

BRITISH COLUMBIA'S OIL AND NATURAL GAS INDUSTRY



THE RESOURCE

British Columbia has produced both natural gas and crude oil since 1952. Innovations have led the industry to focus on unconventional natural gas regions in Northeast B.C., including the Montney play, which straddles the provincial border with Alberta, the Horn River Basin, the Cordova Embayment and the Liard Basin. B.C. has vast natural gas resources of more than 575 trillion cubic feet (tcf) of natural gas.

Source: CER

MEETING RISING GLOBAL DEMAND

The world needs more energy in all forms. According to the 2018 IEA World Energy Outlook, by 2040 global demand for natural gas will increase 36 per cent over 2018 levels, replacing coal as the world's second-largest energy source.

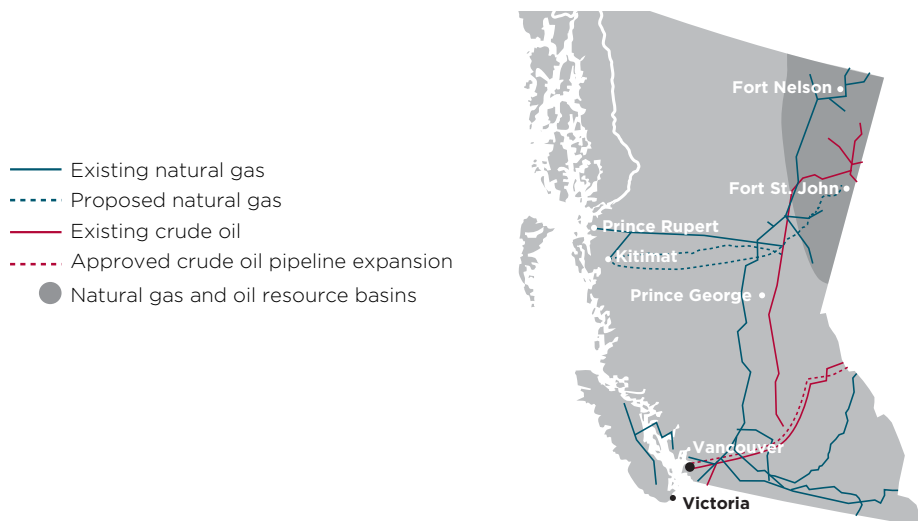
British Columbia currently produces one-third of Canada's natural gas and is well-positioned to begin shipping significant volumes of responsibly produced Canadian oil and natural gas to meet growing energy demand in emerging Asian economies.

B.C. has what it takes to be a global energy leader: an abundance of natural gas, a highly skilled workforce, a stringent regulatory system and a commitment to environmental performance.

12,000 JOBS

In B.C., the upstream oil and natural gas industry provides about **12,000 jobs**.

Source: PetroLMI, 2019



DID YOU KNOW?

In 2019/20 the B.C. government is expected to receive about **\$575 million in revenue** (land sales and royalties) from oil and natural gas activity.

Source: B.C. Budget and Fiscal Plan 2019/20 to 2021/22

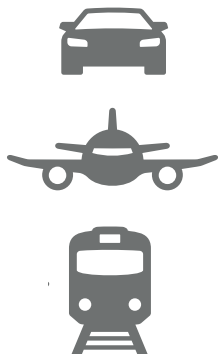
MAJOR OIL SANDS SUPPLIER

In addition to B.C.'s vast natural gas resource, B.C. is also a major supplier of goods and services to Alberta's oil sands industry. From 2016 to 2017, oil sands producers spent **\$590 million on procurement** (down 36 per cent from 2014/15) in B.C. involving **686 suppliers.**

Source: CAPP, 2019

ENERGY CONSUMPTION

About three-quarters of all energy consumed daily in B.C. is derived from fossil fuels. Transportation fuels represent the majority of consumption.



PRODUCTION AND RESERVES

B.C. NATURAL GAS (2019)

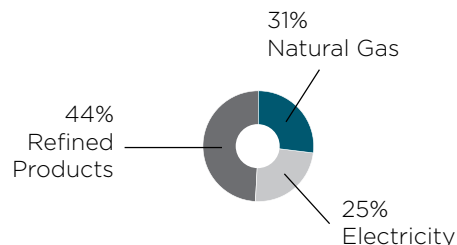
Production	1.8 trillion cubic feet (Tcf) per year (32 per cent of Canada's overall natural gas production) <i>Source: CAPP</i>
Producing Wells	10,255 <i>Source: BC Oil and Gas Commission (BCOGC)</i>
Remaining Marketable Potential	575 tcf—B.C.'s remaining natural gas represents enough to last more than 100 years at current Canadian demand levels <i>Source: CER</i>
Exports and Use	68% delivered to other regions of Canada 23% exported to the U.S. 10% consumed within B.C. <i>Source: Government of B.C.</i>

B.C. CRUDE OIL (2019)

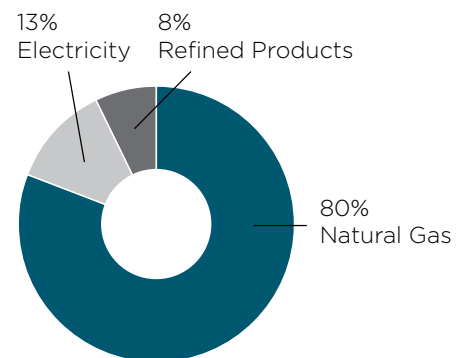
Production	16,000 barrels/day—about 2 per cent of Canada's total daily conventional oil production <i>Source: CAPP</i>
Reserves	114 million barrels <i>Source: BCOGC</i>
Oil Refining Capacity	67,000 barrels/day <i>Source: CAPP</i>

ENERGY CONSUMPTION AND PRODUCTION

B.C. ENERGY CONSUMPTION



B.C. ENERGY PRODUCTION



B.C. is a net exporter of energy and exports the majority of natural gas produced to the U.S. and the rest of Canada. B.C. also exports electricity, and imports refined fuel products.

Source: Statistics Canada, Report on Energy Supply and Demand of Energy in Canada, 2017

IMPACT OF OIL AND NATURAL GAS TO B.C.'S ECONOMY



The upstream conventional oil and natural gas industry provides B.C. with approximately **12,000 JOBS** and will contribute **\$5.1 BILLION IN GOVERNMENT REVENUES** through federal, provincial, and municipal taxes over the next 11 years.

Source: PetroLMI, 2019/CERI, 2019



Canada's conventional oil and natural gas industry will impact the B.C. economy with **\$122 BILLION IN ECONOMIC ACTIVITY** over the next 11 years.

Source: CERI, 2019

RESOURCE DEVELOPMENT, POLICIES AND REGULATIONS

The BC Oil and Gas Commission (BCOGC) is responsible for regulating all oil and natural gas activities, including exploration, development, transportation and decommissioning. The BCOGC was established as an independent Crown corporation in 1998. The commission enforces stringent, world-class regulations that ensure industry activities have minimal environmental impact, are safe, in the public interest and that Indigenous peoples are consulted.

British Columbia leads on policies to address climate change, reduce emissions of greenhouse gases and grow its economy through innovation. In addition to the broad-based carbon tax, industry has worked with government to create a strategy to reduce methane emissions from the existing upstream industry by 45 per cent from 2014 levels by 2025, and continues to seek programs and partnerships to develop and promote the electrification of upstream facilities in the future to help reach this goal.

INCREASING MARINE SAFETY THROUGH THE OCEANS PROTECTION PLAN

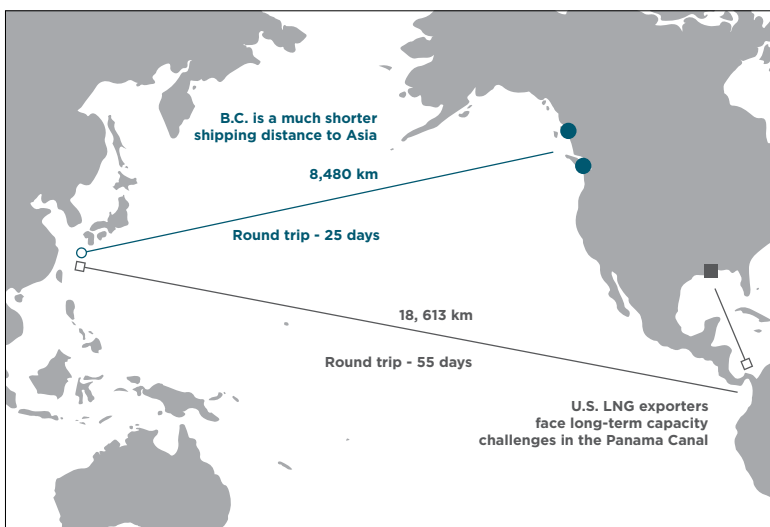
In 2016, the Canadian government created the Oceans Protection Plan to help improve marine safety and spill response to enable responsible shipping while protecting marine environments including those off the B.C. coast. Under the \$1.5-billion plan, the federal government committed to:

- Studying the fate and behaviour of oil spills on water;
- Two emergency towing vessels on the West Coast; and,
- Enhancing the Ship-Source Oil Pollution Fund by strengthening the polluter-pay principle to ensure industry-funded compensation in the case of a marine oil spill.

THE LIQUEFIED NATURAL GAS (LNG) OPPORTUNITY

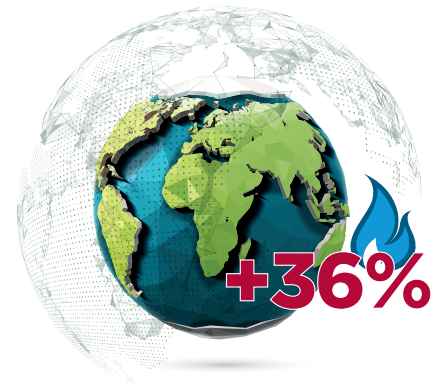
Establishing an LNG industry on Canada's West Coast would allow B.C. and Canada to export natural gas to new customers in rapidly developing markets in China, India and other parts of Asia. This has the potential to meet the need of these emerging economies for clean, reliable sources of energy, while providing jobs and long-term economic benefits to the people of B.C.

THE B.C. ADVANTAGE



GLOBAL DEMAND FOR NATURAL GAS

Global demand for natural gas is expected to increase 36 percent by 2040.



Source: IEA World Energy Outlook, 2019

LNG - HOW IT WORKS

-162° C

Natural gas cooled to -162 degrees Celsius becomes a liquid, which takes up 600 times less volume than the gas. This volume reduction makes it economical to transport LNG by carriers to markets overseas.

LNG CANADA

In October 2018, with the support from all levels of government including local Indigenous communities, the \$40 billion LNG Canada export project was the first large-scale LNG facility in Canada to receive a positive Financial Investment Decision (FID) by its joint venture partners – Shell, PETRONAS, PetroChina, Mitsubishi Corporation and KOGAS. The first phase will include two processing units (trains) with a capacity of 14 million tonnes per annum (mtpa), with the option to expand up to an additional two trains.

- The project will be located in Kitimat, B.C. in the traditional territory of the Haisla Nation and includes the construction of the 670 km Coastal GasLink (CGL) pipeline from northeast B.C. near Dawson Creek to supply natural gas.
- These two projects represent reconciliation efforts and involved engagement and partnerships with several First Nations. The Haisla and 19 other First Nations are key partners on the projects both in employment creation and environmental management.
- Significant advantages of the facility include the short shipping distance to Asia compared to LNG plants located in the Gulf Coast region (about 50% shorter) and that the facility has been designed to achieve the lowest carbon intensity of any large-scale LNG plants due in part from its use of hydropower from B.C. Hydro.

These projects are two of several in the works. There are a number of other LNG projects under development in Canada which include Kitimat LNG, Woodfibre LNG and Tilbury LNG expansion, which are in advance or have completed the permitting stages.

Source: *Ingcanada.ca*

REDUCING CO₂ EMISSIONS

LNG used to displace coal in China would reduce CO₂ emissions by 60-90 million tonnes every year. This is equivalent to removing up to 80 per cent of all the cars on the road in Canada and shutting down 20 to 40 coal-fired power plants.

THE ENVIRONMENTAL ADVANTAGE

Canada has an opportunity to capitalize on the coming growth for LNG and reduce global GHG emissions by displacing coal-fired electricity generation and other primary uses of coal in China, India and Southeast Asia.

Estimates show by 2040, about 1,500 megatonnes of carbon dioxide equivalent (MtCO₂e) 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 coal electricity generation. This estimate was based upon a CAPP internal study using the Pace Global 2015 report for life cycle GHG intensities of both coal and LNG. Canadian GHG emissions intensity from LNG facilities is expected to be uniquely low, due to strong regulations and an opportunity to electrify the upstream. Reducing upstream combustion emissions via electrification, made possible by connecting to a lower-emissions electricity system, could reduce the upstream carbon intensity by approximately half.

Source: *Pace Global, 2015 and CAPP, 2019*



“As part of the \$40 billion LNG Canada project, we negotiated agreements that allowed us to protect our environment in a way that is based on our input, priorities, and needs. The agreements also gave us the ability to invest in programs we believe can help empower this generation of Haisla and those who follow us.”

Crystal Smith, chief counselor, Haisla Nation.

Source: *Business Vancouver*

For every LNG facility built in Canada, global emissions are reduced by **100 MtCO₂e** per year.

