

Joint Working Group Report on the Future Vision for Canada's Upstream Oil and Gas Industry

FINAL REPORT

November 30, 2018

Introduction

A Joint Working Group (“JWG”) was convened in late Fall 2017 as a forum for federal and provincial governments, together with industry stakeholders, to examine the competitiveness of the upstream oil and gas industry in Canada. The purpose of the JWG was to build a common understanding of factors that influence investment in this sector and identify potential opportunities for Canada to promote its comparative advantages. This report summarizes the findings of the JWG initiative.

The JWG consisted of representatives from Natural Resources Canada (“NRCan”), Finance Canada and Environment and Climate Change Canada (“ECCC”), the governments of Saskatchewan (“SK”), Alberta (“AB”) and British Columbia (“BC”) and a cross-section of representatives from the Canadian oil and gas industry from both the producing and service sectors.

The JWG identified and assessed competitiveness factors relative to other oil and gas producing jurisdictions, and discussed issues and approaches aimed at strengthening Canada's competitiveness. One of the strengths of the JWG model was that it provided an opportunity for dialogue among participants in order to garner feedback on modeling and analysis related to the competitiveness issues facing the industry.

The JWG initiative complements other federal initiatives examining Canada's competitiveness. These include ECCC's Multi-Stakeholder Committee on GHG Regulatory Measures and Programs (including the Federal, Provincial and Territorial Emissions Intensive Trade Exposed (EITE) Review Committee), Innovation, Science and Economic Development Canada's (ISED) six economic strategy tables guiding federal efforts to shape Canada's future economic growth, and the Atlantic Offshore Competitiveness and BC-Canada Liquefied Natural Gas (LNG) Competitiveness Review.

The objectives of the JWG included:

- Examine issues affecting the competitiveness of the upstream oil and gas industry in Canada, including natural gas (“NG”), liquids rich natural gas (“LRNG”), light tight oil (“LTO”), oil sands and heavy oil;
- Build a common understanding of the factors that influence investment including the tradeoffs investors and businesses consider when making investment or project decisions;
- Promote Canada's comparative advantages; and,

- Discuss opportunities to promote the Canadian energy brand including technological innovation to support the transition to a low carbon economy.

This initiative was led by a Main Table, comprised of senior officials from NRCan, Finance Canada and ECCC, and the governments of BC, AB, and SK, as well as senior level industry representatives. Technical sub-committees assisted the Main Table and focused on specific thematic areas – Business Investment Climate, Market Access, Technology and Innovation, and Canadian Branding – as shown in the chart below:

Main Table	
NRCan, ECCC, Finance and Provincial Governments (SK, AB, BC) and Industry	
NG/LRNG/LTO Sub-groups (CEO LRNG initiative led)	Oil Sands/Heavy Oil Sub-groups (CAPP led)
Business investment climate	
Market Access	Market Access
Technology and Innovation	Technology and Innovation
Canadian Branding	Canadian Branding

The analysis explored a number of key factors identified as affecting competitiveness and investment decisions (such as innovation, tax and fiscal regimes, regulatory environment, infrastructure, labour markets, public confidence, political stability and public policy) as well as forward-looking opportunities for the oil and gas sector. A modeling secretariat supported the work of the sub-committees, quantifying the estimated impact of various policy levers identified by industry at the project, sector and the overall economy levels.

The analysis also considered the basis upon which investment decisions are made by industry, taking into account a number of profitability measures with some having greater importance than others. Internal rate of return is the most important indicator in an investment decision, with price being a key driver of investment returns. Price is directly influenced by market access, or the ability to move product to markets in a timely and cost effective manner. Another key indicator that has taken on greater importance in recent years is the time necessary to recover upfront capital investment, known as the payout period. Investors are increasingly focussed on shorter cycle investment opportunities, with much shorter payout periods. This helps mitigate uncertainty and risk in an increasingly volatile and low price market, as has been the case over the past three years. Given the recent uncertainty in oil markets and fluctuating prices along with other challenges in regard to investment in the upstream oil and gas sector in Canada, investors are attaching greater weight to the amount of time it takes to recover their initial investment (i.e., payout). Finally, investors will also consider the strategic fit and an assessment of uncertainty and risk (particularly as it relates to external factors over which the investor has less direct influence).

Opportunities for Canada's Oil and Gas Sector in a Low Carbon Economy

The oil and gas sector plays a key role in the Canadian economy and has an opportunity to continue to be an environmentally responsible, secure and reliable supplier of energy to global markets for several decades. Canada possesses large and high-quality crude oil and natural gas resources, but their value can only be realized if Canada continues to attract investment.

Under most future energy scenarios, significant ongoing investment in the oil and gas sector will be needed to meet projected future global demand growth. In the International Energy Agency's ("IEA") 2017 World Energy Outlook under the base case New Policies Scenario, it is projected that, by 2040, oil and gas demand will grow by 24% from today's level. Under the more ambitious Sustainable Development scenario, gas demand increases 15% by 2040. This demand growth is driven by population increases and by greater urbanization and industrialization, largely in Asia. The IEA base case also projects that by 2040 oil and natural gas will continue to supply over half of the global energy demand.

The landmark Paris Agreement commits countries around the world, including Canada, to keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels, and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius. Canadian oil and gas producers will need to continue to innovate and compete to capture new markets around the world, both on cost and on carbon.

This applies to both crude oil (with additional production of 52 million barrels

The Current Contribution

Production

- 5th largest global producer of natural gas.
- 6th largest global producer of crude oil.
- World's 3rd largest oil reserves and in top 20 countries in natural gas reserves.

Economy

- \$109 billion in direct real GDP in 2017 (6.25% of Canada's total).
- 533,000 direct and indirect jobs in 2017 (includes ~ 200,000 in the service sector).
- \$110 billion in average annual revenue 2014-16 (1st among Canadian industries).
- \$12 billion in average annual revenue to governments 2014-2016.

Indigenous Participation

- Indigenous peoples 6% of total labour force (4% average in all other industries).
- Conservatively ~ \$75 million in annual payments to Indigenous governments.
- Oil Sands companies purchased over \$3 billion in products and services from Indigenous businesses in 2015/16 and contributed \$50 million to Indigenous communities.

Environmental Performance

- 2016 GHG emissions 151 Mt: 21% of Canada's emissions & 0.31% of global emissions (Source: ECCC, 2018).
- Canada is only jurisdiction with carbon pricing system in place among top 10 global oil exporters (Source: CAPP, 2018).

per day required by 2040 to meet increased demand and replace declining production from existing fields) and for natural gas (with the next cycle of LNG demand emerging over the 2022-2030 period).

Federal and provincial government representatives affirmed Canada's commitment, through the Vancouver declaration, to reducing greenhouse gas (GHG) emissions by at least 30% from 2005 levels by 2030, to meet Canada's Nationally Determined Contribution under the 2015 Paris Agreement. The Pan-Canadian Framework on Clean Growth and Climate Change is a key component of Canada's plan to achieve its Paris commitment. Further, Canada has submitted a Mid-Century Long-Term Low Greenhouse Gas Management Strategy to the United Nations Framework Convention of Climate Change, which outlines scenarios of at least 80% reductions below 2005 levels by 2050. For its part, industry is working to find low-cost compliance options and policy levers to provide incentives to reduce GHG emissions while addressing competitiveness concerns.

As the fifth largest producer of natural gas and sixth largest producer of oil in the world, Canada must be responsive to new market opportunities and should play an important role in meeting global energy demand. It can do so in a manner that contributes to high environmental, social, and sustainability standards. Canada has an opportunity to compete to be a leading global supplier of oil and gas while adhering to robust environmental and social standards. This can and should be part of Canada's strong comparative advantage.

In the Canadian context, the JWG noted the recent Advisory Council on Economic Growth reports, "Path to Prosperity: Resetting Canada's Growth Trajectory" and "Unleashing Productivity Through Infrastructure". These reports highlighted the opportunity to unleash growth potential in key sectors such as energy and renewables, to position Canada as a preferred global trading partner, and to enable productivity through infrastructure development. Canada's energy industry is among the largest economic engines driving the economy, both directly and through its linkages to other industries such as petrochemicals, power generation and the manufacturing sector. Canada's oil and gas resources can also continue to provide a secure, reliable and affordable energy supply to Canadians, while sustaining employment and economic prosperity throughout the value chain.

Furthermore, oil and gas development, done right, can promote inclusive economic growth and reconciliation opportunities with Indigenous peoples. Already, Indigenous communities are significant and growing partners in the energy sector. For example, in 2015-16 oil sands companies purchased over \$3 billion from Indigenous-owned businesses.

Canadian oil and gas producers are collaborating on technology and innovation to reduce GHG emissions intensity and to decouple future production growth from upstream GHG emissions growth.

For natural gas, with extensive electrification and methane emissions reductions, there is potential to grow significantly production while holding absolute GHG emissions at or below current levels. This is due to factors such as Canada's access to non-emitting hydropower, ongoing actions to improve the efficiency of natural gas production and processing and methane abatement measures (due in part to federal and provincial actions to regulate methane emissions). Final federal methane regulations were published in the

Competitiveness: Key Indicators

Market Access/Price

- Export oil & gas pipelines operating at full capacity. Crude-by-rail shipments have reached record highs while major pipeline operators (Enbridge, Trans-Mountain) have been apportioning capacity due to excess demand from shippers.
- Steep price discounts for Canadian heavy crude oil and natural gas relative to US, averaging over 40% and 50% respectively in year-to-date 2018.
- According to the NEB, Canada's pipeline system is operating at or near capacity.

Investment Returns

- Comparable U.S. liquids-rich natural gas (LRNG) projects have twice the rate of return than similar Canadian projects (16% versus 9% IRR) and recover their capital 1-2 years sooner.
- Investments in the U.S. Gulf of Mexico offshore have investment returns 2.5% (in absolute terms) higher than oil sands.

Market Indicators

- Investment in U.S. oil and gas is increasing (by ~15% in 2018) while investment in Canadian oil and gas has largely plateaued.
- Ongoing decline in Canadian oil sands investment – FDI in Canada @ lowest level since 2010.
- Canadian upstream M&A activity was \$20 billion in 2016, \$5 billion in 2017, and has further declined to date in 2018.

Canada Gazette on April 26, 2018, under the *Canadian Environmental Protection Act* (CEPA). There are a number of remaining transmission infrastructure and commercial challenges that, if addressed, could enable significant electrification in the sector.

For oil sands, the focus is on decoupling production growth from GHG emissions growth. GHG emissions intensity reductions should result from ongoing efficiency improvements, the implementation of innovative new extraction processes (e.g., the reduction in steam requirements for in situ oil sands development), less emissions intensive new production from mining projects, and the use of innovative new technology such as partial upgrading technology. Flexible and effective climate policies, like carbon pricing, support these objectives. If these technology and innovation measures are implemented broadly, the Canadian oil sands could produce and export oil with a competitive emissions profile compared to competing supply sources.

Overall, the potential exists for Canadian oil and gas exports with lower emissions intensity to displace some competing supply sources in the market, which could have the effect of decreasing overall global emissions. For example, with electrification, BC LNG would have among the lowest emissions intensity among global suppliers and could potentially displace coal-fired emissions in Asian markets.

In summary, Canada has the opportunity to play a leadership role in the global transition to a low carbon economy, with **Canada being a preferred supplier of**

cost and carbon competitive oil and gas to domestic and global markets, produced with leading environmental and social performance standards.

The Current Competitive Context for the Canadian Oil and Gas Sector

The Canadian upstream oil and gas sector competes for investment in a global context. The global upstream oil and gas industry is currently emerging from one of the largest downturns in its history. Following a price decline, which began in mid-2014, the industry has gone through a period of significant reductions in capital investment. Global upstream spending dropped, in 2014 through 2016, by approximately 1/3 from its peak of \$1.3 trillion. Concurrently, there were significant cuts to employment in the industry, in the service sector and in related sectors. Recently, there has been some reason for increased optimism, with prices recovering from the lows of early 2016, helped by OPEC's decision to cut supply in order to rebalance markets. While the U.S. has recently seen a significant increase in investment in onshore projects, global long-cycle spending as a proportion of total upstream investment has in fact increased moderately over the past five years. Looking ahead to 2019, there are strong indications of a continued rebound in global investment activity.

To date, this recovery in upstream investment has not been fully realized in Canada. While there has been a shift in investment focus toward LRNG and tight oil in both Canada and the U.S., this trend has not occurred in Canada to the extent evident in the U.S. and spending in these areas in the Canadian upstream sector remains well below the peak levels of earlier in the decade. Conversely, oil sands annual spending is expected to decrease for the fourth consecutive year and is on a downward trend in terms of spending as a percentage of global upstream spending. Related growth in the Liquefied Natural Gas ("LNG") and petrochemical sectors underway in other jurisdictions has not yet been realized in Canada, but these sectors are showing increasing optimism. Overall, upstream investment spending in Canada has declined and is now essentially flat at levels well below those of earlier in the decade.

Despite current market challenges, Canada continues to have a number of very positive attributes in terms of attracting investment, among them the size and quality of resources, world-class environmental standards, and competitive royalty regimes. However, the competitive landscape has changed over the past few years, as the world has moved from a perceived shortage of energy supply to a more abundant future outlook for energy supply.

Industry data indicates that overall investment in the Canadian upstream oil and gas sector has declined in recent years, from \$81 billion in 2014 to \$38 billion in 2017, following the global trend during those years. There are a number of reasons contributing to this reduced investment. While it is difficult to attribute the effects to any single factor, there is general recognition that both broad market conditions (e.g., growth of shale oil and gas disrupting North American market dynamics; global impact of price decline) and changing policy and regulatory landscapes have contributed to this trend. Larger producers and service companies are shifting investment capital and associated jobs to other jurisdictions, notably the U.S. At the same time, small to medium Canadian operators are having significant difficulty attracting financing.

The business environment across jurisdictions can have a material impact on investment attraction and capital flows (e.g., market access, tax and royalties, regulatory regime). This is true whether measures implemented by government are temporary or permanent. For

example, many market analysts view recent U.S. tax reforms, regulatory changes and trade barriers as a game changer, significantly shifting global investment trends.

The urgency to address competitiveness arises from a confluence of several factors. These include: the observed and notable increase in the migration of investment capital to other jurisdictions (particularly the U.S.); the challenges in attracting new investment capital to Canada; the timing of the next window of opportunity to participate in global LNG markets; and the increasing imperative to diversify markets for crude oil beyond the U.S.

Potential actions to ensure that Canada's oil and gas sector remains competitive on both economics and carbon are within the purview of *both* industry and governments.

Governments affirmed that, through the Vancouver Declaration and Pan Canadian Framework on Clean Growth and Climate Change, they are proceeding to implement numerous concrete policy actions spanning all sectors of the economy. Progress is being made in areas including carbon pricing, complementary measures to reduce emissions, acceleration of technology deployment, support for innovation and stimulating economic growth while reducing emissions, and taking measures to support adaptation to climate change.

For its part, industry continues to reduce its cost structure and is addressing GHG emission intensity by seeking efficiencies and applying new technology and innovative systems and processes. Continuing this progress on both the economic and carbon emissions fronts will be important and innovation and technology will be key to Canada's future success. Commercialization of technology is an ongoing challenge, in part due to difficulties accessing financing.

There is an opportunity for industry and governments to take further actions to create the conditions to maintain and attract investment.

The JWG recognizes that access to markets remains key to enabling growth of production and the associated benefits. For natural gas, Canada has unfortunately been losing traditional markets in eastern Canada and the U.S. to growing U.S. production and lack of pipeline access to eastern Canada, leading to large price differentials for Canadian natural gas. Development of a liquefied natural gas ("LNG") export market is seen as critical to support the future development of this sector.

For crude oil, according to the NEB, Canada's pipeline system is still operating at or near capacity. Total pipeline capacity from Western Canada to international, U.S. and eastern Canadian markets is nominally estimated at 4.1 million b/d in 2016. For crude oil, in particular, lack of pipeline capacity has contributed to very significant price discounts for Canadian crude oil in recent years. The federal government's recent approval of Line 3, Keystone XL and its announcement regarding the acquisition of the Trans Mountain Pipeline assets as a means to getting the pipeline built are positive and show a clear commitment to the importance of market diversification. Market access is critically important, as it enables a competitive advantage and establishes the potential to monetize Canada's crude oil and natural gas resources. However, resolving market access issues may not be enough, by itself, to resolve the competitiveness issues facing the Canadian upstream oil and gas sector.

In addition to the key profitability metrics used by industry to make investment decisions, modeling took into consideration the comparative fiscal and climate policies in jurisdictions (notable U.S. states) with which Canadian oil and gas is competing in the market. This analysis concluded:

- For natural gas, the results of representative play economics showed a measurable competitiveness gap between Canadian LRNG investments and similar opportunities in the U.S. Most of the gap is attributable to the recent U.S. tax regime changes, but is also influenced by incremental compliance costs resulting from divergence in climate policies between Canada and the U.S.
- For oil sands, modelling results of representative long-cycle economics showed a competitiveness gap between Canadian oil sands investments and similar, long-cycle opportunities in the Gulf of Mexico for reasons related to the U.S. tax changes and incremental compliance costs, among other factors.

The JWG acknowledges the recent changes announced by the federal Government on the phased development and implementation of the Clean Fuel Standard and on the design of the output-based standards of the federal carbon pricing system. The latter will reduce the incremental compliance cost of federal climate policies and alleviate some competitiveness concerns for EITE industries.

Areas of Challenge and Opportunity

The JWG focused on the thematic areas of business investment climate, market access, technology and innovation, and branding as areas that could be considered by governments and industry to address competitiveness challenges. Through the work conducted by the JWG over the past several months, a number of such challenges and opportunities were explored:

- **Market Access** - Continuing to advance market diversification goals, such as through improved market access, so that Canada has the energy infrastructure to effectively compete for markets in North America and to meet increasing global demand;
- **Fiscal Policy** - Maintaining investment competitiveness from an economy-wide perspective through consideration of the impacts of recent U.S. tax reforms and jointly examining innovative approaches to financing for small/medium sized firms in the upstream sector, while continuing to implement the federal government's G20 commitment to phase-out inefficient fossil fuel subsidies by 2025;
- **Climate Policy** – Continuing to recognize the importance of addressing the competitiveness impacts of the full compliance costs related to all climate policies and regulations for Emissions Intensive Trade Exposed industries (“EITE” industries) building on measures included in the federal carbon pricing system;

- **International Leadership in GHG Intensity of Natural Gas Exports** - Exploring how mechanisms under the Paris Agreement can be leveraged to take into consideration Canada's contribution to global emissions reductions;
- **Innovation** - Enabling the acceleration of collaborative technology and innovation in the sector, including electrification of upstream facilities; and,
- **Branding** - Enhancing and promoting the Canadian energy brand, including the upstream oil and gas sector, noting in particular innovation in improving environmental performance and the sector's contribution to inclusive economic growth.

The JWG concluded that consideration by governments of the above opportunity areas could improve the competitiveness of the Canadian upstream oil and gas sector with the overall objective of restoring investor confidence, attracting investment, respecting Canada's climate change goals, and providing a platform for economic growth.

Summary

The JWG's work provides an overall assessment of the competitiveness issues in Canada's upstream oil and gas sector, and identifies areas that provide the most promise in addressing these concerns. At its core, this work is about supporting Canada's agenda: supporting economic growth and prosperity; supporting the transition to a low-carbon economy; exercising leadership to meet global climate change objectives; making Canada an attractive place for investment; protecting Canadian jobs; and ensuring an inclusive approach to economic development.

Canada can be the preferred supplier of cost and carbon competitive oil and gas to domestic and global markets, produced with leading environmental and social standards. Strong and effective policies, a thriving investment climate and ongoing innovation are essential to achieving this vision. In sum: Canada has a timely and meaningful opportunity to deliver on economic and environmental objectives, contribute to inclusive growth and promote meaningful reconciliation with Indigenous peoples.