

From: Nikolejsin, Dave EMPR:EX <Dave.Nikolejsin@gov.bc.ca>
Sent: May 7, 2019 5:47 PM
To: Mungall, Michelle EMPR:EX <s.17>
Cc: Sanderson, Melissa EMPR:EX <Melissa.Sanderson@gov.bc.ca>
Subject: FW: Coal to Gas Shift

Minister, please find attached a summary by my folks of a recent article in Nature re replacing Coal with Gas and the overall net benefit to the world climate.

From: MacLaren, Les EMPR:EX
Sent: May 7, 2019 5:34 PM
To: Nikolejsin, Dave EMPR:EX <Dave.Nikolejsin@gov.bc.ca>
Cc: Green, Dan L EMPR:EX <Dan.Green@gov.bc.ca>; Gensey, Guy EMPR:EX <Guy.Gensey@gov.bc.ca>; Shepherd, Megan EMPR:EX <Megan.Shepherd@gov.bc.ca>
Subject: Coal to Gas Shift

Hi Dave:

Further to your request, attached is a summary of the article. Many thanks to Meghan for pulling it together.

Les

From: Nikolejsin, Dave EMPR:EX
Sent: Monday, April 22, 2019 8:14 PM
To: Thoroughgood, Garth A EMPR:EX <Garth.Thoroughgood@gov.bc.ca>; MacLaren, Les EMPR:EX <Les.MacLaren@gov.bc.ca>
Subject: We should buy this

Then someone should read it and tell me what it says.

<https://www.nature.com/articles/s41558-019-0457-1>



20190501 Summary
Points - Coal-to-Gas

From: Mungall, Michelle EMPR:EX <s.17>
Sent: May 12, 2018 7:25 PM
To: McNish, James EMPR:EX <James.McNish@gov.bc.ca>
Subject: Re: LNG Coal Fact

Thanks!

Sent from my iPhone

On May 12, 2018, at 6:36 AM, McNish, James EMPR:EX <James.McNish@gov.bc.ca> wrote:

Additionally it's been reported in the globe and mail:

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<https://www.google.ca/amp/s/www.theglobeandmail.com/amp/report-on-business/industry-news/energy-and-resources/china-renews-commitment-to-less-coal-more-natural-gas/article35627780/>

Sent from my iPhone

On May 12, 2018, at 6:24 AM, McNish, James EMPR:EX <James.McNish@gov.bc.ca> wrote:

The Ministry gets a report produced for them called: The Global LNG & LPG Outlook Year-end Report

It's prepared by the Economics and Market Development Group. One notable part of the report on coal is:

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We'll keep searching for more useable material from substantiated sources.

On May 11, 2018, at 10:13 PM, Mungall, Michelle EMPR:EX ~~s.17~~ wrote:

s.13

Sent from my iPhone

On May 11, 2018, at 6:51 PM, McNish, James EMPR:EX <James.McNish@gov.bc.ca> wrote:

Dave N's suggestion:

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He says we there aren't any numbers on coal displacement because there are too many variables. But the broad connections can be made that China is using less coal because of they are importing LNG

Sent from m

May 7, 2019

Asserting the Climate Benefits of the Coal-to-Gas Shift Across Temporal and Spatial Scales

Katsumasa Tanaka¹, et al.

Published in *Nature Climate Change Journal* on April 22, 2019

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¹ Centre for Global Environmental Research, National Institute for Environmental Studies, Tsukuba, Japan

² Global Warming Potential over 100 years

³ Global Temperature Change Potential over 100 years

⁴ Globe Advisors, "British Columbia LNG Greenhouse Gas (GHG) Life Cycle Analysis," Prepared for the BC Ministry of Environment, Climate Action Secretariat, February 3, 2014, https://www2.gov.bc.ca/assets/gov/environment/climate-change/ind/lng/british_columbia_lng_greenhouse_gas_ghg_life_cycle_analysis.pdf

MINISTRY OF ENERGY, MINES AND PETROLEUM RESOURCES

BRIEFING NOTE FOR INFORMATION

- I PREPARED FOR:** Honourable Michelle Mungall, Minister of Energy, Mines and Petroleum Resources; Honourable Bruce Ralston, Minister of Jobs, Trade and Technology; Honourable George Heyman, Minister of Environment and Climate Change Strategy
- II ISSUE:** Meeting with the Executive Vice-President and Chief Operating Officer of the Canadian Association of Petroleum Producers (CAPP)

III BACKGROUND:

The Canadian Association of Petroleum Producers (CAPP) represents companies that explore for, develop and produce natural gas and crude oil throughout Canada. The member companies of CAPP produce about 80 per cent of Canada's natural gas and crude oil. CAPP's mission is to advocate for and enable economic competitiveness and safe, environmentally and socially responsible performance.

Terry Abel is the Executive Vice-President and Chief Operating Officer for CAPP. He joined the Association in 2014 as the Director of Oil Sands and has over 30 years of experience as an energy regulator in the Province of Alberta. He holds a Bachelor's degree in Chemical Engineering from the University of Alberta and is a registered professional with the Association of Professional Engineers, Geologists and Geophysicists of Alberta.

IV DISCUSSION:

Liquefied Natural Gas (LNG) Competitiveness Review

The Ministry of Energy, Mines and Petroleum Resources conducted a review of BC's LNG fiscal framework and policies to better understand the Province's competitive position. The review began in the summer of 2017 and involved industry and industry associations (including CAPP), First Nations, and the federal government.

Recommendations for actions to improve BC's competitiveness were presented at the end of the year and are under active consideration by government.

Carbon Tax Increases

BC is increasing the carbon tax by \$5 per tonne per year until it reaches \$50/tonne in 2021. BC's carbon tax currently applies to combustion emissions. BC recognizes increasing the carbon tax could affect industrial emitters. BC is committed to working with business and industry to ensure the Province remains a competitive place to invest

while achieving its climate targets. s.13

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Canada and Alberta's Approach to Carbon Pricing

Both the federal carbon pricing backstop, and Alberta's carbon pricing system are made up of a carbon levy applied to fossil fuels and an output based pricing system for industrial facilities from emissions-intensive, trade-exposed (EITE) sectors. EITE sectors will be exempt from the levy. Under the systems, industrial emitters set a production-weighted emission intensity 'benchmark' and receive free emissions allowances up to this benchmark. Facilities over the benchmark can meet the obligations through purchasing excess allowance credits from those under the benchmark, buying eligible offset units or contributing to a tech fund at the rate of the carbon levy.

Both systems cover not only combustion emissions, but also Industrial Process emissions, venting, flaring and fugitive emissions. Canada's system will exempt methane venting and methane fugitive emissions from oil and gas facilities (already covered by upcoming methane regulations).

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Climate Benefits of LNG

Displacing higher carbon fuels, like coal and diesel, with BC LNG can lead to significant global lifecycle emission reductions. A recent study by the University of Calgary and M.I.T. estimated that the export of 18 million tonnes of BC LNG to China could lead to global reductions of 25 to 52 million tonnes of greenhouse gases (GHG). The Province recognizes that LNG production is emissions intensive and could have an effect on achieving BC's targets. As a result, the Province has established measures to reduce emissions in the oil and gas sector including the LNG benchmark, the Environmental Incentive Program, the carbon tax and its upcoming methane policy.

Regulatory Process Reviews

CAPP is concerned that industry may soon experience what it refers to as regulatory fatigue given the various policy initiatives currently under review. These include:

- ***Hydraulic Fracturing Scientific Review***

As noted in our 2017 Election Platform there is the potential for significant expansion of shale gas production in the years ahead. That is why a commitment was made to appoint a scientific panel to review the practice to ensure that gas is produced safely, and that our environment is protected. This will include assessment of impacts on water and what role gas production has in seismic activity. The Province plans to appoint this Panel in the first half of 2018 and the details of the review process will be made public at that time.

- ***Upstream Methane Emissions Regulation***

The federal government is moving ahead on creating specific regulations on methane emissions from the oil and gas sector. Western provinces can achieve Canadian federal goals using their own approaches.

A team consisting of representatives of the Ministry of Energy, Mines and Petroleum Resources, BC's Oil and Gas Commission, and Climate Action Secretariat is working on the development, enactment, and implementation of applicable standards and/or other regulatory requirements. BC is advancing a methane emissions reduction strategy using a combination of targets, incentives and regulatory tools.

Target: 45 per cent reduction of fugitive and vented emissions from extraction and processing infrastructure built before January 1, 2015.

Incentives: The Clean Infrastructure Royalty Credit Program to stimulate investments in new technology for GHG reductions and a new offset protocol to further encourage innovative projects that reduce methane emissions.

Regulatory Tools: BC will make leak detection and repair mandatory and develop other requirements aligned with Alberta.

The Ministry of Environment and Climate Change Strategy is leading a number of policy initiatives likely to be of interest to CAPP and is best placed to speak to them. These initiatives include:

- Environmental Assessment Revitalization;
- Marine Spills; and,
- Professional Reliance

V CONCLUSION:

The Province supports the continued development of its natural gas industry including opening new markets by working with proponents to advance their LNG projects in line with our four stated conditions, and in doing so looks forward to continuing to collaborate with the Canadian Association of Petroleum Producers.

DRAFTED BY:

Mark Urwin,
Senior Economist

APPROVED BY:

Geoff Turner, A/ED, OGD

✓

Ines Piccinino, A/DM

✓

From: Susannah.Pierce@lngcanada.ca
To: Susannah.Pierce@lngcanada.ca
Subject: Global Energy Monitor report on LNG
Date: July 2, 2019 11:58:44 AM
Attachments: [image001.gif](#)

Friends and colleagues,

You may see some news coverage today on this report. It is disappointing that media have not taken the time to investigate the source or their claims more thoroughly. Below please find some of my comments.

The Energy Monitor is not an independent or credible source.

The mandate of this group is to eliminate fossil fuel development. Originally it was launched under the name CoalSwarm in early 2008 and later that year was accepted as a project of Earth Island Institute, an incubator for innovative projects in ecology and social justice.

A more credible source is the International Energy Agency.

The Sustainable Development Scenario in 2018 World Energy Outlook, natural gas is noted to play a significant role in helping to meet the growing global energy demand AND reduce global carbon emissions.

Even considering methane emissions, natural gas from one large LNG plant in B.C., exported to Asia, can provide enough energy to replace or displace up to 40 coal-fired power plants with cleaner burning natural gas. Since natural gas produces approximately 50% fewer GHG emissions than coal when burned (on a life cycle basis), this could reduce global GHG emissions by 60 to 90 million tonnes of CO₂ each year, an amount greater than the total annual emissions of British Columbia, and roughly 10 percent of Canada's annual GHG emissions. This reduction is equivalent to taking 12 to 18 million cars in Canada off the road. That's up to 80 per cent of all the cars in Canada.

The recent Intergovernmental Panel on Climate Change Special Report on Global Warming emphasized the need for transformative global actions and global cooperation to decarbonize our energy system. The report also stated that regionalization of climate goals will only lead to carbon leakage and was identified as a barrier to achieving a 1.5C or 2C global temperature reduction goal. The most plausible scenario of the IPCC report indicates that gas will need to increase by 33% to keep temperatures between 1.5 – 2C.

B.C. and Canada presently have climate policies that position it as a world leader in managing GHG emissions from the natural gas and LNG sectors. These include a \$35 per tonne carbon tax on combustion emissions (increasing to \$50 per tonne by 2022), a 45 per cent reduction in methane emissions from the oil and gas sector, and a performance target for new LNG facilities that is world leading.

LNG facilities that meet B.C.'s performance requirements will be the cleanest in the world from a GHG emissions perspective. They will produce roughly 50 per cent fewer emissions than the average LNG facility operating in the world today, and 30 per cent fewer GHG emissions than the world's best LNG facilities currently in operation.

These policies do add cost and make B.C.'s natural gas and LNG sectors less globally competitive. So we need to find the right balance between climate policy and economic policy to ensure that significant opportunities like the LNG investments being proposed in B.C. do not go to other countries that have little or no GHG policy and are more carbon intensive than our own. The result would be increased carbon emissions for the world, referred to as carbon leakage.

LNG is a generational opportunity for Canada

Developing LNG as a new industry in Canada provides a significant opportunity for jobs, businesses and economic growth that wouldn't exist otherwise, especially for the northern region of B.C. which struggled to attract economy opportunity and investment.

This includes First Nations communities, who have already seen direct benefits, business opportunities, jobs, apprentice and training opportunities for their members. Partnership

Subject:

agreements and economic development are allowing Nations to provide additional programs and services for their members. This opportunity for First Nations communities will help provide a step towards self-sufficiency and a significant step towards reducing inequality in northern B.C. In the first few months of construction, LNG Canada had already awarded close to \$1B in contracts to Canadian companies. The project also expects 10000 new jobs during the construction period across upstream, pipeline and plant.

Industry is stepping up to address methane emissions

Take Shell for example, which is one of the original signatories of the Global Methane Principles. The Guiding Principles focus on continually reducing methane emissions, advancing strong performance across the gas value chains, improving accuracy of methane emissions data, advocating sound policies and regulations on methane emissions. Shell has also deployed Gen 4 multi-well pad design that includes electric valve actuators instead of pneumatic ones which reduce methane emissions at the wellsite.

Through the development and export of liquefied natural gas, British Columbia and Canada are poised to realize an opportunity that provides both economic benefits for generations, and environmental benefits on a global scale. For true climate leadership, we must show the world that our climate goals can be met along with economic opportunity.

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From: Susannah.Pierce@lngcanada.ca
To: Susannah.Pierce@lngcanada.ca
Subject: International Institute for Sustainable Development (IISD) report
Date: November 26, 2019 5:19:23 PM

Dear Friends and Colleagues,

You may have read news articles this week reporting on an IISD report that suggests the province of BC is undermining its own climate objectives by supporting LNG in general and LNG Canada specifically. It is disappointing to see the amount of press the report, "Locked in and Losing out - BC Fossil Fuel Subsidies" received, as the report is essentially an anti-fossil fuel advocacy piece and misses the mark on a number of key points. For example, the report does not include a discussion of the role of LNG and natural gas in the world's energy transition, which has been covered by the IEA in both a special report in January 2019, and in the more recently released IEA World Energy Outlook 2019.

Without a doubt, climate change is an issue of significance to the globe. And the Intergovernmental Panel on Climate Change Special Report on Global Warming (IPCC) – a report that ENGOs quote freely -- emphasized the need for transformative global actions and global cooperation to decarbonize our energy system. The report states that regionalization of climate goals will only lead to carbon leakage. Lack of cooperation was identified as a barrier to achieving a 1.5C or 2C global temperature reduction goal.

The authors of IISD report focus exclusively on BC, as if there is a border around our province in which GHGs live in isolation of the rest of the world. The authors characterize measures the BC government has taken to level the playing field for LNG with other industry in the province as a subsidy. As you know, it is not. It is instead, what we refer to as fair tax policy. Why should the LNG industry have a higher electricity tariff or its own income tax act when other industries in the province do not? What the BC Government did is remove those policies that served as disincentives towards lower carbon LNG development.

The authors also fail to account for the hundreds of millions of dollars that one project will generate for BC coffers on an annual basis – money that goes directly into government revenues that can be used for a variety of decarbonization initiatives, as well as social services including hospitals, schools and infrastructure.

The report refers to eliminating fossil fuel subsidies (and fossil fuels) but fails to understand that some fossil fuels will be part of the solution to achieve the Paris goal. As referenced above, the International Energy Agency's World Energy Outlook 2019 includes a Sustainable Development scenario (SDS). The SDS outlines the global energy supply needed to achieve the Paris goal of significantly less than 2 degrees C warming. The SDS clearly outlines that natural gas will be needed in increasing quantities in China, India and SE Asia to replace/displace their higher carbon producing domestic coal. The gas will need to be transported as LNG, as well as by overland pipelines, and the LNG supply for China, India and SE Asia will need to grow 80 percent by 2040.

The IEA report does not predict where this LNG will come from. However, LNG from BC is well positioned geographically, and is leading the world in terms of being the most sustainable LNG with facilities designed to have the lowest GHG footprint in the world by half, and programs to facilitate Indigenous community economic opportunity and involvement.

As it relates to royalties, royalty rates increase when natural gas prices are high and decline when natural gas prices are low. The absence of a market for our natural gas is a key driver of low natural gas prices, and thus lower government royalties. Royalty credit systems are designed to encourage

investments that would otherwise not take place, including building the water and natural gas treatment facilities required for production, as well as investments in clean technologies to further reduce environmental emissions, including greenhouse gas emissions.

The report takes the position that LNG will not allow BC to achieve its GHG goals. I agree increasing emissions in BC, even if it means reducing greater emissions in other jurisdictions is a real challenge since we haven't yet developed the methodology to account for these cross-jurisdictional emissions reductions. However, that is why the authors of the Paris Agreement created the ability to trade emissions reductions under Article 6 whether these are through trade of lower carbon intensive fuels that back out higher carbon intensive energy or through clean-technology transfers. Further, a great opportunity exists in recycling carbon tax paid by the sector in the development of clean technology and other carbon abatement opportunities while mitigating the impact on low income households, businesses and the non-profit sector.

And finally, from a sustainability perspective, it is important to recognize that climate action, while a critical sustainable development goal, is the 13th of 17 sustainable development goals that include eliminating poverty (#1) and provision of affordable and clean energy (#7).

Governments must balance these goals as they develop policy in service of society. We must think of ourselves as citizens of the globe, and not narrowly cast our view within provincial borders alone. This means we must recognize that climate action that creates or sustains poverty or increases the costs of energy making it unaffordable for a society is not good policy. A balanced approach is to leverage the revenues of today's energy system that have a role in the energy transition – like LNG – and reinvest in the energy systems of tomorrow such as hydrogen, electrification, CCS, nature-based systems -- while providing sustainable development opportunities for our communities and First Nations.

Kind regards,
Susannah

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LNG Canada Update: **One Year After FID**

November 2019

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