\$60.60	\$56.98	\$73.40	\$69.02	\$57.33	
2020	0.7%	0.7%	0.746	\$40.90	\$39.23	\$47.64	\$45.69	\$36.09	
2021	3.4%	3.4%	0.798	\$70.38	\$67.99	\$83.27	\$80.44	\$68.21	
2022									
3 Mths H	5.3%	5.3%	0.789	\$94.27	\$94.27	\$117.95	\$117.95	\$103.68	
9 Mths F	0.0%	0.0%	0.780	\$92.50	\$92.50	\$115.40	\$115.40	\$104.50	
Avg.	N/A	N/A	0.782	\$92.94	\$92.94	\$116.04	\$116.04	\$104.30	
Forecast									
2022	0.0%	0.0%	0.780	\$92.50	\$92.50	\$115.40	\$115.40	\$104.50	
2023	2.0%	2.0%	0.780	\$80.00	\$81.60	\$98.10	\$100.05	\$88.30	
2024	2.0%	2.0%	0.780	\$70.00	\$72.85	\$83.35	\$86.70	\$73.35	
2025	2.0%	2.0%	0.780	\$65.00	\$69.00	\$76.90	\$81.60	\$68.00	
2026	2.0%	2.0%	0.780	\$65.00	\$70.35	\$76.90	\$83.25	\$69.40	
2027	2.0%	2.0%	0.780	\$65.00	\$71.75	\$76.90	\$84.90	\$70.75	
2028	2.0%	2.0%	0.780	\$65.00	\$73.20	\$76.90	\$86.60	\$72.20	
2029	2.0%	2.0%	0.780	\$65.00	\$74.65	\$76.90	\$88.35	\$73.65	
2030	2.0%	2.0%	0.780	\$65.00	\$76.15	\$76.90	\$90.10	\$75.10	
2031	2.0%	2.0%	0.780	\$65.00	\$77.70	\$76.90	\$91.90	\$76.60	
2032	2.0%	2.0%	0.780	\$65.00	\$79.25	\$76.90	\$93.75	\$78.15	
2033	2.0%	2.0%	0.780	\$65.00	\$80.80	\$76.90	\$95.60	\$79.70	
2034	2.0%	2.0%	0.780	\$65.00	\$82.45	\$76.90	\$97.55	\$81.30	
2035	2.0%	2.0%	0.780	\$65.00	\$84.10	\$76.90	\$99.50	\$82.90	
2036	2.0%	2.0%	0.780	\$65.00	\$85.75	\$76.90	\$101.45	\$84.60	
2037	2.0%	2.0%	0.780	\$65.00	\$87.50	\$76.90	\$103.50	\$86.25	
2038	2.0%	2.0%	0.780	\$65.00	\$89.25	\$76.90	\$105.55	\$88.00	
2039	2.0%	2.0%	0.780	\$65.00	\$91.00	\$76.90	\$107.70	\$89.75	
2040	2.0%	2.0%	0.780	\$65.00	\$92.85	\$76.90	\$109.85	\$91.55	
2041	2.0%	2.0%	0.780	\$65.00	\$94.70	\$76.90	\$112.05	\$93.40	
2041+	2.0%	2.0%	0.800	0.0%	2.0%	0.0%	2.0%	2.0%	

Notes:

- All prices are in Canadian dollars except WTI and NYMEX gas which are in U.S. dollars
- Edmonton city gate prices based on historical light oil par prices posted by the government of Alberta and Net Energy differential futures (40 Deg. API < 0.5% Sulphur)
- Real prices listed in 2021 dollars with no escalation considered

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Year	Natural Gas Liquids Pricing Edmonton Par Prices				Natural Gas Pricing					Sulphur	
	Ethane	Propane	Butane	Pentanes + Condensate	Alberta Reference Avg. Price	Alberta AECO Avg. Price	Alberta AECO Avg. Price	B.C. Direct Stn. 2 Sales	NYMEX Henry Hub	NYMEX Henry Hub	Alberta Plant Gate
	C\$/bbl Current	C\$/bbl Current	C\$/bbl Current	C\$/bbl Current	C\$/mcf Current	C\$/mcf Real	C\$/mcf Current	C\$/mcf Current	US\$/Mcf Real	US\$/Mcf Current	C\$/lt Current
Historical											
2012	\$6.73	\$30.80	\$75.47	\$99.67	\$2.25	\$2.83	\$2.39	\$2.29	\$3.26	\$2.75	\$126.81
2013	\$8.68	\$38.54	\$77.44	\$103.52	\$2.98	\$3.71	\$3.17	\$3.11	\$4.35	\$3.73	\$62.17
2014	\$12.46	\$42.93	\$59.43	\$101.47	\$4.22	\$5.21	\$4.50	\$4.16	\$5.08	\$4.39	\$88.99
2015	\$7.49	\$5.35	\$33.70	\$55.15	\$2.56	\$3.05	\$2.69	\$1.81	\$2.98	\$2.63	\$107.45
2016	\$6.04	\$8.71	\$31.45	\$52.43	\$1.93	\$2.42	\$2.16	\$1.75	\$2.82	\$2.52	\$45.40
2017	\$6.11	\$27.92	\$40.98	\$63.65	\$2.13	\$2.42	\$2.19	\$1.56	\$3.30	\$2.99	\$41.85
2018	\$6.90	\$29.76	\$46.17	\$75.74	\$1.36	\$1.67	\$1.54	\$1.26	\$3.45	\$3.17	\$89.25
2019	\$5.00	\$15.82	\$21.40	\$67.57	\$1.48	\$1.93	\$1.81	\$1.02	\$2.73	\$2.57	\$37.54
2020	\$6.20	\$16.11	\$20.93	\$47.14	\$2.00	\$2.35	\$2.25	\$2.20	\$2.12	\$2.04	\$2.60
2021	\$10.08	\$45.46	\$40.28	\$82.91	\$3.27	\$3.77	\$3.64	\$3.34	\$4.05	\$3.91	\$69.73
2022											
3 Mths H	\$13.58	\$64.07	\$61.82	\$119.87	\$4.37	\$4.75	\$4.75	\$4.74	\$4.58	\$4.58	\$112.05
9 Mths F	\$13.35	\$63.45	\$69.25	\$121.15	\$4.45	\$4.85	\$4.85	\$4.75	\$4.90	\$4.90	\$100.00
Avg.	\$13.41	\$63.61	\$67.39	\$120.83	\$4.43	\$4.83	\$4.83	\$4.75	\$4.82	\$4.82	\$103.01
Forecast											
2022	\$13.35	\$63.45	\$69.25	\$121.15	\$4.45	\$4.85	\$4.85	\$4.75	\$4.90	\$4.90	\$100.00
2023	\$10.95	\$45.05	\$60.05	\$105.05	\$3.55	\$3.90	\$4.00	\$3.90	\$4.00	\$4.10	\$76.50
2024	\$9.90	\$39.00	\$52.00	\$91.05	\$3.15	\$3.45	\$3.60	\$3.50	\$3.50	\$3.65	\$78.05
2025	\$10.10	\$36.70	\$48.95	\$85.70	\$3.25	\$3.45	\$3.65	\$3.55	\$3.50	\$3.70	\$79.60
2026	\$10.30	\$37.45	\$49.95	\$87.40	\$3.30	\$3.45	\$3.75	\$3.65	\$3.50	\$3.80	\$81.20
2027	\$10.50	\$38.20	\$50.95	\$89.15	\$3.35	\$3.45	\$3.80	\$3.70	\$3.50	\$3.85	\$82.80
2028	\$10.70	\$38.95	\$51.95	\$90.95	\$3.45	\$3.45	\$3.90	\$3.75	\$3.50	\$3.95	\$84.45
2029	\$10.90	\$39.75	\$53.00	\$92.75	\$3.50	\$3.45	\$3.95	\$3.85	\$3.50	\$4.00	\$86.15
2030	\$11.15	\$40.55	\$54.05	\$94.60	\$3.55	\$3.45	\$4.05	\$3.95	\$3.50	\$4.10	\$87.85
2031	\$11.35	\$41.35	\$55.15	\$96.50	\$3.65	\$3.45	\$4.10	\$4.00	\$3.50	\$4.20	\$89.65
2032	\$11.60	\$42.20	\$56.25	\$98.45	\$3.70	\$3.45	\$4.20	\$4.10	\$3.50	\$4.25	\$91.40
2033	\$11.80	\$43.00	\$57.40	\$100.40	\$3.80	\$3.45	\$4.30	\$4.15	\$3.50	\$4.35	\$93.25
2034	\$12.05	\$43.90	\$58.55	\$102.40	\$3.85	\$3.45	\$4.40	\$4.25	\$3.50	\$4.45	\$95.10
2035	\$12.30	\$44.75	\$59.70	\$104.45	\$3.95	\$3.45	\$4.45	\$4.35	\$3.50	\$4.55	\$97.00
2036	\$12.55	\$45.65	\$60.90	\$106.55	\$4.00	\$3.45	\$4.55	\$4.40	\$3.50	\$4.60	\$98.95
2037	\$12.80	\$46.55	\$62.10	\$108.70	\$4.10	\$3.45	\$4.65	\$4.50	\$3.50	\$4.70	\$100.95
2038	\$13.05	\$47.50	\$63.35	\$110.85	\$4.20	\$3.45	\$4.75	\$4.60	\$3.50	\$4.80	\$102.95
2039	\$13.30	\$48.45	\$64.60	\$113.05	\$4.25	\$3.45	\$4.85	\$4.70	\$3.50	\$4.90	\$105.00
2040	\$13.55	\$49.40	\$65.90	\$115.35	\$4.35	\$3.45	\$4.95	\$4.80	\$3.50	\$5.00	\$107.10
2041	\$13.85	\$50.40	\$67.25	\$117.65	\$4.45	\$3.45	\$5.05	\$4.90	\$3.50	\$5.10	\$109.25
2041+	2.0%	2.0%	2.0%	2.0%	2.0%	0.0%	2.0%	2.0%	0.0%	2.0%	2.0%

Notes:

- Data sources include: EIA, DOB, NRC, Flint Hills Resources, Alberta Government
- All prices are in Canadian dollars except WTI and NYMEX gas which are in US dollars
- Edmonton city gate prices based on historical light oil par prices posted by the government of Alberta and Net Energy differential futures (40 Deg. API < 0.5% Sulphur)
- Natural Gas Liquid prices are forecasted at Edmonton therefore an additional transportation cost must be included to plant gate sales point
- 1 Mcf is equivalent to 1 mmbtu
- Real prices listed in 2021 dollars with no escalation considered
- Alberta gas prices, except AECO, include an average cost of service to the plant gate
- NGL prices have been switched from a mix reference to a spec reference

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Additional crude reference prices

Year	Crude oil pricing			Natural gas pricing
	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 Current	C\$/bbl Current	C\$/bbl Current	C\$/mcf Current
Historical				
2012	\$84.27	\$77.53	\$74.75	\$3.11
2013	\$91.76	\$82.65	\$76.90	\$4.13
2014	\$92.91	\$89.39	\$82.03	\$5.76
2015	\$55.46	\$54.70	\$44.28	\$3.72
2016	\$51.37	\$48.29	\$39.58	\$3.46
2017	\$62.06	\$58.16	\$50.60	\$3.97
2018	\$73.06	\$62.82	\$54.46	\$4.07
2019	\$69.68	\$65.72	\$58.85	\$3.22
2020	\$45.41	\$43.55	\$36.18	\$2.51
2021	\$80.08	\$76.58	\$69.55	\$4.55
2022				
3 Mths H	\$105.51	\$110.51	\$86.83	\$5.52
9 Mths F	\$114.40	\$111.40	\$106.35	\$6.00
Avg.	\$112.18	\$111.18	\$101.47	\$5.88
Forecast				
2022	\$114.40	\$111.40	\$106.35	\$6.00
2023	\$99.05	\$96.00	\$90.10	\$4.95
2024	\$85.70	\$82.55	\$75.40	\$4.35
2025	\$80.55	\$77.35	\$70.00	\$4.45
2026	\$82.15	\$78.90	\$71.40	\$4.55
2027	\$83.80	\$80.50	\$72.80	\$4.65
2028	\$85.50	\$82.10	\$74.25	\$4.75
2029	\$87.20	\$83.75	\$75.75	\$4.80
2030	\$88.95	\$85.40	\$77.25	\$4.90
2031	\$90.70	\$87.10	\$78.80	\$5.00
2032	\$92.50	\$88.85	\$80.40	\$5.10
2033	\$94.35	\$90.65	\$82.00	\$5.20
2034	\$96.25	\$92.45	\$83.65	\$5.35
2035	\$98.20	\$94.30	\$85.30	\$5.45
2036	\$100.15	\$96.20	\$87.00	\$5.55
2037	\$102.15	\$98.10	\$88.75	\$5.65
2038	\$104.20	\$100.10	\$90.55	\$5.75
2039	\$106.30	\$102.10	\$92.35	\$5.90
2040	\$108.40	\$104.10	\$94.20	\$6.00
2041	\$110.55	\$106.20	\$96.10	\$6.10
2041+	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
	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current	Current
Forecast																
2022	\$92.50	\$87.00	\$91.50	\$92.50	\$91.75	\$90.50	\$89.25	\$95.50	\$90.50	\$94.50	\$76.50	\$95.50	\$94.00	\$88.25	\$70.50	\$93.25
2023	\$81.60	\$76.00	\$80.60	\$81.60	\$80.85	\$79.55	\$78.30	\$84.65	\$79.55	\$83.65	\$65.30	\$84.65	\$83.15	\$77.25	\$69.35	\$82.35
2024	\$72.85	\$67.10	\$71.80	\$72.85	\$72.05	\$70.75	\$69.45	\$75.95	\$70.75	\$74.90	\$56.20	\$75.95	\$74.40	\$68.40	\$68.65	\$73.60
2025	\$69.00	\$63.15	\$67.90	\$69.00	\$68.20	\$66.85	\$65.55	\$72.15	\$66.85	\$71.10	\$52.00	\$72.15	\$70.55	\$64.45	\$69.00	\$69.75
2026	\$70.35	\$64.40	\$69.30	\$70.35	\$69.55	\$68.20	\$66.85	\$73.60	\$68.20	\$72.50	\$53.05	\$73.60	\$72.00	\$65.75	\$70.35	\$71.15
2027	\$71.75	\$65.70	\$70.65	\$71.75	\$70.95	\$69.55	\$68.20	\$75.10	\$69.55	\$73.95	\$54.10	\$75.10	\$73.40	\$67.05	\$71.75	\$72.60
2028	\$73.20	\$67.00	\$72.05	\$73.20	\$72.35	\$70.95	\$69.55	\$76.60	\$70.95	\$75.45	\$55.20	\$76.60	\$74.90	\$68.40	\$73.20	\$74.05
2029	\$74.65	\$68.35	\$73.50	\$74.65	\$73.80	\$72.35	\$70.95	\$78.10	\$72.35	\$76.95	\$56.30	\$78.10	\$76.40	\$69.80	\$74.65	\$75.55
2030	\$76.15	\$69.70	\$75.00	\$76.15	\$75.30	\$73.80	\$72.35	\$79.65	\$73.80	\$78.50	\$57.40	\$79.65	\$77.90	\$71.20	\$76.15	\$77.05
2031	\$77.70	\$71.10	\$76.50	\$77.70	\$76.80	\$75.30	\$73.80	\$81.25	\$75.30	\$80.05	\$58.55	\$81.25	\$79.45	\$72.60	\$77.70	\$78.60
2032	\$79.25	\$72.55	\$78.00	\$79.25	\$78.30	\$76.80	\$75.25	\$82.90	\$76.80	\$81.65	\$59.75	\$82.90	\$81.05	\$74.05	\$79.25	\$80.15
2033	\$80.80	\$74.00	\$79.60	\$80.80	\$79.90	\$78.35	\$76.80	\$84.55	\$78.35	\$83.30	\$60.95	\$84.55	\$82.70	\$75.55	\$80.80	\$81.75
2034	\$82.45	\$75.45	\$81.15	\$82.45	\$81.50	\$79.90	\$78.30	\$86.25	\$79.90	\$84.95	\$62.15	\$86.25	\$84.35	\$77.05	\$82.45	\$83.40
2035	\$84.10	\$76.95	\$82.80	\$84.10	\$83.10	\$81.50	\$79.90	\$87.95	\$81.50	\$86.65	\$63.40	\$87.95	\$86.00	\$78.60	\$84.10	\$85.05
2036	\$85.75	\$78.50	\$84.45	\$85.75	\$84.80	\$83.15	\$81.50	\$89.70	\$83.15	\$88.40	\$64.65	\$89.70	\$87.75	\$80.15	\$85.75	\$86.75
2037	\$87.50	\$80.10	\$86.15	\$87.50	\$86.45	\$84.80	\$83.10	\$91.50	\$84.80	\$90.15	\$65.95	\$91.50	\$89.50	\$81.75	\$87.50	\$88.50
2038	\$89.25	\$81.70	\$87.85	\$89.25	\$88.20	\$86.50	\$84.75	\$93.35	\$86.50	\$92.00	\$67.25	\$93.35	\$91.30	\$83.40	\$89.25	\$90.25
2039	\$91.00	\$83.30	\$89.60	\$91.00	\$89.95	\$88.20	\$86.45	\$95.20	\$88.20	\$93.80	\$68.60	\$95.20	\$93.10	\$85.05	\$91.00	\$92.05
2040	\$92.85	\$85.00	\$91.40	\$92.85	\$91.75	\$90.00	\$88.20	\$97.10	\$90.00	\$95.70	\$70.00	\$97.10	\$95.00	\$86.75	\$92.85	\$93.90
2041	\$94.70	\$86.70	\$93.25	\$94.70	\$93.60	\$91.80	\$89.95	\$99.05	\$91.80	\$97.60	\$71.40	\$99.05	\$96.90	\$88.50	\$94.70	\$95.80
2041+	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Notes:

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

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Natural Gas pricing								Ethanol	
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
	Exchange rate	Exchange rate	US\$/Mcf Current	US\$/Mcf Current	US\$/Mcf Current	US\$/Mcf Current	US\$/Mcf Current	US\$/Mcf Current	US\$/gal Current
Forecast									
2022	1.330	1.100	\$4.90	\$4.50	\$4.65	\$4.75	\$34.90	\$7.65	\$2.50
2023	1.330	1.100	\$4.10	\$3.65	\$3.85	\$3.95	\$24.50	\$14.35	\$2.55
2024	1.330	1.100	\$3.65	\$3.25	\$3.40	\$3.50	\$14.05	\$10.25	\$2.60
2025	1.330	1.100	\$3.70	\$3.30	\$3.45	\$3.55	\$14.35	\$6.30	\$2.65
2026	1.330	1.100	\$3.80	\$3.35	\$3.50	\$3.65	\$14.60	\$6.45	\$2.70
2027	1.330	1.100	\$3.85	\$3.40	\$3.60	\$3.70	\$14.90	\$6.55	\$2.75
2028	1.330	1.100	\$3.95	\$3.50	\$3.65	\$3.75	\$15.20	\$6.70	\$2.80
2029	1.330	1.100	\$4.00	\$3.55	\$3.75	\$3.85	\$15.50	\$6.85	\$2.85
2030	1.330	1.100	\$4.10	\$3.65	\$3.80	\$3.95	\$15.80	\$6.95	\$2.95
2031	1.330	1.100	\$4.20	\$3.70	\$3.90	\$4.00	\$16.15	\$7.10	\$3.00
2032	1.330	1.100	\$4.25	\$3.80	\$3.95	\$4.10	\$16.45	\$7.25	\$3.05
2033	1.330	1.100	\$4.35	\$3.85	\$4.05	\$4.15	\$16.80	\$7.40	\$3.10
2034	1.330	1.100	\$4.45	\$3.95	\$4.10	\$4.25	\$17.10	\$7.55	\$3.15
2035	1.330	1.100	\$4.55	\$4.00	\$4.20	\$4.35	\$17.45	\$7.70	\$3.25
2036	1.330	1.100	\$4.60	\$4.10	\$4.30	\$4.40	\$17.80	\$7.85	\$3.30
2037	1.330	1.100	\$4.70	\$4.15	\$4.35	\$4.50	\$18.15	\$8.00	\$3.35
2038	1.330	1.100	\$4.80	\$4.25	\$4.45	\$4.60	\$18.55	\$8.15	\$3.45
2039	1.330	1.100	\$4.90	\$4.35	\$4.55	\$4.70	\$18.90	\$8.35	\$3.50
2040	1.330	1.100	\$5.00	\$4.45	\$4.65	\$4.80	\$19.30	\$8.50	\$3.55
2041	1.330	1.100	\$5.10	\$4.50	\$4.75	\$4.90	\$19.65	\$8.65	\$3.65
2041+	1.330	1.100	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

Notes:

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

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Pricing philosophy

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

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

Client focus

At Deloitte, we believe it is part of our role to help our clients in both the oil and gas sector and the investment community make better long-term business decisions by providing them with the most accurate and realistic information. We understand that sound analysis of changing trends can influence decisions on mergers, acquisitions, divestitures and investments. One way we

ensure our price forecasts are as accurate as possible, given the continuing impact of near-term volatility, is to review our pricing assumptions on a quarterly basis.

Our process

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

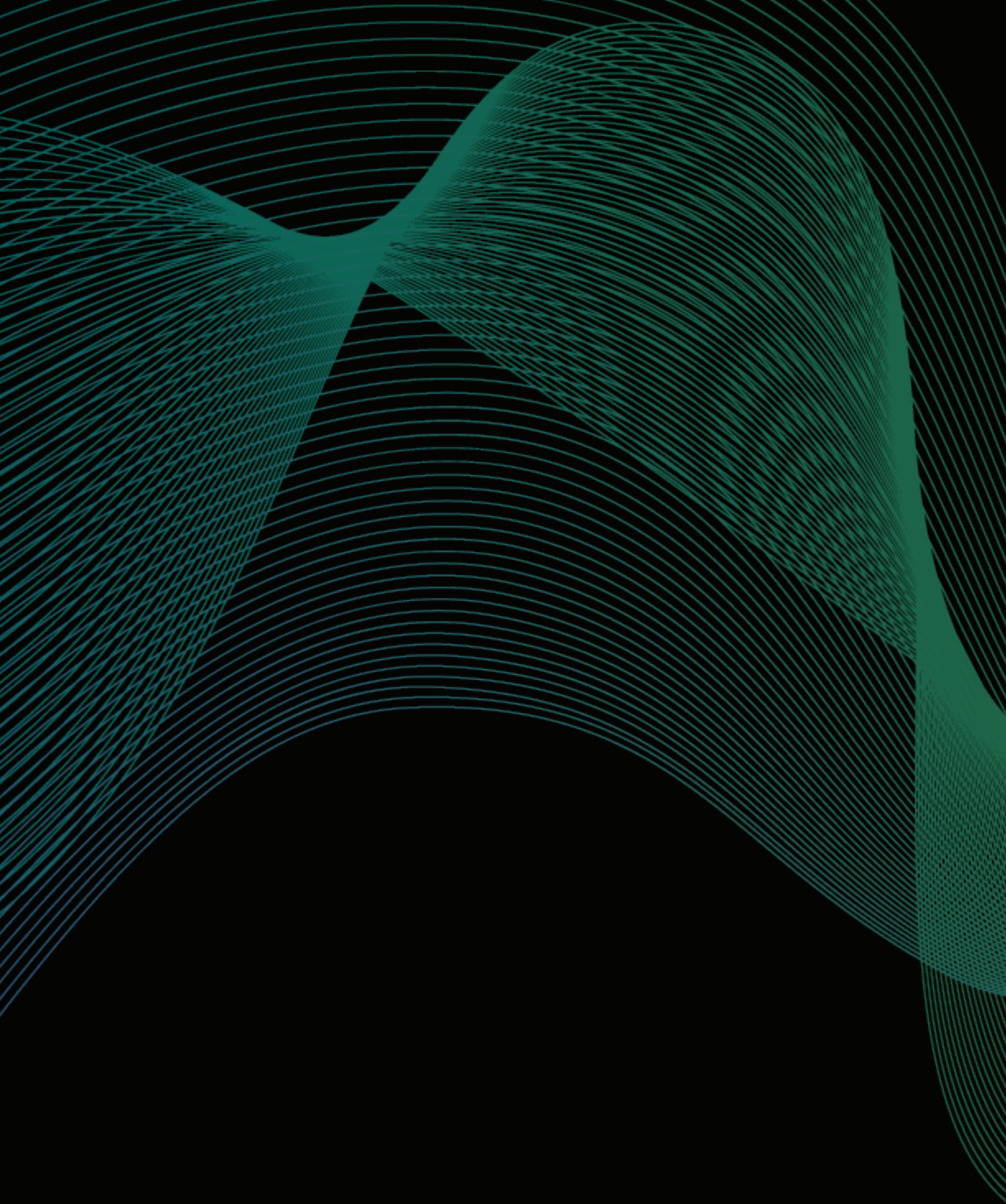
Deloitte prepares our price and market forecasts based on information we collect from numerous government agencies, industry publications, oil refineries, natural gas marketers and industry trends. Inflation forecasts and exchange rates are also an integral part of the forecast.

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



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