2018 Economic Report Series

LEVERAGING OPPORTUNITIES: DIVERSIFYING CANADA'S OIL AND NATURAL GAS MARKETS

CAPP

CANADA'S OIL & NATURAL GAS PRODUCERS

Canada has tremendous oil and natural gas resources, and strong environmental regulations that ensure our energy is produced responsibly – including greenhouse gas (GHG) emissions reduction.

In this report, the Canadian Association of Petroleum Producers (CAPP) looks at the domestic and global benefits that would occur by resolving market access challenges; outlines current oil and natural gas resources, production, markets and market access; summarizes opportunities for developing new markets for Canadian oil and natural gas; examines the barriers preventing Canada from realizing opportunities; and offers recommendations and solutions that would contribute to removing market access barriers.

Book five.

Canada must resolve current market

We can and should be the world's energy supplier of choice, but to achieve Canada's potential as a preferred supplier of responsibly produced oil and natural gas, we need greater market access. With improved market access, Canada has an opportunity to not only obtain better value for our resources in global markets, but also to help address global climate change by displacing oil and natural gas from countries with lower environmental standards.

WHY DOES CANADA NEED NEW MARKETS?

Resolving current regulatory, fiscal and policy barriers is essential to unlocking the future of Canada's energy industry – and indeed to Canada's future prosperity. There is also a tremendous opportunity to address global GHG emissions.

Canada is in the unique position of having abundant natural resources but insufficient pipeline and other infrastructure to grow exports of Canadian oil and natural gas to the United States and global markets. CAPP considers this situation to be untenable. If Canada is going to succeed at becoming a sought-after global energy supplier, additional infrastructure is essential.

Domestic Benefits

Numerous domestic benefits arise from the oil and natural gas sector, which is a major driver in Canada's economy: this sector accounted for 5.34 per cent of real Canadian gross domestic product (GDP) in 2017. The industry pays royalties and taxes that help support schools, hospitals, parks, roads and other infrastructure across Canada. Additionally, the sector is an important employer, and offers benefits and opportunities for many Indigenous communities.

Canadian producers are currently faced with insufficient takeaway capacity for both oil and natural gas. This in turn limits Canada's ability to serve existing domestic and U.S. markets, and prevents Canada from accessing emerging overseas markets. Even more urgently, lack of infrastructure has caused discounted prices for Canadian oil and natural gas exports to the U.S. These price discounts cost Canadians billions of dollars every year.

Canadians deserve fair market value for our natural resources. The key to obtaining better value for our resources in global markets is to build new and improve existing infrastructure, so Canadian energy products can compete for emerging global markets.

Global Benefits

Canada has strong environmental regulations that ensure our energy is produced responsibly. This country has an opportunity to support innovation to further address global climate change, and also to displace coal-fired electricity generation in China, India and Southeast Asia with natural gas from Canadian liquefied natural gas (LNG), which has lower life cycle emissions than coal, and lower emissions than LNG produced by other countries.

access constraints . . .

NATURAL GAS

According to the International Energy Agency (IEA) report *World Energy Outlook 2018* (New Policies Scenario), global demand for natural gas is projected to increase by 43 per cent over 2017 levels.

Canada's natural gas resource is estimated to be 1,220 trillion cubic feet. Natural gas serves Canadian markets and is exported to the U.S. However, due to high-volume shale gas production in the U.S., Canadian producers have lost market share, even for domestic markets.

Global markets for LNG are expected to expand by the mid-2020s. In the past decade, about 20 LNG facilities were proposed for development on Canada's West Coast, but most have been cancelled or deferred. Currently only two LNG facilities are in progress on the West Coast, two others are proposed, and three others are proposed for Canada's East Coast and in Quebec. While CAPP is encouraged to see projects proceed, we believe Canada is not moving quickly enough to capitalize on the coming growth opportunity for LNG.

New Pipelines Needed Now

OIL

Canada has the world's third-largest oil reserves – about 170 billion barrels. The IEA projects by 2040 global oil demand will grow by 10 per cent over 2017 levels.

About 99 per cent of Canada's exports are shipped to the U.S., while less than one per cent are exported overseas. Global demand for oil, including heavy oil such as Western Canadian Select (WCS), is growing – especially in India, China and Southeast Asia. Canadian producers have an opportunity to export oil to emerging global markets but there is not enough pipeline capacity to allow producers to capitalize on this growing demand.

> Canadians deserve fair market value for our natural resources. The key to obtaining better value for our resources in global markets is to build new and improve existing infrastructure.

Total energy demand is expected to increase by 27% from 2017 to 2040.

Therefore, CAPP recommends that:

- Under Article 6 of the Paris Agreement, the Government of Canada should enter discussions to create Internationally Transferred Mitigation Outcomes as an option for achieving its Nationally Determined Contributions that enables the shift from coal to natural gas use for electricity generation in China, India and Southeast Asia as a meaningful opportunity if Canadian LNG is used for natural gas-fired generation in these countries.
- Effectively revise Bill C-69, the *Impact Assessment Act* and updated *Canadian Energy Regulator Act and Navigable Waters Act* by addressing these areas of concern:
  - + Issuing approvals and the path to construction - factors relevant to project review and material to decision-making must be defined with certainty early in the process, and trust needs to be placed in the expert staff of the agency and regulator to make evidence-based decisions. Political interference must be restricted. Public policy debates need to be firmly removed from project assessments and adjudications, included instead in strategic assessments or policy forums.
  - + Public participation - the assessment process itself needs to be clearly defined as creating a way to ensure meaningful participation. Review panels need to have the discretion to hear from those directly affected by a project and to consider the information, expertise and opinions of other knowledgeable persons as they see fit.
  - + Timeline certainty - improve predictability of timelines including an overall maximum. Encourage discipline from all parties by requiring publication of reasons for extensions.
  - + Project planning certainty - do not prohibit work needed to develop a project proposal.
  - + Decision-making / public interest - restrict the broad discretionary powers granted to the Minister of Environment and Climate Change Canada (ECCC). Make explicit in the proposed Act that decision makers must specifically consider the economic and social effects, including benefits, of projects.
  - + Involvement of life cycle regulators in review panels - remove the requirements that marginalize the involvement and use of the expertise of regulators. Allow flexibility for the best placed candidates to comprise and/or chair review panels. Allow flexibility to scale assessment reviews to project complexity and scope.
  - + Navigable waters - focus on project-induced impacts, not the remedy of natural flow conditions or cumulative impacts over which proponents may have no control.
- Withdraw Bill C-48 *(Oil Tanker Moratorium Act)*.
- Support streamlining the National Energy Board approval process for the NOVA Gas Transmission Ltd. pipeline expansion, thereby alleviating a serious bottleneck for western Canadian natural gas and accelerating access to markets in Eastern Canada and the U.S.
- Enable a competitive oil industry by continuing to advance efforts to expand market access for Canadian oil through actively supporting and endorsing approved pipelines and expansion projects, including the Trans Mountain Expansion Pipeline, Keystone XL, and Enbridge Line 3, plus any other pipelines that would improve access to domestic and overseas markets.
- Implement immediate 100 per cent deductibility of tangible capital investment on par with recent reforms in the U.S., and introduce emissions-intensive trade-exposed protection of approximately 80 per cent coverage of aggregate costs related to climate policy in order to address Canada's competitiveness gap with the U.S.
- Enable a competitive natural gas industry through visibly supporting and taking action to advance development of an LNG industry on Canada's West Coast, with development of multiple LNG plants over time to provide access to global markets.
  - + Accelerate capital deductibility for tax purposes across the LNG value chain, and remove import duties on fabricated industrial steel components for LNG modules in the context of broader trade policy.

WHY MARKET ACCESS MATTERS

Canada has strong environmental regulations that ensure our energy is produced responsibly, including regulations that govern greenhouse gas (GHG) emissions. Now and over the coming decade, Canada's oil and natural gas industry has an opportunity to obtain better value for our resources in global markets, expand economic and employment benefits across the country, and help meet Canada's Paris Agreement commitments, while addressing global climate change by competing with and displacing oil and natural gas from countries with lower environmental standards.

However, Canadian producers are currently faced with insufficient takeaway capacity (pipelines or rail) for both oil and natural gas. This in turn limits Canada's ability to serve existing domestic and U.S. markets, and prevents Canada from accessing emerging markets. Even more urgently, lack of infrastructure has caused discounted prices for Canadian oil and natural gas exports to the U.S. These price discounts cost Canadians billions of dollars every year.

The Canadian Association of Petroleum Producers (CAPP) believes Canada must find new markets for oil and natural gas production. The longer it takes to build sufficient transportation capacity, the longer Canadians will miss out on getting the best value for our resources. Resolving infrastructure constraints and bottlenecks in order to access new global markets and expanding domestic markets is essential to the future of Canada's oil and natural gas industry – and indeed to Canada's future prosperity.

1.1 Canadian Benefits

Numerous benefits arise from the oil and natural gas sector, which is a major driver in Canada's economy:

- **Gross Domestic Product** – in 2017 (the most recent year-end data available) the industry contributed $101 billion to Canada's total gross domestic product (GDP), or 5.34 per cent. Despite the commodity price crash of 2014, the sector's share of Canadian economic activity has grown from 4.7 per cent of real GDP in 2013. In addition, the Canadian Energy Research Institute (CERI) estimates over the period from 2017 to 2027, the upstream oil and natural gas industry will contribute $1.8 trillion to GDP across Canada, excluding Alberta.
- **Taxes and Royalties** - government revenues from the industry help support schools, hospitals, parks, roads and other infrastructure. CAPP uses a three-year rolling average to determine total royalties, income and municipal taxes, etc. paid by the industry in a given year. In 2013, the total was $18 billion; in 2014, $17 billion; 2015, $15 billion; 2016, $11 billion; and 2017 was $7 billion. The downward trend is obvious.
- **Capital Investment** - Canada's oil and natural gas industry is still the country's leading private sector investor. Capital expenditures attained a high of $81 billion in 2014; current expenditures are about $41 billion (2018 estimate) and investment in 2019 is expected to decrease by 10 per cent.
- **Employment** - the industry is responsible for 528,000 direct and indirect jobs, and contributes $7 billion annually to government revenues.

Source: Statistics Canada, Prism Economics and CAPP, 2018

The Potential to Grow Benefits

A Joint Working Group (JWG) was convened in late 2017 as a forum for industry, federal and provincial governments to examine issues affecting competitiveness of Canada's upstream oil and natural gas industry. The JWG had the following objectives:

- Examine issues affecting the competitiveness of the upstream oil and natural gas industry in Canada, including natural gas, liquids rich natural gas (LRNG), light tight oil, oil sands and heavy oil.
- Build a common understanding of the factors that influence investment, including the trade-offs investors and businesses consider when making investment or project decisions.
- Promote Canada's comparative advantages in terms of oil and natural gas investment.
- Discuss opportunities to promote the Canadian energy brand, including technological innovation to support the global transition to a lower-carbon energy future.

In August 2018, the JWG issued its report *Proposed Actions to Address the Competitiveness of Canada's Oil and Natural Gas Industry*.[1] According to the JWG's modelling, if federal and provincial governments address current challenges confronting the oil and natural gas industry, the benefits could be extraordinary: $20 billion per year of incremental investment; approximately 120,000 additional ongoing jobs; production growth of 50 per cent for liquids-rich natural gas and 40 per cent for oil sands; natural gas production GHG emissions intensity declining and overall natural gas GHG emissions essentially flat; and a 20- to 25-per-cent decline in oil sands GHG emissions intensity by 2030.

The JWG report concludes, "For a number of reasons, including market dynamics and commodity price trends, regulatory complexity and uncertainty, market access challenges, tax policy and the rising cost of doing business (including regulatory costs), Canada's oil and natural gas sector has experienced reduced investor confidence. The result has been dramatic, with significantly reduced foreign direct investment. Both industry and governments need to take action to improve the business investment climate for the oil and natural gas sector." The report includes recommendations to address competitiveness issues.

Read the report summary on the Natural Resources Canada website:
nrcan.gc.ca/sites/www.nrcan.gc.ca/files/emmc/pdf/2018/en/JointWorkingGroupReport_en-accessibility.pdf

Read the full report:
capp.ca/publications-and-statistics/presentations-and-third-party-reports

1.1.1 Supporting Innovation Development

Environmental performance is critical to realizing the vision of making Canada a global oil and natural gas supplier of choice. By developing innovative technologies, Canada has a significant role in meeting global energy demand and contributing to the important ambition of global GHG emissions reduction.

In May 2018, CAPP released the report *Competitive Climate Policy: Supporting Investment and Innovation*. Among the report's conclusions: investor confidence, stimulated in part by improved market access and obtaining fair market value for resources produced, will in turn support developing advanced technologies that will help drive the industry's environmental performance.

Encouraging investment to enable implementation of the next wave of technological advancements at commercial scale can deliver the breakthroughs required to realize the potential value of new oil sands and natural gas production, while reducing costs and delivering environmental benefits. CAPP notes the ongoing collaborative research and innovation development being undertaken by both Canada's Oil Sands Innovation Alliance (COSIA) and Petroleum Technology Alliance Canada (PTAC).

1.1.2 Benefitting Indigenous Communities

In November 2018, CAPP released the report *Toward a Shared Future: Canada's Indigenous Peoples and the Oil and Natural Gas Industry*, which noted that Canada's oil and natural gas industry has a long history of interaction with Indigenous peoples. Details concerning the positive financial impact of such engagement can be found in CAPP's report.

The impacts of reduced investment in the oil and natural gas sector, caused in part by constrained market access, are having a demonstrable negative effect across the country's Indigenous communities, including the withdrawal of investment capital and job losses. CAPP notes that many Indigenous communities support projects including the Trans Mountain Expansion Project (TMEP), the Coastal GasLink pipeline, and the Eagle Spirit project.

1.2 Global Benefits

In November 2018, the IEA released the *World Energy Outlook 2018*, its annual scenario-based projections for future energy demand. Under the IEA's New Policies Scenario (which models energy demand under current and announced energy policies, including those in the Paris Agreement), there will be a 27-per-cent increase in demand for energy from all sources by 2040.

There is a clear and growing global demand for oil and natural gas, especially in India, China and Southeast Asia (see Part 3). Canada can play a significant role in meeting this energy demand, serving these markets with responsibly produced fuels that displace production from other, less regulated sources. Through innovation and technology, Canada can leverage leadership in environmental stewardship and responsible energy production to help address global GHG emissions. At the same time, a healthy Canadian oil and natural gas industry with access to global markets also ensures ongoing prosperity and economic benefits across the country.

1.2.1 Reducing Carbon Leakage

Carbon leakage is an unintended consequence of poor market access. Carbon leakage occurs when capital investment – and therefore oil and natural gas production – shifts from places with high regulatory standards and costs (i.e., Canada) to places with lower or no standards and associated costs. This means no net reduction of global emissions, because international demand that could be met with responsibly produced Canadian oil and natural gas is instead filled from other energy sources that are likely to be produced with less robust environmental regulation and higher emissions.

Currently, many different GHG management regimes around the world utilize an emissions-intense, trade-exposed (EITE) methodology to protect industries' competitiveness under carbon pricing. If emissions reduction policies are placed on activities in Canada but not elsewhere, companies within EITE industries – such as the upstream oil and natural gas sector – may decrease investment in Canada, or leave our country entirely. Global energy demand will be met by production from other jurisdictions that have less stringent emissions regulations and no carbon policies but better access to global markets.

CAPP provided a detailed examination of carbon leakage and EITE protection in *Competitive Climate Policy: Supporting Investment and Innovation*, released in May 2018. For more detail on Canada's contribution to reducing global GHGs, refer to that report. Further information about how Canadian liquefied natural gas (LNG) can address global GHG emissions is in Part 3 of this report.

WHERE ARE WE TODAY? RESOURCES, PRODUCTION, MARKETS AND ACCESS

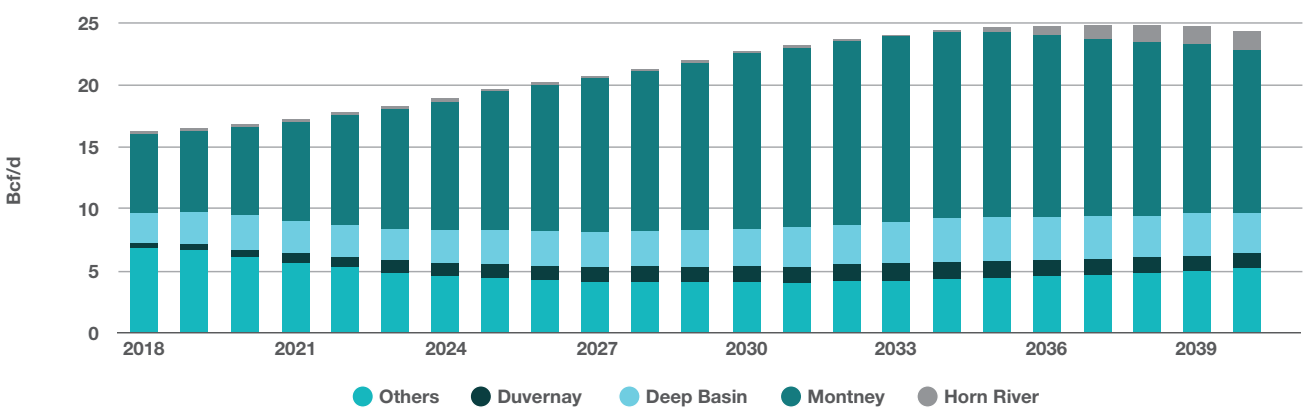
The world's population is expected to exceed nine billion by 2040. Over that same time period, as emerging economies urbanize and industrialize, the global middle class is expected to almost double. A larger population, combined with rising GDP and standard of living, will drive the need for more energy from all sources, including oil and natural gas. Canada has enormous resources of both oil and natural gas, poised to meet this global energy demand.

2.1 Natural Gas and Natural Gas Liquids

Canada has traditionally produced natural gas by conventional drilling and completion. More recently, production has been increasing from unconventional gas reserves in Western Canada, especially the Duvernay play in Alberta, the Montney in Alberta and British Columbia, and other regions within the Western Canadian Sedimentary Basin (WCSB). These resources – which require horizontal drilling and hydraulic fracturing to produce – represent an excellent source of feedstock for liquefied natural gas (LNG) developments, and are rich in natural gas liquids (NGLs) that are feedstocks used for petrochemical developments.

Western Canadian Sedimentary Basin Production Forecast, 2018 – 2039

Source: Wood Mackenzie



2.1.1 Resources and Production

Canada's natural gas resource base is vast. Total marketable natural gas in the WCSB is estimated to be 988 trillion cubic feet (Tcf); other parts of Canada, including the Atlantic region and the North, hold an additional 223 Tcf, for a Canadian total of 1,220 Tcf.[2] CAPP estimates this is sufficient to meet Canada's domestic demand for 300 years, given current consumption rates and production techniques.

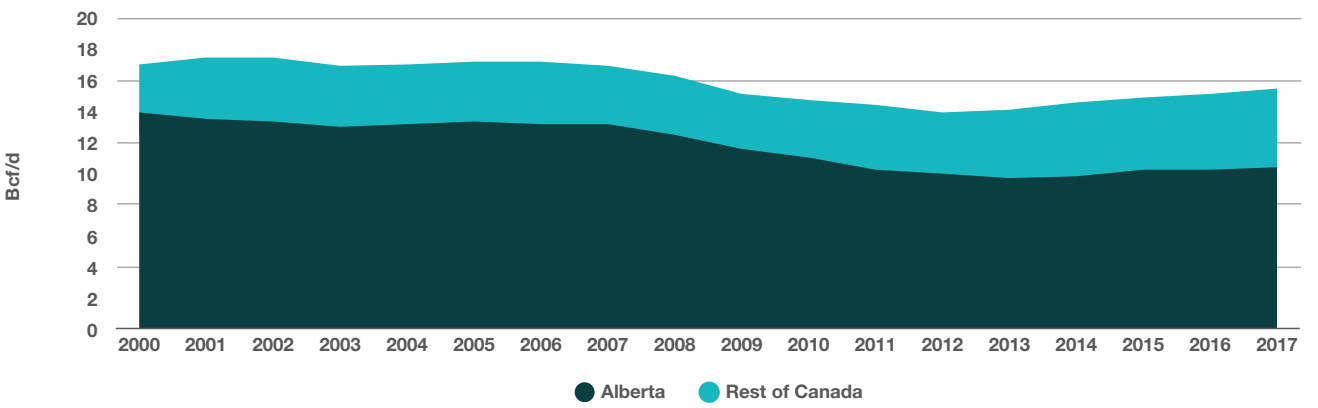
Natural gas production began to decline in about 2008 as significant shale gas development in the U.S. displaced western Canadian natural gas in traditional markets such as Central Canada and parts of the U.S. More recently, production in Western Canada has increased as producers find markets for natural gas liquids (NGLs), especially in the oil sands.

At the start of the shale gas revolution in 2007, Western Canada produced almost 17 billion cubic feet per day (Bcf/d) of natural gas and exported more than 10 Bcf/d to the U.S. In 2017, natural gas production in Western Canada was about 15.36 Bcf/d and exports to the U.S. averaged just over eight Bcf/d.

Source: CAPP Statistical Handbook

Historical Natural Gas Production, 2000 to 2017, Bcf/d

Source: NEB, CAPP



2.1.2 Current Markets and Pipelines

In Canada, natural gas is used for industrial, residential, and commercial applications, as well as electricity generation, and in the oil sands primarily for in situ steam generation for bitumen recovery. In addition, Western Canada's petrochemical industry uses a variety of feedstocks derived from natural gas and NGLs, such as ethane and propane. Domestic markets for western Canadian natural gas include B.C., Alberta, Saskatchewan, Manitoba and Ontario. Natural gas production from Nova Scotia's Sable Offshore Energy Project ceased in January 2019, so domestic markets in Nova Scotia, New Brunswick and Quebec will be supplied by imported natural gas.

The North American natural gas market is highly integrated. Historically the U.S. has relied on imports of Canadian natural gas, although that reliance has diminished with increasing U.S. shale gas production. Meanwhile, markets in Central Canada have increasingly imported U.S. natural gas as opposed to using Canadian sources. In 2017, Canada imported 2.4 Bcf/d, largely into Ontario, while natural gas exports to the U.S. were:

- **U.S. West Coast** – 3.03 Bcf/d
- **U.S. Midwest** – 4.5 Bcf/d
- **U.S. East Coast** – 940 million cubic feet per day (MMcf/d).

A number of major natural gas pipelines currently serve Canadian and U.S. markets, including the NOVA Gas Transmission Limited (NGTL), Canadian Mainline, Westcoast Transmission, and Alliance systems. Natural gas production from B.C. relies on the NGTL pipeline system to access U.S. markets via Alberta.

2.2 Oil

Canada has the world's third-largest oil reserves – about 170 billion barrels – of which about 97 per cent is in the oil sands. Canada is the world's sixth-largest oil producer.

2.2.1 Resources and Production

According to CAPP's *2018 Crude Oil Forecast, Markets and Transportation* report, Canada produced a total of 4.2 million barrels per day (MMb/d) in 2017:

- Western Canada produced 3.96 MMb/d, or 95 per cent of Canada's total. Two-thirds came from the oil sands and the remainder from conventional production.
- Eastern Canada produced 224,000 b/d, primarily from offshore Newfoundland and Labrador.
- Ontario, New Brunswick and the Northwest Territories produced small volumes of oil.

CAPP forecasts oil sands production will reach 5.6 MMb/d by 2035, an increase of 1.4 MMb/d from 2017. Oil sands production is expected to account for 75 per cent of total Canadian production by 2035.

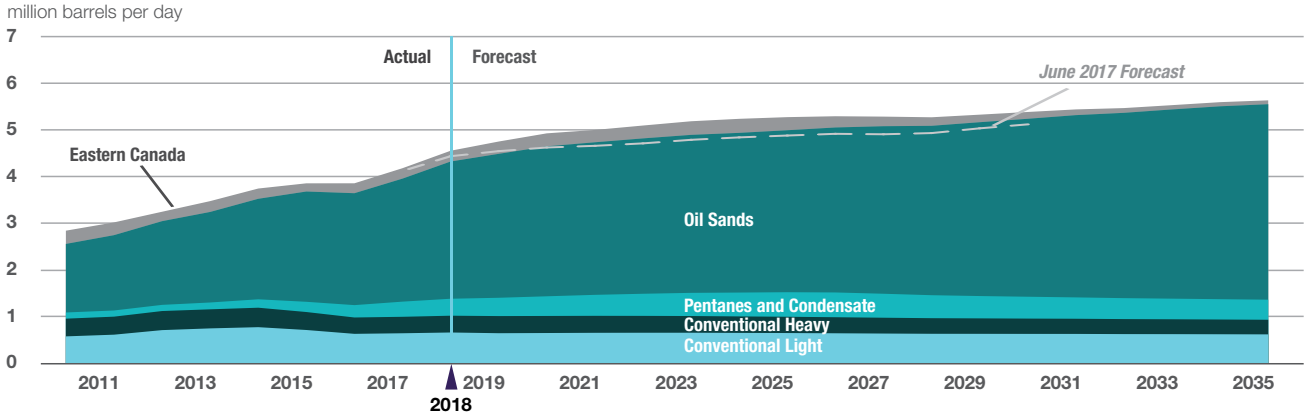
About 25 per cent (326,000 b/d) of conventional oil production – primarily from Alberta and Saskatchewan – constituted NGLs, pentanes and condensate. These products are significant for diluting oil sands bitumen and for petrochemical feedstock. With greater production potential from the NGLs-rich Montney and Duvernay plays in Alberta and B.C., production of pentanes and condensate from Western Canada is forecast to grow to about 500,000 b/d in 2026.

In December 2018, the Government of Alberta issued a mandatory production cut, effective January 1, 2019, in an effort to reduce oil inventories in the province and influence the extreme price discount Canadian producers experienced in 2018 (see Part 2.3).

The production growth forecast in Eastern Canada is primarily from the Hebron field, designed for peak production of 150,000 b/d. By 2035, oil production from Eastern Canada is forecast to fall to less than 100,000 b/d.

Oil Sands and Conventional Production

Source: CAPP 2018



2.2.2 Current Markets and Pipelines

Oil from Western Canada serves domestic markets in B.C., Alberta, Saskatchewan, Manitoba, Ontario and Quebec plus export markets in the U.S. Refineries in Ontario, Quebec and Atlantic Canada need feedstock of just over one MMb/d. More than half of this requirement is supplied by imports, primarily from the U.S., Saudi Arabia, Azerbaijan, Norway and Nigeria. Offshore production from Canada's East Coast serves markets in Atlantic Canada, Quebec, and the eastern U.S.

About 99 per cent of Canada's exports are shipped to the U.S., while less than one per cent are exported overseas. Canada is the biggest foreign supplier of oil to the U.S., delivering 3.3 MMb/d in 2017. Export of Canadian oil destined for non-U.S. markets accounted for about 31,000 b/d in 2017.

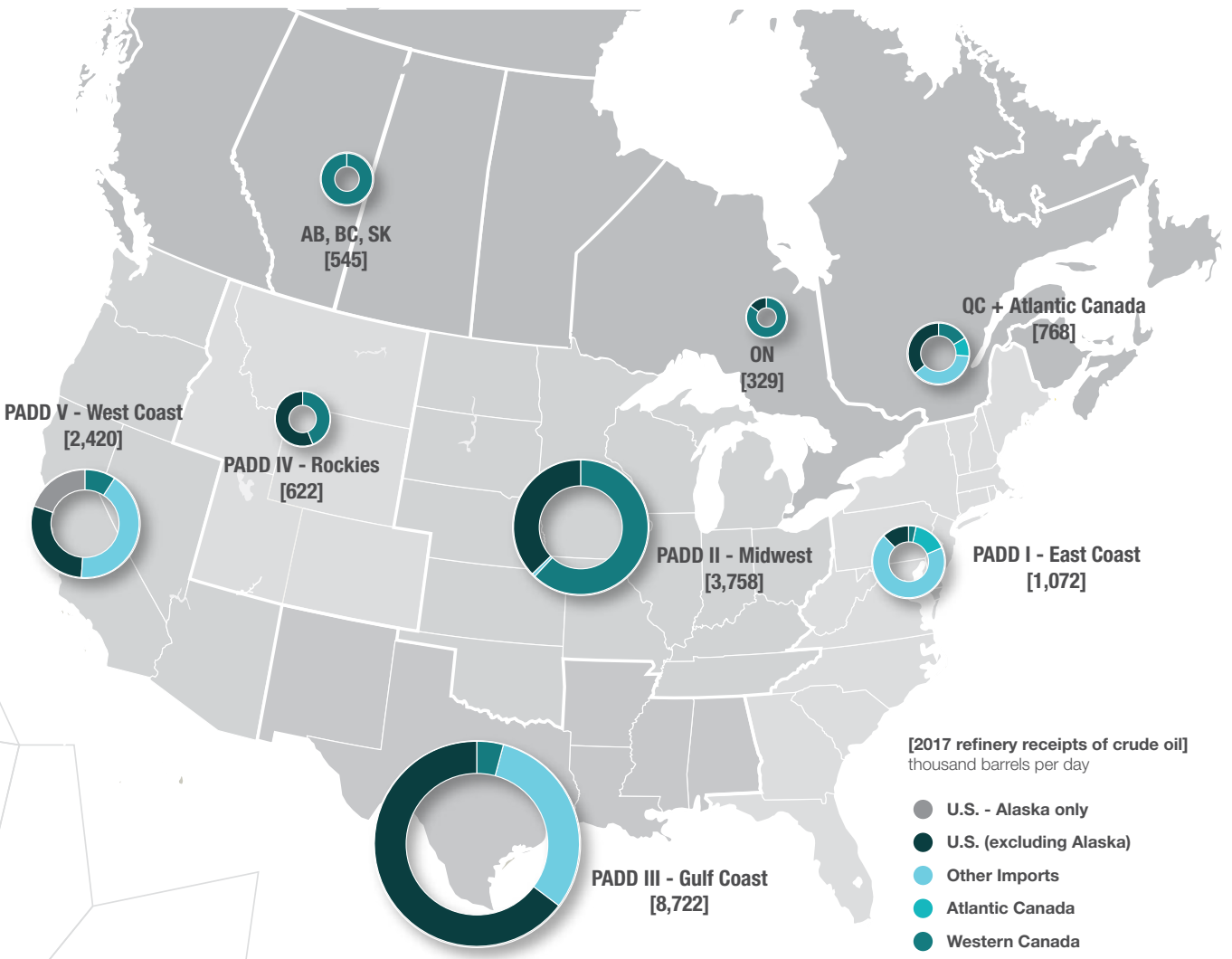
Source: Statistics Canada

The U.S. is divided into five regional markets known as Petroleum Administration for Defense Districts (PADDs): East Coast, Midwest, Gulf Coast, Rockies and West Coast. Currently, Midwest is by far the largest regional market for Canadian oil, while the Gulf Coast represents the largest potential market expansion opportunity. In 2017, Canada supplied 381,000 b/d to the Gulf Coast, but Gulf Coast refineries require more than two MMb/d of heavy oil imports. Canada has an opportunity to increase market share, as supplies from Mexico and Venezuela decline.

U.S. imports of Canadian oil have grown in recent years, to about 48 per cent of total U.S. imports in November 2018 from 20 per cent in 2008, while U.S. imports from elsewhere have declined for a variety of reasons.[3] This increase in U.S. imports from Canada supports the fact that Canada is a reliable and politically stable energy source. However, Canadian oil exports to the U.S. are subject to price discounts (see Part 2.3).

Domestic and U.S. Markets for Canadian Oil

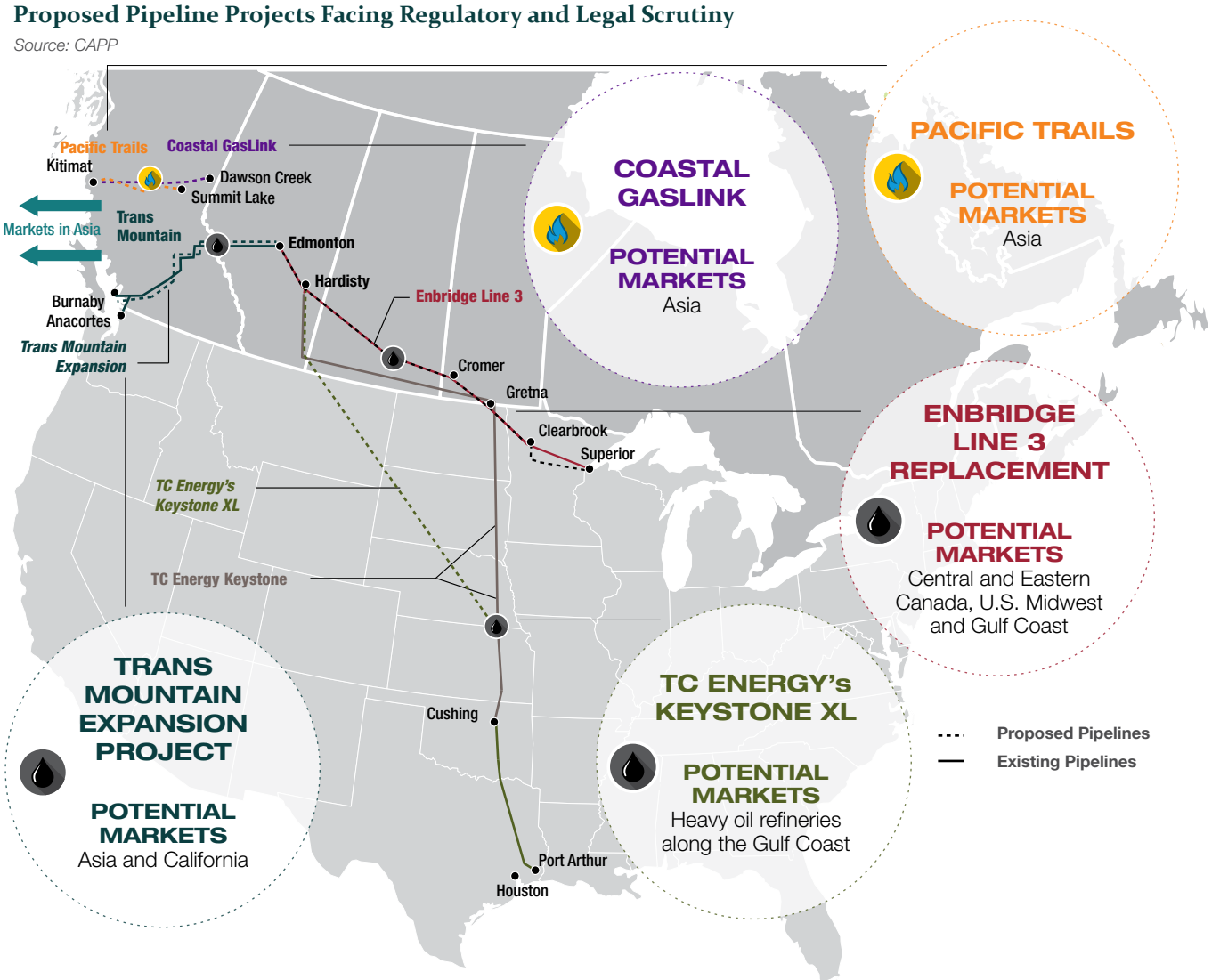
Sources: CAPP, CA Energy Commission, EIA, NEB, Statistics Canada



Western Canadian oil producers are connected to North American markets by a pipeline network that traditionally expanded in tandem with market requirements. However, this pipeline network is no longer keeping pace with either production or market demands. The existing pipeline network can transport limited oil supplies originating from Western Canada to markets as far east as Montreal, also to the West Coast, and to the U.S. Midwest and Gulf Coast. Refer to CAPP's *Crude Oil Forecast, Markets and Transportation 2018* for a more detailed discussion on domestic and U.S. pipelines.

Proposed Pipeline Projects Facing Regulatory and Legal Scrutiny

Source: CAPP



2.3 Price Discounts: A Consequence of Poor Market Access

In addition to reduced capital investment that in turn impacts taxes, royalties, employment and the industry's ability to commercialize breakthrough emissions-reduction technologies, pipeline constraints and lack of market diversity also mean Canada is losing value for oil and natural gas exports.

2.3.1 Natural Gas Price Discounts

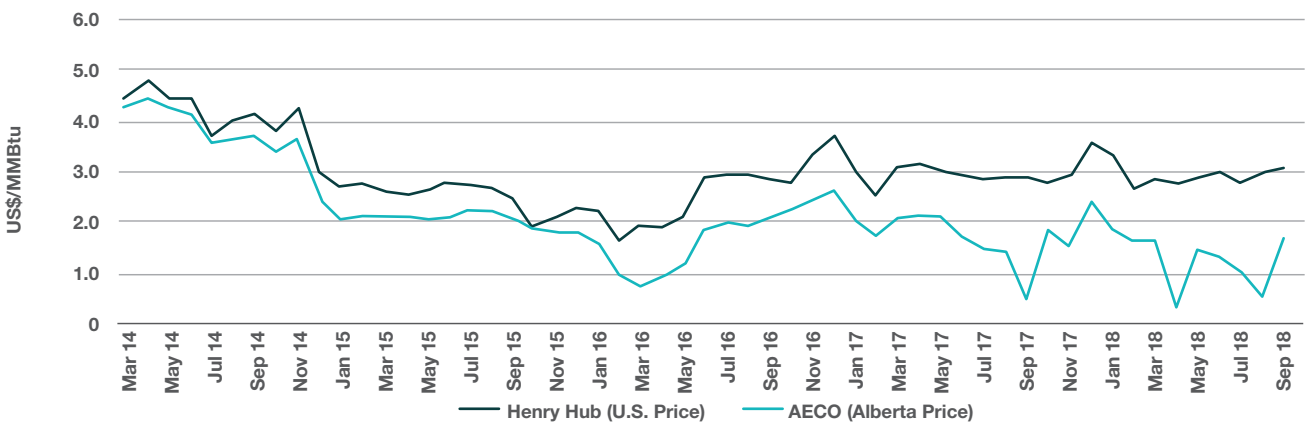
Canadian natural gas growth is limited by pipeline infrastructure bottlenecks and a lack of LNG export infrastructure, resulting in severely discounted prices for western Canadian natural gas in both domestic and U.S. markets.

Prices for natural gas have been persistently low for a decade, because supply has outstripped demand. Hydraulic fracturing has allowed rapid development of shale gas deposits in the U.S., particularly the Marcellus, Haynesville and Eagle Ford plays. It has also opened opportunities in the Montney and Duvernay plays in Western Canada. Costs to produce shale gas are low relative to conventional production on a per-unit basis and wells completed using hydraulic fracturing tend to be highly productive. Large volumes of shale gas began to come into the North American market in 2008, resulting in abundant supply and a subsequent drop in price.

The relatively lower Canadian prices in part reflect the challenges Canadian producers face in accessing markets outside Western Canada, including markets in Central Canada and the U.S. Midwest. Also, in order to access U.S. markets, nearly two-thirds of B.C. natural gas enters Alberta via the NGTL system. This system currently faces a major infrastructure bottleneck that affects its ability to transport received natural gas to the points where NGTL interconnects with pipelines that serve downstream markets. A plan to resolve the bottleneck and allow about 1.4 Bcf/d of additional flow to these delivery points has been announced, with an in-service date of 2021. Reducing regulatory timelines would bring this capacity into service earlier, accelerating the benefits of debottlenecking the system.

Market Access Restrictions' Effect on Natural Gas Prices

Source: Bloomberg



2.3.2 Oil Price Discounts

Normally, two key factors influence the discount between WCS and West Texas Intermediate (WTI) prices:

- **Oil Quality** - differences depend on the density of the oil (light versus heavy) and sulphur content (sweet versus sour). WCS is a heavy sour oil blend that is not 'inferior' to light oil but requires more complex refining to produce gasoline and other refined products compared to WTI, which is a light, sweet oil. WCS produces higher refinery yields and profit margins for refiners.
- **Transportation** - the cost of transportation depends on where the oil is produced versus where it is refined / consumed. The greater the distance, the greater the transportation cost.

Due to these factors, a natural price differential exists between WCS and WTI.[4] In general, refiners in North America pay more for light oil, which is easier to refine and costs less to transport than heavy oil. However, many refineries in the U.S. Midwest and Gulf Coast have made significant infrastructure investments in order to process heavy oil. Also, since Canadian oil is landlocked and depends primarily on pipelines to reach markets, limited market access adds further downward pressure to the price of all Canadian oil. Refinery outages (especially in the U.S. Gulf Coast) can also exert downward price pressure on WCS due to oversupply.

The WTI / WCS discount trades at a typical range of US$10 to US$15 per barrel (bbl) when takeaway capacity is adequate, to more than US$50 / bbl when capacity constraints become acute as they are now. The average discount in October 2018 was US$43 / bbl (i.e., a barrel of WCS sold for $43 less than a barrel of WTI) while the November average discount was US$29 / bbl. On a number of occasions, the discount has been extreme. For example, on November 12, 2018, WTI closed at US$59.03 while the price for WCS was US$13.44; on November 22, WCS sold at US$11.43. This translates into considerable losses for Canadian producers – which in turn means losses to the Canadian economy.

Lacking pipeline takeaway capacity, Canadian producers have only three options:

- **Continue Selling Oil at a Discount** – this option is attractive to refineries; buying Canadian oil at deep discount prices further increases margins for refined products such as gasoline and diesel. Some CAPP member companies that have U.S. refineries are in this position.
- **Oil By Rail** – while rail transport has been increasing, rail is unable to fill the pipeline gap.
- **Storage** – store oil until sufficient pipeline capacity is available.

Extreme differentials cost Canadians billions of dollars every year. The impact is enormous: foregone royalties and foregone income, sales, and property taxes. These government revenues pay for a variety of public goods and services, including schools, hospitals, parks, roads and other infrastructure.

Effective January 1, 2019, the Government of Alberta imposed a mandatory production cut of 325,000 b/d, or 8.7 per cent of Alberta's current production.[5] The production cut is expected to remain in place until the end of 2019 but volumes may be adjusted over time (the mandatory reduction was decreased by 75,000 b/d in early February 2019). Reduced production is expected to help clear the current large inventory in storage in Alberta, and to narrow the price difference between WTI and WCS. CAPP notes that December 2018 differentials for WCS decreased, due to a variety of factors including some U.S. refineries coming back on line after maintenance shutdowns.

OPPORTUNITIES: EMERGING AND POTENTIAL MARKETS

The IEA's *World Energy Outlook 2018 (New Policies Scenario)* projects a 27-per-cent increase in demand for energy from all sources by 2040. Natural gas demand is projected to increase by 43 per cent over 2017 levels, and oil demand is projected to grow by 10 per cent over 2017 levels. CAPP bases growth projections for oil and natural gas on the IEA's New Policies Scenario.

Similarly, the National Energy Board (NEB) report *Canada's Energy Future 2018: Energy Supply and Demand Projections to 2040*[6] forecasts that Canadian oil and natural gas production will increase by 2040, and that price and technology will be key factors influencing Canadian production (reference case). The NEB projects domestic use of oil products and natural gas will grow slowly or decline, but Canada's increased energy production could be destined for export.

The NEB's report anticipates that elevated price discounts for Canadian oil and natural gas benchmarks will continue in the short- and medium-term, as production continues to outpace infrastructure capacity of all kinds including pipelines and rail. Also, beyond additional transportation capacity, Canadian producers will need to access new export markets that will purchase the growing production that is surplus to Canadian needs.

3.1 Natural Gas

According to the IEA, global demand for natural gas is expected to increase by 43 per cent from 2017 to 2040. By 2030, natural gas is expected to replace coal as the world's second-largest energy source – initially for generating electricity, but industrial applications such as the petrochemical industry will also spur growth. Natural gas is expected to become essential to emerging economies while also contributing to GHG emissions reductions, as natural gas has lower GHG emissions than coal. Developing economies in Asia account for half of the total demand growth through to 2040. The bulk of the revision is due to China, where natural gas demand grows rapidly, reflecting strong policy efforts to improve air quality.

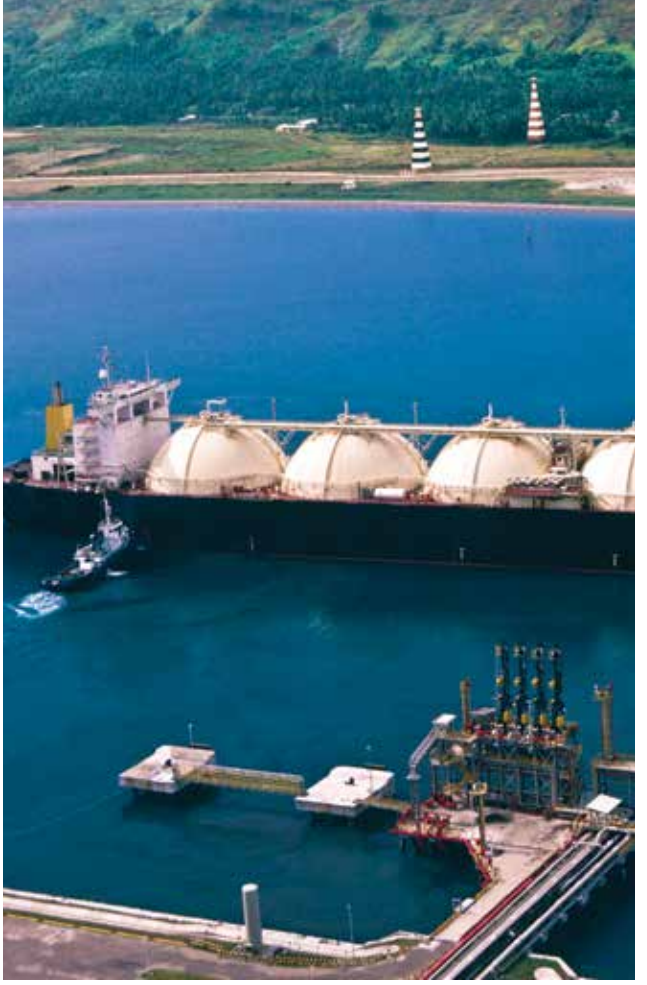
Significant growth in Canadian natural gas production depends on development of Canada's LNG industry. In general, current global markets for LNG are oversupplied. However, as supply is absorbed, global demand is expected to increase, especially in Japan, Taiwan, Korea, China and India. There is an opportunity for Canadian LNG to compete in the coming cycle of demand, by developing a Canadian industry with multiple liquefaction plants and export terminals, especially on Canada's West Coast.

3.1.1 The Coming LNG Opportunity

In 2017, global LNG trade reached 293 megatonnes (MT) – 39.11 Bcf/d, a growth rate of 14 per cent over 2016 levels. While imports to Japan and South Korea – traditionally the world's largest and second-largest importers of LNG – were slightly higher in 2017, a 30-per-cent increase in Chinese LNG imports was the main contributor to increased global LNG trade. China is now the second-largest importer of LNG.[7] The IEA projects that China will become the world's leading importer of LNG by 2040, reflecting China's desire to replace coal consumption with natural gas in an effort to improve air quality. In July 2017, a directive issued by 13 Chinese government agencies specified that natural gas should rise to about 10 per cent of total national energy use by 2020 and 15 per cent by 2030.[8] The Asia-Pacific region is projected to account for about 80 per cent of global LNG imports by 2040. While natural gas demand growth in Europe is expected to remain stagnant, the need to replace existing supply sources currently in decline, coupled with a desire to diversify sources of supply, also presents opportunities for new LNG suppliers.

A number of LNG projects under construction worldwide – the majority in Australia, Mozambique, the U.S. and Qatar – will add to global LNG production capacity. Even if global LNG trade continues to grow at the current annual average of six per cent, by 2024 the world could need additional LNG capacity beyond what is already in place or being constructed.

This is a highly competitive market. In 2016, Wood Mackenzie conducted a competitiveness study for LNG,[9] which showed that a Canadian facility could deliver LNG to northern Asia markets at around US$11 per million British thermal units (MMBtu). While not as competitive as U.S. Gulf Coast projects, Canadian projects were seen to be more competitive than Australian greenfield projects and Alaskan LNG.

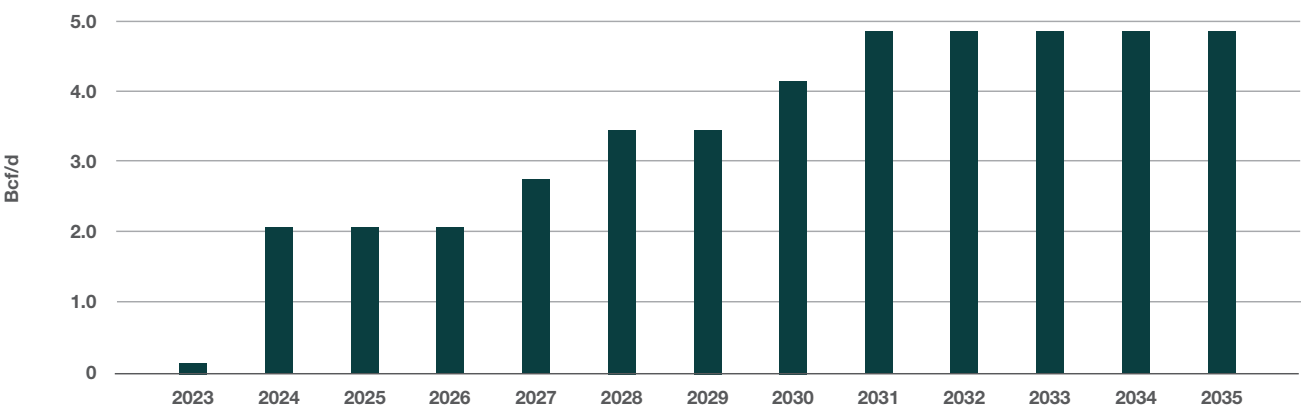


More recently, a similar analysis undertaken by CERI[10] found western Canadian LNG to be more competitive than Australia and U.S. brownfield and greenfield projects for delivering LNG to Japan. The reason for Canada's lower delivery cost is primarily from lower feedstock cost due to the availability of a huge, high-quality resource base in B.C. and Alberta. Additionally, LNG facilities on Canada's West Coast are closer to Asia than any other North American LNG source – particularly those on the U.S. Gulf Coast, which must ship via the Panama Canal to access Asian markets. The distance from the U.S. Gulf Coast to Shanghai is about 10,000 nautical miles, approximately twice the distance between Canada's West Coast and Shanghai.

CAPP also projects significant overseas market opportunities for Canadian LNG. With growing global LNG demand, a window of opportunity is emerging for western Canadian LNG export projects beginning in about 2024.

LNG Exports, Opportunity Scenario

Source: CAPP



Incremental natural gas production represents significant value for Canada. CAPP estimates that, on an annual average basis, every Bcf/d of incremental production to serve LNG export will:

Generate
$2.4 BILLION
in direct or indirect economic activity (measured in GDP).

Create or sustain
10,000
direct and indirect jobs.

Generate
$340 MILLION
in revenues for the provincial and federal governments.

This is in addition to creating thousands of construction jobs. For example, B.C. estimates 10,000 construction jobs will be created during construction of the LNG Canada facility at Kitimat.

3.1.2 The Potential to Reduce Net Global Emissions

Beyond having a potential cost advantage over other LNG producers, LNG created in Canada presents opportunity for both economic prosperity and global emissions reduction. Large GHG emissions reduction is possible if future power generation in China, India and Southeast Asia is fuelled with natural gas, derived from LNG. Estimates show by 2040, about 1,500 megatonnes of carbon dioxide equivalent ($MtCO_2e$) emissions could be eliminated every year if new power plants in China, India and Southeast Asia are fuelled by natural gas instead of coal. These reductions are contingent on approximately 375 megatonnes of LNG annually displacing current coal electricity generation. This estimate was based upon a CAPP internal study using the Pace Global 2015 report[11] for life cycle GHG intensities of both coal and LNG.

Under the Paris Agreement, as part of Canada's Nationally Determined Contribution (NDC), the federal government has agreed to a 30-per-cent reduction of Canada's GHG emissions from 2005 levels by 2030. The development and expansion of an LNG export industry in Canada will increase GHG emissions and make it difficult for Canada to achieve its NDC without offsets that recognize the contribution of LNG to global emissions reduction.

Article 6 of the Paris Agreement is intended to offer countries the opportunity to co-operate when implementing measures to achieve their NDCs, by allowing a country with higher emissions to acquire emissions reductions – called Internationally Transferable Mitigation Outcomes (ITMOs) – from another country. Acquiring offsets under Article 6 that recognize the global emissions reduction benefit of LNG provides Canada with a low-cost, responsible option for achieving our NDC, and enables the expansion of our natural resource sector, providing significant economic benefits. Globally, Canada can help reduce net emissions if our lower-emissions intensity LNG can be the principal supplier to the global markets and play a major role in transitioning from coal to natural gas electricity generation.

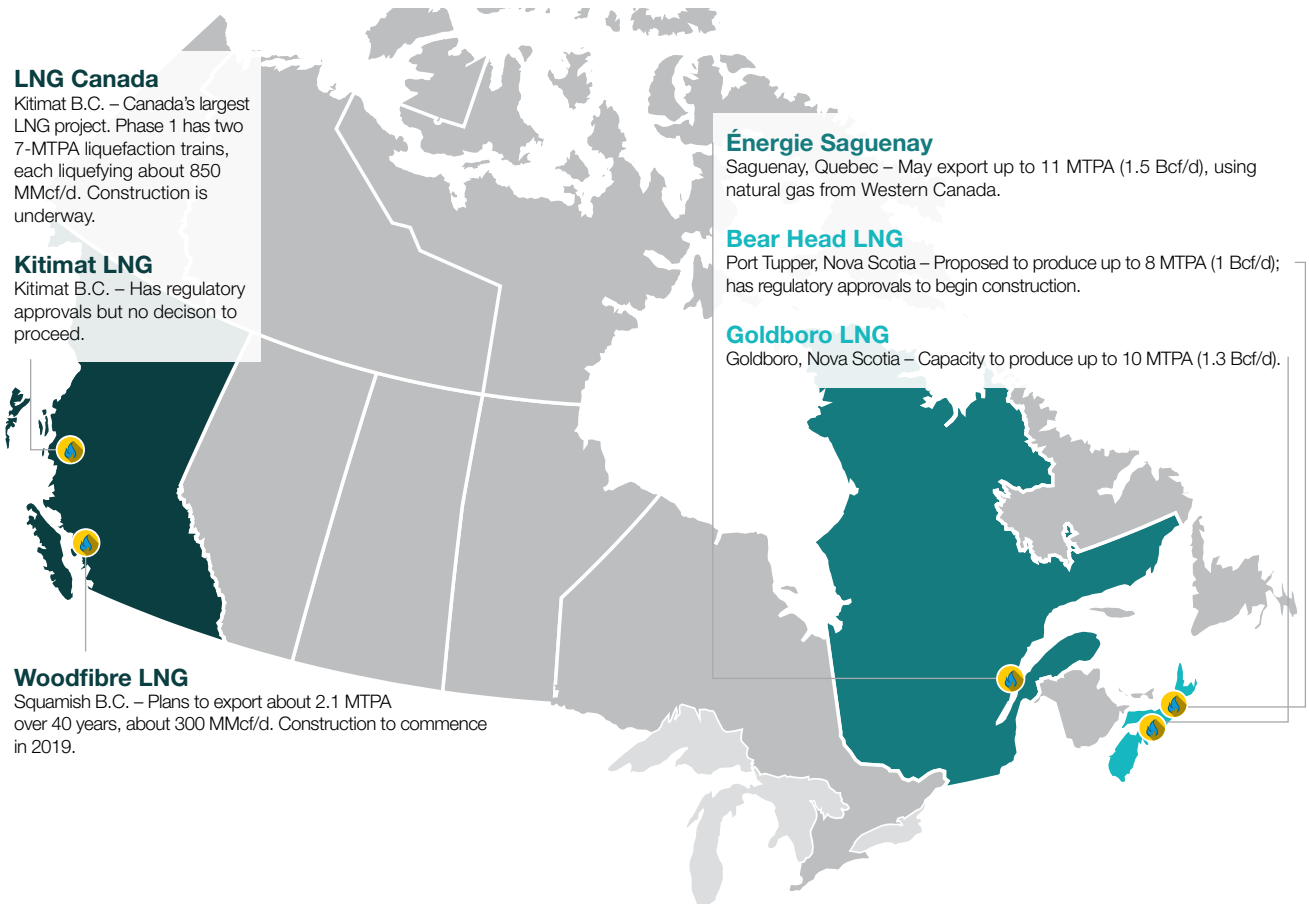
CAPP Recommends

Under Article 6 of the Paris Agreement, the Government of Canada should enter discussions to create ITMOs as an option for achieving Canada's NDC, which recognize the shift from coal to natural gas use for electricity generation in China, India and Southeast Asia as a meaningful opportunity if Canadian LNG is used for natural gas-fired generation in these countries.

3.1.3 Current Canadian LNG Developments

Although there is a growing global opportunity for LNG, only a small number of projects are being actively pursued in Canada. Approximately 20 facilities were proposed for Canada's West Coast but most have been deferred or cancelled. In December 2018 ExxonMobil withdrew its WCC LNG proposal that was expected to produce about 15 MTPA of LNG, with potential expansion up to 30 MTPA. The proposal had been before the Canadian Environmental Assessment Agency for nearly four years, since February 2015.

Current Canadian LNG Export Projects (Active and Proposed)



Not all proposed LNG projects make it to a final investment decision. Canada's missed or stalled opportunities include:

Cancelled or Stalled LNG Export Projects Across Canada

- Pacific Northwest LNG
- Prince Rupert LNG
- Aurora LNG
- WCC LNG
- Grassy Point LNG
- Douglas Channel LNG
- Triton LNG
- Kwispaa (Steelhead) LNG
- Saint John LNG

Three LNG projects are proposed for Canada's West Coast; only LNG Canada and Woodfibre LNG are currently proceeding toward construction. Projects are also proposed in Quebec and Atlantic Canada.

Developing an LNG export industry will not only provide a market opportunity for natural gas, but will also be key to stimulating the incremental NGLs production that would provide feedstock to support additional petrochemical projects in Canada or elsewhere.

> To be successful, Canadian LNG projects will require a stable and competitive fiscal environment as well as an efficient regulatory process that enables projects to be completed in a timely fashion, free from delay and attendant cost pressures.

LNG Canada: Toward a Successful FID

In October 2018, LNG Canada's joint venture participants — Shell Canada, PETRONAS, PetroChina, Mitsubishi Corporation and KOGAS — made a FID to proceed with Phase One of the project, which consists of two LNG trains each producing approximately seven MTPA. With this milestone we have turned a corner in the history of B.C. and Canada, as we aspire to be the project that the world will look to for proof that projects of this magnitude can be delivered safely, on time and on budget.

It took a diverse and knowledgeable team to deliver our vision and insights concerning LNG construction and operations, pipelines, environment and First Nations engagement — all with the shared goal of delivering a competitive project that puts Canada on the global LNG map for the first time.

There are many stakeholders with varied interests to manage. At LNG Canada, we often say that we built relationships before we built the project, and we feel this approach was a key part of reaching our FID. We worked to identify and assess societal interests and integrate them at the most senior levels of the project; we established an early, available and responsive presence in the community that allowed us to adapt to an ever-changing context throughout the development of the project; and we understood the importance of sharing value with the broader community.

LNG Canada and our partners' 'hire local first' approach will seek to fill more than 10,000 construction and operational jobs across the lifespan of the project, while contracting services and purchasing goods from local companies where possible.

LNG Canada is an energy development project that co-exists with the natural environment. For example, to protect and enhance marine resources, we are working closely with First Nations, as well as other agencies such as the Vancouver Aquarium, to make strategic investments with the goal of making coastal waters safer and more habitable. As CEO Andy Calitz said, "This decision shows that B.C. and Canada, working with First Nations and local communities, can deliver competitive energy projects. Industrial development can co-exist with environmental stewardship and Indigenous interests."

Natural gas from B.C.'s abundant reserves will be transported to our facility via the 670-kilometre Coastal GasLink pipeline. And Kitimat, with its deep protected harbour, was a natural choice for an LNG terminal and provides competitiveness because of the shorter sailing distance to Asian markets — seven to 10 days compared to about 24 days via the Panama Canal from the U.S. Gulf Coast.

Understanding the global nature of climate change and the role of natural gas in energy transition was also fundamental. As a global LNG supply gap opens in the next decade, this project will provide a reliable and cost-competitive supply of LNG for global portfolios.

LNG Canada is proud to be taking this bold step toward Canada's successful energy future.

Susannah Pierce
External Relations Director
LNG Canada

Susannah Pierce is the External Relations Director of LNG Canada. In this role, Susannah is responsible for leading government relations, social performance, communications and First Nations functions for the project.

3.1.4 Other Natural Gas Markets

Oil Sands

CAPP's *2018 Crude Oil Forecast, Markets and Transportation* report forecasts production from Alberta's oil sands will increase to 5.6 MMb/d by 2035. Higher oil sands production will result in higher natural gas demand, because in situ and mining recovery methods use natural gas to create hot water or steam for extraction. Oil sands producers also use NGLs to dilute bitumen and for other recovery processes; these uses of NGLs may expand considerably if emerging recovery technologies are commercialized. In 2017, the Alberta Energy Regulator (AER) reported the oil sands sector consumed 1.92 Bcf/d and by 2027 oil sands consumption is expected to reach 2.79 Bcf/d.

Electricity Generation

In its July 2017 long-term outlook, the Alberta Electric System Operator (AESO) predicted a larger role for natural gas-fired power generation as coal is phased out of the generation mix in Alberta.[12]

The AESO outlook is influenced by a number of policy goals including the Government of Alberta's Climate Leadership Plan, which calls for the phase-out of all coal-fired electricity generation by December 31, 2030.

Using the AESO reference case, CAPP concludes that natural gas demand for power generation could grow to between 1.77 to 2.06 Bcf/d. This represents a significant potential domestic market, compared to actual 2016 consumption for electricity generation of about 850 MMcf/d and the AER estimate for 2017 of one Bcf/d.

3.2 Oil

The IEA projects total world oil and liquids demand will be about 106.3 MMb/d by 2040, or some 11 MMb/d more than today. This increase will be driven largely by demand from the petrochemical sector and from transportation, including trucking, aviation and marine shipping. China became the world's largest importer of oil in 2017, surpassing the U.S.

3.2.1 U.S. Market Opportunities

A surge in U.S. oil production has led to a shift in oil markets around the world. The U.S. could become a net exporter of oil by 2030. U.S. production is predominantly light oil that does not compete directly with Alberta's bitumen and heavy oil.

Despite growing U.S. production, western Canadian oil exports to U.S. Midwest refineries could rise due to recently completed and planned refinery upgrades to accommodate heavy oil. The U.S. Gulf Coast represents the most significant North American opportunity for Canadian heavy oil, which is ideally suited for that market given the large regional heavy oil processing capacity. Canadian heavy oil could also fill demand in the U.S. Gulf Coast as supplies from Mexico and Venezuela decline.

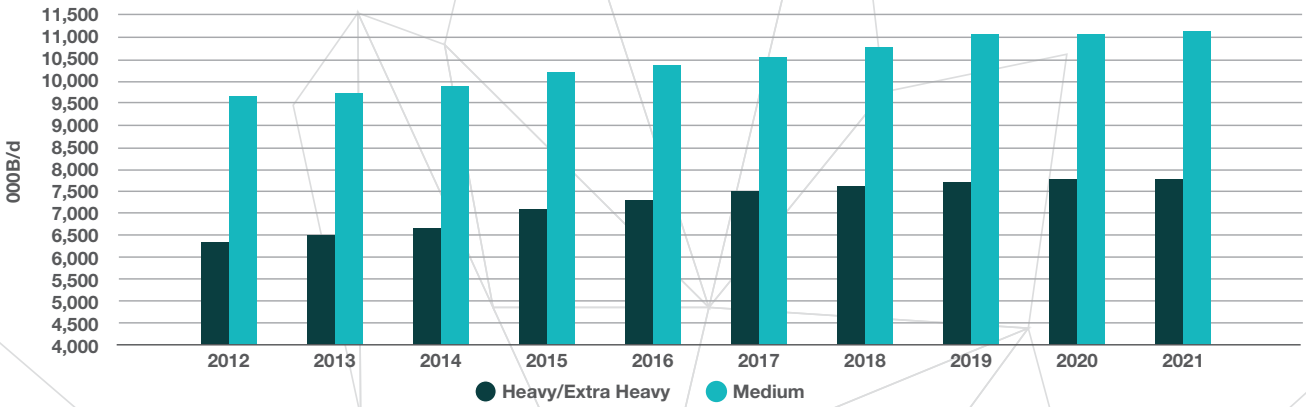
3.2.2 International Market Opportunities

Globally, there is a strong market for heavy oil feedstocks. The IEA projects that China will remain the world's largest oil importer through to 2040. China now imports about 72 per cent of its oil, and imports are expected to continue growing. Although demand for transportation fuels is projected to decrease over time, demand for oil will continue to be strong as China's petrochemical sector expands.

A large build-out of complex refining capacity in India and Southeast Asia will present additional opportunities for Canadian heavy oil exports. Given India's dependence on imported oil, minimizing risks through supplier diversification is expected to be a growing feature of oil import policy. At present, about 86 per cent of India's oil imports come from OPEC countries but India's government is actively looking at importing U.S. oil. India would likely welcome more oil from Canada, especially given India's refineries can handle a variety of feedstock including heavy oil such as WCS.

Heavy Oil Demand - Asian Markets

Source: ESAI Energy, 2017



3.2.3 Access to Potential Markets

Canadian pipeline projects currently in development – particularly TMEP – would provide producers with much-needed market access options and reduce reliance on the U.S. as Canada's single export market. In addition, the proposed Eagle Spirit Energy project would transport oil from Alberta and B.C. to a West Coast export facility.

Overseas markets present an emerging opportunity for Canadian oil, but markets in the U.S. also present growth opportunities. Canada must continue supplying heavy oil to existing and emerging U.S. markets, and appropriate infrastructure is urgently required. Additional pipeline infrastructure from Western Canada to the U.S. will increase Canada's ability to serve the Gulf Coast, and decrease the price discount applied to western Canadian oil exports. Oil pipelines in development, notably Keystone XL and Enbridge Line 3 Replacement, would improve access to U.S. markets.

Oil By Rail

Although more costly than shipping by pipeline, rail offers an alternative mode for transporting oil as pipeline projects continue to face challenges and delays. The NEB reported oil-by-rail shipments of about 270,000 b/d in September 2018, a 101-per-cent increase from the average of about 134,000 b/d in September 2017.

In 2014, Transport Canada, with the U.S. Department of Transportation Pipeline and Hazardous Material Safety Administration, announced new rail tank car requirements including puncture resistance and thicker walls. Retrofits of existing tank cars must be completed by 2020, and all newly built cars must meet even more stringent standards. As a result, both retrofitted and new tank cars are in short supply.[13] While CAPP supports stringent safety standards for tank cars, the switch to cars that meet the safety standards will take time, further enforcing the need for pipelines.

In June 2018, Canadian National Railway (CN) announced plans to invest $320 million across Alberta to expand its rail network and boost capacity to meet growing demand not only for transporting oil and related products but also grain and forest products. CN also announced it would begin taking delivery of 60 new locomotives in 2018. Cenovus Energy announced in September 2018 it had entered into a three-year agreement with major rail companies to transport about 100,000 b/d of heavy oil from Northern Alberta to various refineries on the U.S. Gulf Coast.[14] In November 2018, the Government of Alberta proposed to obtain enough locomotives and oil tanker rail cars to move about 120,000 b/d, starting in 2019.

Bill C-69 will create even greater regulatory uncertainty and litigation risk, both of which will result in decreased investor confidence.

ADDRESSING CHALLENGES, REALIZING OPPORTUNITIES

The Canadian oil and natural gas industry faces numerous barriers to market access and competitiveness. Although improving infrastructure will provide access to overseas markets and reduce price discounts, CAPP notes that pipelines alone will not make the industry competitive or attract capital investment. A supportive fiscal framework and regulatory efficiency are also crucial.

Overcoming current barriers is entirely possible. Dialogue and collaboration between government and industry can create a regulatory and fiscal regime that positions the Canadian oil and natural gas sector as a desirable investment with significant growth potential. Investment and growth will translate to continuous improvement in environmental performance, increased government revenues, increased employment and stability for Canada's economy.

4.1 Addressing Proposed Federal Government Legislation

The Government of Canada has recognized the regulatory regime for assessing and approving oil and natural gas infrastructure projects needs to be streamlined. However, CAPP believes proposed legislation will not achieve the government's objectives, but instead will virtually prevent development of facilities and infrastructure, and the crucial export of Canadian oil and natural gas. Canada urgently needs efficient, effective legislation that will support our already strong environmental performance while permitting the orderly construction and operation of infrastructure that is vital to Canada's economic future.

4.1.1 Bill C-69

Under Bill C-69, the Government of Canada proposes to change the *National Energy Board Act* and *Canadian Environmental Assessment Agency Act* and *Navigation Protection Act* to create the *Impact Assessment Act* and updated *Canadian Energy Regulator Act* and *Navigable Waters Act*. As of December 2018, Bill C-69 has passed second reading in the Senate and has been referred to the Senate Standing Committee on Energy, the Environment and Natural Resources for study. The Senate announced on February 5, 2019 that it will begin cross-country consultation.

This bill impacts Canada's ability to build pipelines, LNG terminals, rail terminals, upgraders, refineries and other projects across the oil and natural gas sector. Canada's regulatory system already creates uncertainty for industry and investors. Bill C-69 will create even greater regulatory uncertainty and litigation risk, both of which will result in decreased investor confidence.

A 2016 study by WorleyParsons Canada evaluated environmental assessment (EA) practices worldwide. The study concluded that while Canada's EA process is among the most thorough and comprehensive, it also "currently has one of most expensive, time and resource consuming EA processes in the world."[15] The proposed Bill C-69 would actually expand the scope of the EA process to include broader societal or policy matters that may or may not be relevant to a proposed project, but provide no clarity or direction on how to weigh such factors in the decision-making process.

The government has positioned Bill C-69 as a means of eliminating regulatory uncertainty, providing clarity, avoiding future legal action, and increasing Indigenous and stakeholder engagement. On the contrary, CAPP believes Bill C-69 increases regulatory complexity and will encourage multiple litigations on project decisions. As written, it will continue the long, uncertain regulatory and judicial processes that have caused significant financial and resource drains on energy project proponents, communities and governments, resulting in delayed decisions and decreased investor confidence. In addition, areas of public policy debate – such as climate change policy – are further entrenched into project review by Bill C-69.

CAPP believes the federal government must revise Bill C-69 to consider the bill's long-term impacts. By working collaboratively with the oil and natural gas industry and other stakeholders, the government can make the bill what Canada needs: a framework for an efficient process that maintains high environmental standards.

CAPP Recommends

The federal government should effectively revise Bill C-69, the *Impact Assessment Act* and updated *Canadian Energy Regulator Act* and *Navigable Waters Act* by addressing these areas of concern:

- Issuing approvals and the path to construction - factors relevant to project review and material to decision-making must be defined with certainty early in the process, and trust needs to be placed in the expert staff of the agency and regulator to make evidence-based decisions. Political interference must be restricted. Public policy debates need to be firmly removed from project assessments and adjudications, included instead in strategic assessments or policy forums.
- Public participation - the assessment process itself needs to be clearly defined as creating a way to ensure meaningful participation. Review panels need to have the discretion to hear from those directly affected by a project and to consider the information, expertise and opinions of other knowledgeable persons as they see fit.
- Timeline certainty - improve predictability of timelines including an overall maximum. Encourage discipline from all parties by requiring publication of reasons for extensions.
- Project planning certainty - do not prohibit work needed to develop a project proposal.
- Decision-making / public interest - restrict the broad discretionary powers granted to the Minister of Environment and Climate Change Canada (ECCC). Make explicit in the proposed Act that decision makers must specifically consider the economic and social effects, including benefits, of projects.
- Involvement of life cycle regulators in review panels - remove the requirements that marginalize the involvement and use of regulators' expertise. Allow flexibility for the best-placed candidates to comprise and / or chair review panels. Allow flexibility to scale assessment reviews to project complexity and scope.
- Navigable waters - focus on project-induced impacts, not the remedy of natural flow conditions or cumulative impacts over which proponents may have no control.

4.1.2 Bill C-48

In May 2017, the Government of Canada introduced Bill C-48, the *Oil Tanker Moratorium Act*, which seeks to prevent large tankers from anchoring, loading or unloading, and transporting oil and other petroleum products such as partially upgraded bitumen and synthetic oil along B.C.'s North Coast. The moratorium zone would extend from the Canada-Alaska border to the northern tip of Vancouver Island. Bill C-48 would allow vessels carrying less than 12,500 metric tonnes (approximately 90,000 bbls of oil or related petroleum products.[16] Bill C-48 passed the House of Commons in May 2018, and is awaiting second reading in the Senate and Committee hearings.

Spill response is a concern about oil tanker traffic on B.C.'s North Coast. Canada has world-class marine safety response systems including the Western Canada Marine Response Corporation and the federal government's Oceans Protection Plan. Large oil tankers already safely transport oil in Atlantic Canada, the St. Lawrence River system, and Canada's West Coast including the Port of Vancouver. There is no reason oil transport cannot be safely accomplished from B.C.'s North Coast.

CAPP has serious concerns about Bill C-48. The moratorium would diminish Canada's ability to access new global markets. CAPP also believes Indigenous communities will be impacted by Bill C-48, in particular the 35 First Nations between Fort McMurray, Alberta. and Grassy Point, B.C. that are partners in the $14-billion Indigenous-led Eagle Spirit Energy project.

In fact, if Bill C-69 is passed in its current form, the passage of Bill C-48 is moot.

CAPP Recommends

CAPP recommends the federal government withdraw Bill C-48.

> By purchasing the Trans Mountain pipeline and the proposed TMEP, the Government of Canada committed to increasing tidewater access for the export of Canada's natural resources, ensuring long-term economic benefits. Bill C-48 directly contradicts this commitment.

4.2 Addressing Pipeline Regulatory Challenges

Efficient movement of both oil and natural gas is currently constrained by insufficient pipeline capacity, created in part by current long approval timelines and regulatory complexity.

4.2.1 Natural Gas

As noted in Part 2.3.1, there is currently a major bottleneck on the NGTL system that transports natural gas to Central Canada and to the Dawn (Ontario hub) and Chicago markets. A plan to expand that bottleneck and allow about 1.4 Bcf/d of incremental natural gas flows has been announced, with an in-service date of 2021. Reducing NEB regulatory timelines would bring this capacity into service 12 months earlier, accelerating the benefits of debottlenecking the system.

CAPP Recommends

CAPP recommends the federal government support streamlining the NEB approval process for NGTL expansion, thereby alleviating a serious bottleneck for western Canadian natural gas and facilitating access to markets in Eastern Canada and the U.S.

4.2.2 Oil

Existing oil pipeline infrastructure is at capacity and it is uncertain when additional pipeline capacity will become available. By 2035, the gap between anticipated oil supplies and available pipeline capacity could increase to two MMb/d. This is an untenable situation that must be resolved.

Timelines associated with Canadian pipeline development are very lengthy and have been made even longer due to legal challenges despite regulatory approval, and shifting regulatory requirements. As a result, several large infrastructure projects have been cancelled in recent years, including Northern Gateway and Energy East.

Three major oil pipeline projects are currently under active development. The combined capacity from Enbridge's Line 3 Replacement project (L3RP), the TMEP, and TC Energy's KXL would provide 1.79 MMb/d of new capacity.

Trans Mountain Expansion Project Delays

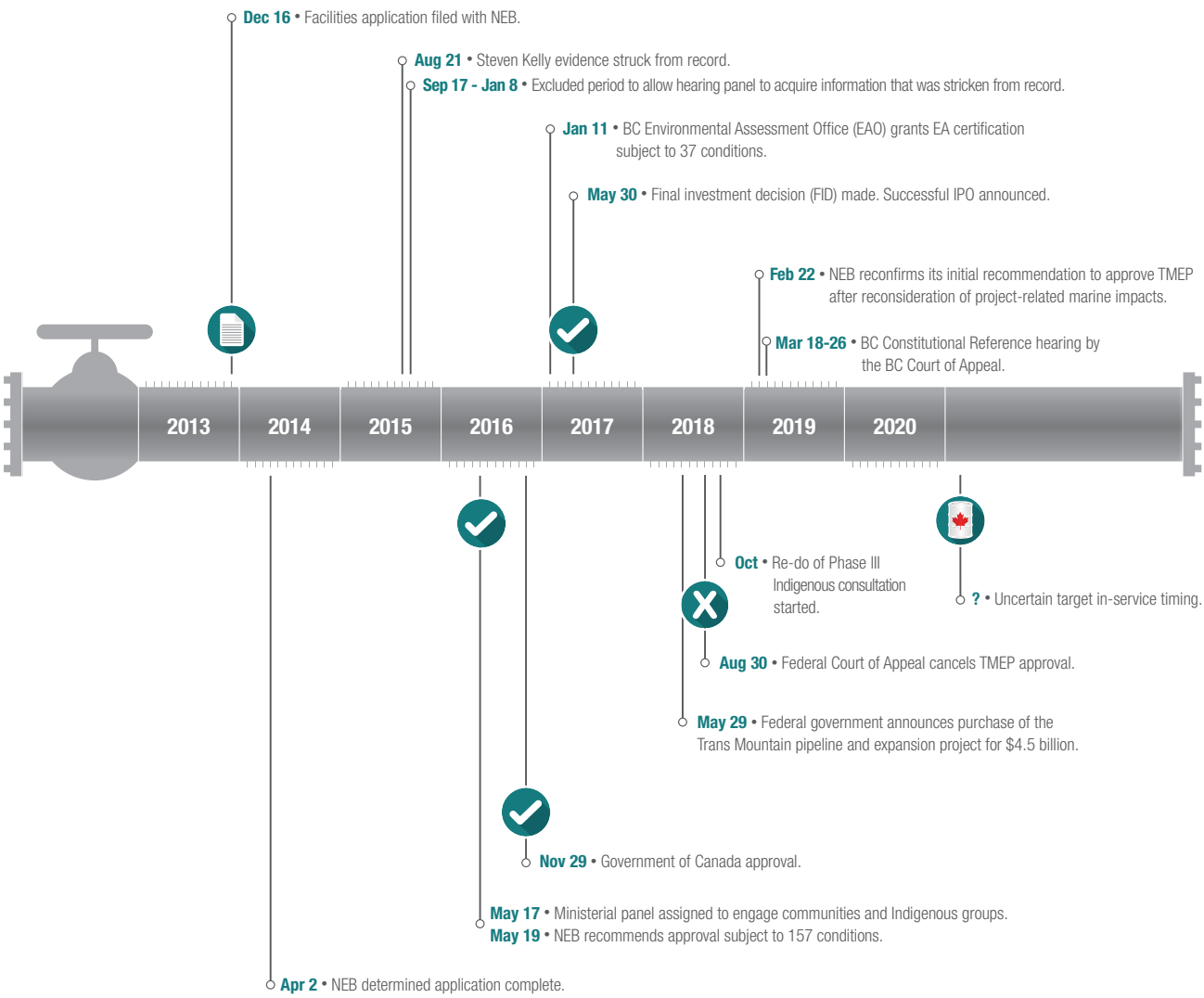
In 2013, Kinder Morgan applied to the NEB for the TMEP, which proposes to expand existing pipeline capacity to 890,000 b/d from 300,000 b/d. By the end of 2016 the project had received approval from the B.C. provincial government, the NEB, and the Government of Canada. Construction was planned to start in 2017.

Amid interference from the B.C. government, and opposition from environmental activists, some Indigenous groups, and members of the public, delays caused Kinder Morgan to halt all non-critical project spending in April 2018. On May 29, 2018, the Government of Canada announced an agreement to purchase the existing Trans Mountain pipeline, along with TMEP. This proposal was ratified by Kinder Morgan shareholders in August 2018.

TMEP is critical infrastructure needed to move Canadian energy to world markets and help restore investor confidence in Canada's economy and political system. Constructing and operating TMEP is in the national interest. However, ongoing regulatory delays and legal challenges continue to generate uncertainty and repercussions. CAPP supports the federal government's commitment to TMEP but notes there is still no assurance the pipeline will be built, due to ongoing delays from political interference, court challenges and opposition from some activist and Indigenous groups.

Successful completion of TMEP will put an additional **590,000 b/d** of Canadian oil on the global market.

Trans Mountain (TMEP)



TRANS MOUNTAIN EXPANSION

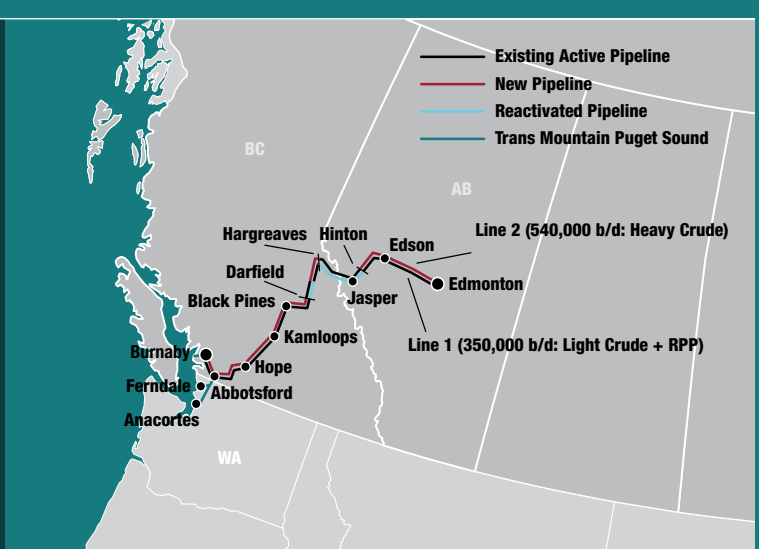
COST: C$7.4 billion (March 2017 estimate)

CAPACITY: 890,000 b/d
(300,000 b/d existing + 590,000 b/d additional)

LENGTH: 1,183 kilometres
(987 new + 193 reactivated + 2 x 3.6 km)

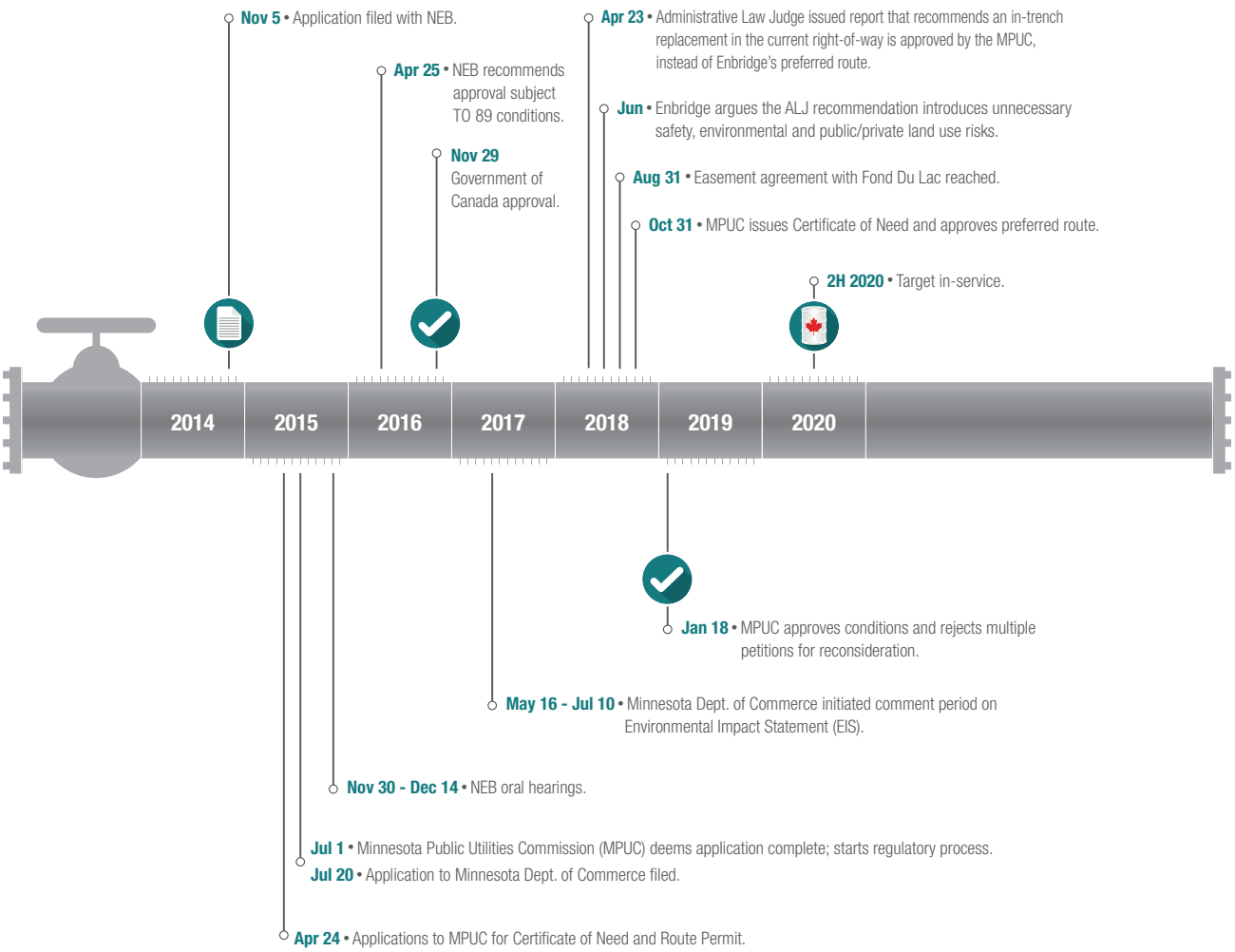
DIAMETER: 36 inches

CONTRACTS: 707,500 b/d
(13 shippers: 15 and 20 year terms)



Successful completion of L3RP will put an additional **370,000 b/d** of Canadian oil on the global market.

Enbridge Line 3 Replacement Project (L3RP)



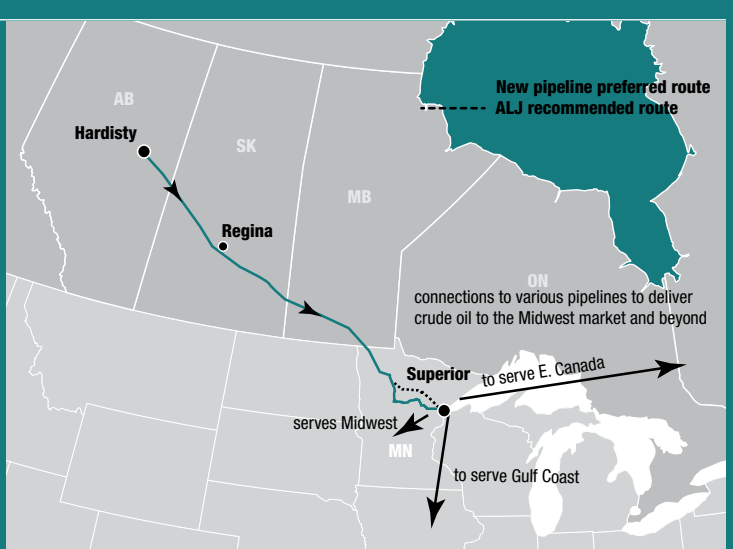
ENBRIDGE LINE 3 REPLACEMENT (L3RP)

COST: **C$5.3 billion** (Canadian component)
US$2.9 billion (American component)

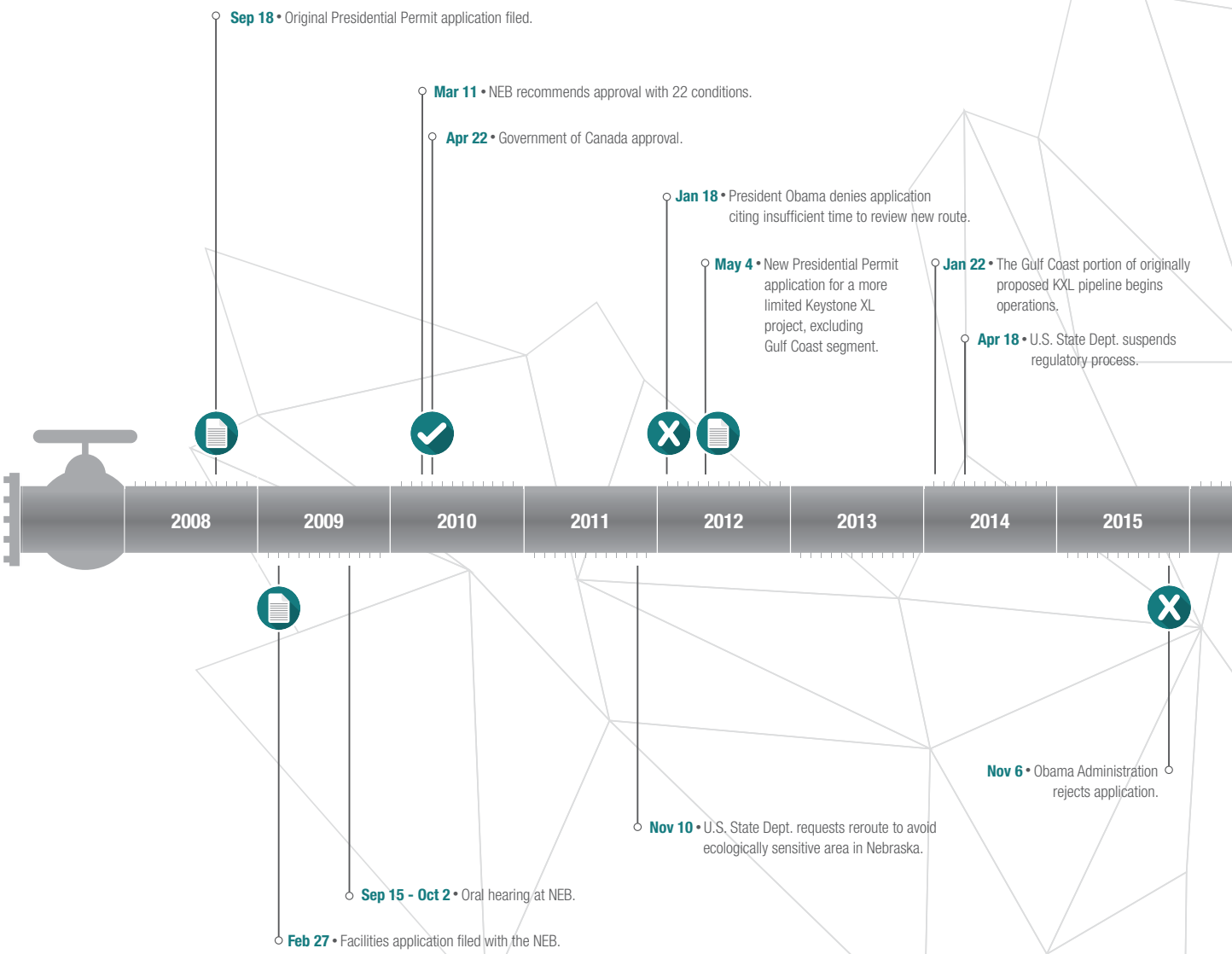
INITIAL CAPACITY: **760,000 b/d**
(replaces existing 390,000 b/d +370,000 b/d new)

LENGTH: **1,659 kilometres**

DIAMETER: **36 inch replacing 34 inch**



TC Energy's Keystone XL (KXL)

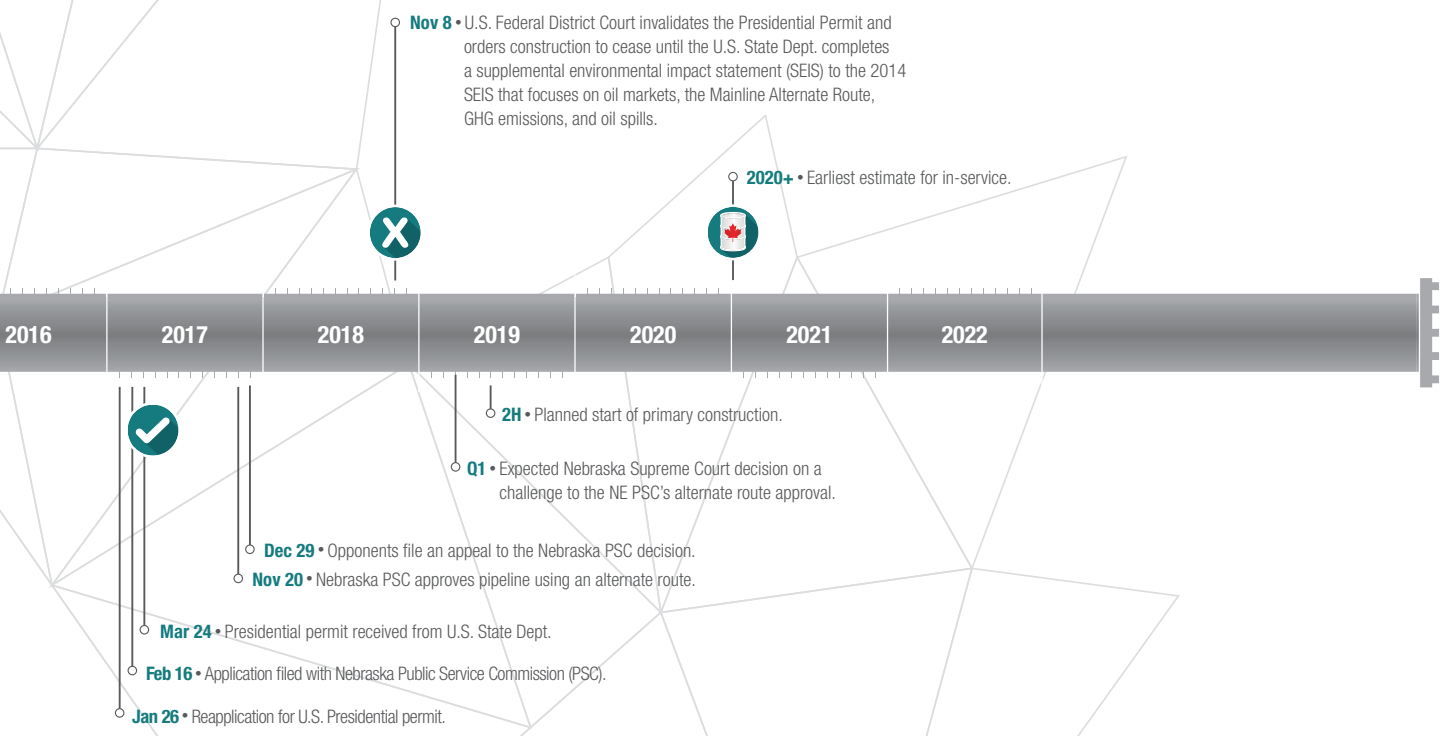


TC Energy's Keystone XL

COST:	C$10.85 billion (2014 estimate) US$8 billion (2014 estimate)
CAPACITY:	700,000 b/d (initial) 830,000 b/d (design)
LENGTH:	526 kilometres
DIAMETER:	36 inches
CONTRACTS:	500,000 b/d*

* TransCanada announced in January 2018 that 500,000 b/d of firm 20-year commitments have been secured, including 50,000 b/d from the Govt. of Alberta. TC will continue to secure long-term contracts.

Successful completion of KXL will put up to an additional 830,000 b/d of Canadian oil on the global market.



CAPP Recommends

CAPP recommends that federal and provincial governments enable a competitive oil industry by advancing efforts to expand market access for Canadian oil through support and endorsement of approved pipelines and expansion projects, including the TMEP, KXL, L3RP plus any other pipelines that would improve access to domestic and overseas markets.

4.3 Addressing Fiscal Challenges

A globally competitive fiscal framework in Canada would encourage innovation and position Canada's oil and natural gas as the world's energy supply of choice. However, Canada is currently at a fiscal disadvantage especially relative to the U.S.

In light of tax reforms in the U.S., Canada's fiscal framework is now trailing the U.S. on key factors where Canada used to benefit from an overall advantage with respect to tax policy. While the federal government acknowledged the increased competitiveness challenge from the U.S. in its recent Fall Economic Statement, and has taken some actions to address those challenges, CAPP believes those policy actions are insufficient in restoring competitiveness for Canada's oil and natural gas industry. In particular, U.S. oil and natural gas companies continue to receive immediate deductibility of capital costs for income tax purposes. In Canada, depending on the asset, federal government policy currently limits deductibility of capital costs in the oil and natural gas industry to a range from 37.5 to 45 per cent in the first year, falling to 25 to 30 per cent for subsequent years, depending on the capital cost's tax classification. This deductibility gap is a significant disincentive for capital investment in Canada.

While industry is broadly supportive of the climate policy goals and policy frameworks being implemented by Canadian governments, the aggregate effect of climate policy components (including the cost impacts arising from carbon pricing, methane abatement and clean fuel standards) on Canadian competitiveness is a serious concern to industry. CAPP believes a basic tenet of climate policy must be to provide incentive for industry to reduce GHG emissions, while addressing the competitiveness impacts for EITE sectors that are competing in the open market against producers operating in jurisdictions with less stringent climate policy. This would be a key means to address carbon leakage.

Canada's oil and natural gas sector presents a significant opportunity for inclusive growth of employment and prosperity (i.e., among women, Indigenous peoples, and immigrants) that is aligned with the Government of Canada's economic and social objectives. Addressing cost competitiveness challenges, combined with alleviating the current market access challenges, can mitigate price discounts, accelerate innovation and improve the Canadian energy brand. These actions would in turn restore investor confidence, attract investment and provide the platform for a broader national consensus on the industry's future, all of which would lead to significant growth of the sector and broader benefit to Canadians.

Insufficient market access affects investment decisions and employment. The elevated oil price differential is making it less likely that new oil sands projects will go forward. If there were sufficient market access, the Alberta government anticipates an additional 190,000 b/d of oil sands production would be on stream by 2023. CAPP estimates construction of new oil sands facilities would generate 12,300 direct, indirect, and induced jobs per year across Canada, and operating these facilities would support 10,700 direct, indirect, and induced jobs per year.

CAPP Recommends

To stimulate capital investment and help address carbon leakage, CAPP recommends the federal government:

- Implement immediate 100-per-cent deductibility of tangible capital investment on par with recent reforms in the U.S.
- Introduce EITE protection of approximately 80-per-cent coverage of aggregate costs related to climate policy in order to address the competitiveness gap with the U.S.

4.4 Addressing LNG Challenges

A window of opportunity for LNG export is expected to develop in the mid-2020s but most of the approximately 20 LNG projects previously proposed for the West Coast have been cancelled or delayed.

LNG development will stimulate growth in NGL feedstock, because the plays poised to supply natural gas for LNG export are rich in liquids. CERI estimates that incremental LNG export demand of about 5.3 Bcf/d will provide an additional 80,000 b/d of ethane alone, which is enough feedstock to supply a new ethylene cracker with a capacity of 1.2 MTPA.

Canada missed the first wave of LNG opportunity and cannot afford to miss the next one. However, Canada is not moving fast enough to capitalize on the anticipated LNG supply gap. Further, while CAPP is encouraged by LNG Canada's decision to proceed with construction of its facility near Kitimat, B.C., one plant does not constitute an LNG industry. It's a good start, but Canada needs to facilitate the development of more such projects on the West Coast.

Canadian International Trade Tribunal Steel Tariff

Large, complex modular steel components needed to construct LNG facilities can only be built at a few locations around the world; such components currently cannot be competitively produced in Canada.

In May 2017, the Canadian International Trade Tribunal (CITT) issued a decision that certain fabricated industrial steel components from China, South Korea and Spain are being dumped into the Canadian market. The tribunal imposed a 48.5-per-cent duty on imported fabricated steel components. These tariffs on imported fabricated steel components can represent a serious cost impediment to LNG developments.

While LNG Canada received exemptions from these tariffs, which contributed to a positive FID to proceed with developing an LNG facility, potential competitiveness hurdles still remain in Canada concerning procurement of steel components.

CAPP Recommends

CAPP recommends the federal and provincial governments enable a competitive natural gas industry through visibly supporting and taking action to advance the development of Canada's LNG industry, with development of multiple LNG plants over time to provide access to global markets.

- More specifically, accelerate capital deductibility for tax purposes across the LNG value chain.
- Remove import duties on fabricated industrial steel components for LNG modules in the context of broader trade policy.

Pipeline Delays Cost Canada's Economy

Numerous studies have indicated significant and ongoing impacts to Canada's economy resulting from pipeline delays including a 2018 report from Scotiabank.[17]

Scotiabank's assessment of costs associated with pipeline delays concluded, "Pipeline approval delays have imposed clear, demonstrable and substantial economic costs on the Canadian economy. If maintained at current levels, the discount on western Canadian oil would shave C$15.6 billion in revenue annually or 0.75 per cent of Canada's GDP [CAPP notes the discount has since widened substantially].

"Assuming KXL and TMEP are both built, Canadian supply will still outstrip pipeline takeaway capacity until at least 2020, implying that an atypical and elevated discount on WCS will prevail until that time. If either KXL or TMEP does not move forward, Canadian production will outstrip pipeline takeaway capacity indefinitely. Either of these outcomes … could ultimately lead to less activity in the sector, representing a loss to the Canadian economy. The foregone revenue from the steep discounts on Canadian oil have large upstream and downstream effects on a broad section of the Canadian economy and population. The sooner governments move to allow additional pipeline capacity to be built, the better off Canada will be."

CONCLUSION

Global demand for oil and natural gas is expected to grow, especially in India, China and Southeast Asia. Canada is ready to compete for new global markets. The opportunity is real, as are the domestic and global benefits – from increased capital investment leading to increased employment, government revenues and other benefits in Canada, to contributing to a reduction in net global GHG emissions.

The opportunity is huge but rapidly diminishing, as other energy-producing jurisdictions are acting to grow production, infrastructure and export.

Despite Canada's tremendous oil and natural gas resources and world-leading environmental standards, plus the growth opportunities offered by emerging and expanding markets in the U.S. and overseas, the Canadian oil and natural gas industry faces numerous barriers to market access:

- Regulatory delays for project approvals.
- Ongoing political interference and legal challenges to approved projects.
- The proposed Bill C-69, which CAPP believes will increase regulatory complexity, encourage multiple litigations on project decisions, and continue current long, uncertain regulatory and judicial processes.
- The proposed Bill C-48, which imposes a moratorium on large oil tankers on B.C.'s North Coast and would further restrict market access.
- A more attractive tax and regulatory environment in the U.S., which is pulling investment away from Canada.
- Rapidly growing oil and natural gas production in the U.S., which is displacing Canadian production in current domestic and U.S. markets and competing with Canada for international markets.
- Canadian tariffs on fabricated steel components manufactured abroad.
- Short supply of rail tank cars that meet current safety standards.

A key factor in the sector's ability to attract investment, and ability to continue driving Canada's economic growth and employment, is access to growing global markets. Improved investment will also support developing advanced technologies that will drive environmental performance in the upstream industry, and contribute to a net reduction of global GHG emissions.

The opportunity is clear: in order to remain competitive and continue investment in the innovation necessary for a successful transition and economic diversification, Canada urgently needs to develop facilities and infrastructure to get our resources to emerging global markets before other suppliers – with weaker environmental standards – capture these markets.

Therefore, CAPP recommends that:

- Under Article 6 of the Paris Agreement, the Government of Canada should enter discussions to create Internationally Transferred Mitigation Outcomes as an option for achieving its Nationally Determined Contributions that enables the shift from coal to natural gas use for electricity generation in China, India and Southeast Asia as a meaningful opportunity if Canadian LNG is used for natural gas-fired generation in these countries.
- Effectively revise Bill C-69, the *Impact Assessment Act* and updated *Canadian Energy Regulator Act and Navigable Waters Act* by addressing these areas of concern:
  - + Issuing approvals and the path to construction - factors relevant to project review and material to decision-making must be defined with certainty early in the process, and trust needs to be placed in the expert staff of the agency and regulator to make evidence-based decisions. Political interference must be restricted. Public policy debates need to be firmly removed from project assessments and adjudications, included instead in strategic assessments or policy forums.
  - + Public participation - the assessment process itself needs to be clearly defined as creating a way to ensure meaningful participation. Review panels need to have the discretion to hear from those directly affected by a project and to consider the information, expertise and opinions of other knowledgeable persons as they see fit.
  - + Timeline certainty - improve predictability of timelines including an overall maximum. Encourage discipline from all parties by requiring publication of reasons for extensions.
  - + Project planning certainty - do not prohibit work needed to develop a project proposal.
  - + Decision-making / public interest - restrict the broad discretionary powers granted to the Minister of Environment and Climate Change Canada (ECCC). Make explicit in the proposed Act that decision makers must specifically consider the economic and social effects, including benefits, of projects.
  - + Involvement of life cycle regulators in review panels - remove the requirements that marginalize the involvement and use of the expertise of regulators. Allow flexibility for the best placed candidates to comprise and/or chair review panels. Allow flexibility to scale assessment reviews to project complexity and scope.
  - + Navigable waters - focus on project-induced impacts, not the remedy of natural flow conditions or cumulative impacts over which proponents may have no control.
- Withdraw Bill C-48 *(Oil Tanker Moratorium Act)*.
- Support streamlining the National Energy Board approval process for the NOVA Gas Transmission Ltd. pipeline expansion, thereby alleviating a serious bottleneck for western Canadian natural gas and accelerating access to markets in Eastern Canada and the U.S.
- Enable a competitive oil industry by continuing to advance efforts to expand market access for Canadian oil through actively supporting and endorsing approved pipelines and expansion projects, including the Trans Mountain Expansion Pipeline, Keystone XL, and Enbridge Line 3, plus any other pipelines that would improve access to domestic and overseas markets.
- Implement immediate 100 per cent deductibility of tangible capital investment on par with recent reforms in the U.S., and introduce emissions-intensive trade-exposed protection of approximately 80 per cent coverage of aggregate costs related to climate policy in order to address Canada's competitiveness gap with the U.S.
- Enable a competitive natural gas industry through visibly supporting and taking action to advance development of an LNG industry on Canada's West Coast, with development of multiple LNG plants over time to provide access to global markets.
  - + Accelerate capital deductibility for tax purposes across the LNG value chain, and remove import duties on fabricated industrial steel components for LNG modules in the context of broader trade policy.

APPENDIX

ENDNOTES

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GLOSSARY

AER – Alberta Energy Regulator

AECO – Alberta natural gas price benchmark at Hardisty, Alta. hub

AESO – Alberta Electric System Operator

bbl – barrel (of oil)

b/d – barrels per day (oil)

Bcf – billion cubic feet (natural gas)

Bcf/d – billion cubic feet per day (natural gas)

brownfield – upgrades or re-build of a previous development

CERI – Canadian Energy Research Institute

EASI – Energy Accounting Services Inc.

ECCC – Environment and Climate Change Canada (federal government ministry)

EIA – Energy Information Administration (U.S.)

FID – final investment decision

greenfield – new development or facility

IEA – International Energy Agency

LNG – liquefied natural gas

MMBtu – million British Thermal Units

MMb/d – million barrels per day (oil)

MMcf/d – million cubic feet per day (natural gas)

$MtCO_2e$ – megatonnes of carbon dioxide equivalent

MTPA – million tonnes per annum (LNG)

MT – megatonnes

NEB – National Energy Board

NGLs – natural gas liquids

NGTL – NOVA Gas Transmission Limited (natural gas pipeline network)

Tcf – trillion cubic feet (natural gas)

$tCO2_e$ / tLNG – tonnes of CO_2 equivalent per tonne of LNG produced

WCS – Western Canada Select, a blended heavy oil

WTI – West Texas Intermediate, a light sweet oil used as a price benchmark for oil in North America

The Canadian Association of Petroleum Producers (CAPP) represents companies, large and small, that explore for, develop and produce natural gas and crude oil throughout Canada. CAPP's member companies produce about 80 per cent of Canada's natural gas and crude oil. CAPP's associate members provide a wide range of services that support the upstream crude oil and natural gas industry. Together CAPP's members and associate members are an important part of a national industry with revenues from crude oil and natural gas production of about $101 billion a year. CAPP's mission, on behalf of the Canadian upstream crude oil and natural gas industry, is to advocate for and enable economic competitiveness and safe, environmentally and socially responsible performance.

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