

**Chevron Canada Limited Application dated 1 April 2019
for a Licence to Export liquefied natural gas pursuant to Section 117 of the National
Energy Board Act (NEB Act) and the National Energy Board Act Part VI (Oil and Gas)
Regulations (the Part VI Regulations)**

File OF-EI-Gas-GL-C577-2019-01 01

Letter of Comment Submission of Micheal D. Sawyer

Introduction

1. This Submission is the public comment of Micheal D. Sawyer (hereafter “Sawyer”) with respect to the Chevron Canada Limited (hereafter “Chevron”) Application (hereafter “the Application”) dated 1 April 2019 for a Licence to Export liquefied natural gas pursuant to Section 117 of the National Energy Board Act (NEB Act) and the National Energy Board Act Part VI (Oil and Gas) Regulations (the Part VI Regulations)¹
2. It is respectfully submitted that the evidence submitted by Chevron in support of its Application does not meet the requirements of the Board’s Filing Manual – Guide Q and does not provide the evidence to allow the Board to reasonably satisfy itself that the Application is compliant with Section 118 of the Act and that the Board should deny the Application in its entirety.
3. This submission respects the requirements of Section 118 of the Act and the Board’s past policies with respect to their inability to consider anything but the surplus requirements of Section 118.
4. Notwithstanding the previous paragraph, a fundamental premise of this submission, based on the evidence submitted by Chevron (see below), is that Chevron’s evidence has raised identifies certain environmental and social factors as risk factors that may result in market disruptions that could potential effect the Canadian natural gas markets and therefore potentially affecting the surplus criterion.
5. Any reference in this submission to an environmental or social factor is strictly limited to the potential for that factor to cause market disruptions in the Canadian natural gas supply and demand markets and therefore potentially impact the Board’s decision with respect to a Section 118 determination.
6. Any evidence contained in this submission and in the two expert reports (see below) is presented for the sole purpose of rebutting matters that have already been raised by Chevron in its evidence or alternatively, to provide an evidentiary basis for concluding that certain risk factors that have been identified in Chevron’s evidence will effects the outcome of the Section 118 supply criteria determination.

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7. This Submission is supported by an expert report authored by J.D. Hughes² (hereafter “the Hughes Report”) provides critical review of the report authored by R. Priddle³ which was submitted by Chevron in support of its Application and addresses selected issues with respect to Canadian supply and demand matters.
8. The Hughes Report also provides an evidentiary basis for rebutting the Priddle Report assertions that LNG (natural gas) exports will result in a lowering of Global greenhouse Gas Emissions when compared to coal.
9. This Submission is also supported by an expert letter report authored by Dr. E. Finn⁴ (hereafter “the Finn Report”) which examines macro-economic factors that will likely cause near to mid-term disruptions to the Canadian natural gas markets, with potentially significant implications for the Canadian natural gas supply and demand and the economic viability of Chevron’s proposed LNG scheme which underpins their Application for a natural gas export licence.

Regulatory Scheme

10. The Board, as an administrative tribunal, is bound by the powers granted to it by legislation. Part VI of the NEB Act gives the Board the authority to regulate natural gas exports. Section 118 of the NEB Act specifies what the Board is legally mandated and authorized to consider when assessing a gas export licence application. It states:

“On an application for a licence to export oil or gas, the Board shall satisfy itself that the quantity of oil or gas to be exported does not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada, having regard to the trends in the discovery of oil or gas in Canada.”
(Emphasis Added)

11. Filing Manual – Guide Q – Export and Import Authorizations (Part VI of NEB Act and Part VI Regulations) (hereafter “Guide Q”) provides the interim filing requirements for natural gas (including LNG) export licence applications under Section 117 of the NEB Act. Those filing requirements are as follows:
 - a. The source and volume of gas to be exported;
 - b. A description of gas supplies, including Canadian gas supply, expected to be available to the Canadian market (including underlying assumptions) over the requested licence term;
 - c. A description of expected gas requirements (demand) for Canada (including underlying assumptions) over the requested license term; and
 - d. The implications of the proposed export volumes on the ability of Canadians to meet their gas requirements.

² Hughes, J.D., 2019. Concerns about the proposed Kitimat Chevron-Kitimat LNG application for a 40-year export licence in consideration of Canada’s long-term energy security and emission reduction commitments. Global Sustainability Research Inc., Calgary, AB. 32 pg.

³ Priddle, R. 2018. Chevron Canada Limited application for a 40-Year Gas Export Licence: Gas Supplies, Requirements, Implications and Surplus Assessment Report. NEB ref: A98577-4. 92 pg.

⁴ Finn, E. 2019.

12. Guide Q clearly states the “The onus is on the Applicant to demonstrate that the criterion in section 118 of the NEB Act is met.”
13. At page 1, paragraph 5 of the NEB’s Notice of Application, Comment Period, and Information Request, dated June 28, 2019, the NEB stated:

“The Board may not consider comments unrelated to section 118 of the Act, such as potential environmental effects of the proposed exportation and any social effects related to those environmental effects.”

Preliminary Matter

14. Chevron’s LNG plant, proposed for construction in Kitimat British Columbia is required to get authorization under both the provincial *Environmental Assessment Act* and the *Canadian Environmental Assessment Act (2012)* before it can proceed.
15. Section 7 of the *Canadian Environmental Assessment Act (2012)* states in its entirety:

A federal authority must not exercise any power or perform any duty or function conferred on it under any Act of Parliament other than this Act that could permit a designated project to be carried out in whole or in part unless

 - (a) the Agency makes a decision under paragraph 10(b) that no environmental assessment of the designated project is required and posts that decision on the Internet site; or
 - (b) the decision statement with respect to the designated project that is issued under subsection 31(3) or section 54 to the proponent of the designated project indicates that the designated project is not likely to cause significant adverse environmental effects or that the significant adverse environmental effects that it is likely to cause are justified in the circumstances.
16. The proposed Chevron LNG plant is a designated project as per the provisions of the *Canadian Environmental Assessment Act (2012)*.
17. Sawyer submits that a licence to export natural gas, as Chevron has applied for in its Application, is a necessary and prerequisite condition for the proposed LNG plant to be “...carried out in whole or in part unless...”.
18. Sawyer submits that the exceptions provided for in Sections 1(a) and 1(b) of the *Canadian Environmental Assessment Act (2012)* do not currently apply in the present circumstances.
19. Therefore, Sawyer respectfully submits that the Board cannot, by virtue of Section 7 of the *Canadian Environmental Assessment Act (2012)* dispose of Chevron’s Application until a decision with respect to Chevron’s proposed LNG plant is made as per Section 31(3) or Section 54 of the *Canadian Environmental Assessment Act (2012)*.

Chevron's Evidence

20. At page 8, paragraph 24 in its Application⁵, Chevron states that:

“Gas supply for the Kitimat LNG Terminal will come from Western Canada, from Chevron and Woodside's equity gas resources and potentially from third parties, including short, medium, and long term gas purchases.”

21. At page 8, paragraph 26 in its Application, Chevron confirms that its proposed Kitimat LNG Terminal will be connected to the western Canadian natural gas transmission grid.

22. At page 8, paragraph 28 in its Application, Chevron confirms that its evidence with respect to future gas supply in the Canadian Markets and the expected natural gas demand for Canada and the implications of its Application on the ability of Canadians to meet their future natural gas requirements is based on the Priddle Report.

23. At page 10, paragraph 3 of the Priddle Report, Priddle states, without supporting evidence, that for the period from the present to 2070⁶ that:

“...it is entirely reasonable to assume that the physical-infrastructure, trade-policy, national-policy, national-regulatory and commercial underpinnings of that integrated market will remain...” (Emphasis added)

24. At page 15, paragraph 2, the Priddle Report states that;

“There are limits as to how far into the future evidence can support the reasonable foreseeability of satisfaction of the surplus criterion... ...This Report has been prepared on the assumption that the Applicant is required to do the best it can to prepare a 50-year projection and that the Board makes its determination in the face of the uncertainties that will inevitably remain.” (Emphasis added)

25. At page 64, paragraph 3, the Priddle Report raises the issue of Global Climate Change and Greenhouse Gas emissions and the potential implications for natural gas supply and demand in the Canadian natural gas markets in the context of “domestic policy”.

26. Following from the previous paragraph, the Priddle Report makes wholly unsupported claims that:

“As to policy respecting GCC... .. the earlier that its markets are developed, the greater will be the contribution of Canadian gas to reducing the global carbon budget and combatting GCC. LNG exports probably offer the best and largest market growth opportunity for Canadian gas. Those exports will tend predominantly to displace coal, actually and potentially, in thermal power generation. Natural gas being the lowest-carbon emitting fossil fuel, those exports will result in lower overall global GHG emissions. Yet the window of opportunity for Canadian LNG in global markets will tend

⁵ Chevron Canada Limited. 2019. Application of Chevron Canada Limited. NEC ref #A98577-2. Calgary, AB. 12 pg.

⁶ The Application, if approved, could result in natural gas volumes authorized under the requested licence being exported in 2069. For the purposes of the analysis in the Priddle Report 2070 was adopted as the time horizon for the Application. Priddle 2018, page 14.

to diminish over the very long term as the contribution of renewable energies increases. (Emphasis added)

27. At page 85, paragraph 6, the Priddle Report contains “some further considerations relating to Canadian natural gas requirements” that specifically references renewable energy, carbon pricing and Greenhouse gas Emissions and concludes that:

“...taking a long view, the likelihood is for continued fiscal and regulatory measures, nationally and sub-nationally, to reduce GHG emissions and therefore the use of fossil fuels.” (Emphasis Added)

28. At page 23, paragraph 2, the Priddle Report notes that potential challenges in the gas pipeline sector, that underpin the integration of a North American gas market, and states that:

“...gas transmission projects are by no means immune from challenges relating to concerns about matters such as cumulative effects of related upstream activities, environmental degradation of the right of way, public safety and indigenous rights and consultation.” (Emphasis Added)

29. At page 23, paragraph 3, the Priddle Report goes on to state:

“It is recognized that these challenges in the gas sector are unlikely to diminish over time... ..where indigenous land claims become an issue.... ..The effect may be to prolong regulatory proceedings and approvals... ..this could delay or even defer regional resource development... ..and create localized supply overhangs... incremental gas supply to a particular market area may be impaired creating regional market dislocation...” (Emphasis Added)

30. At page 33, paragraph 2, the Priddle Report under the topic of “uncertainties in resource estimates” notes the industries historical ability to exploit natural gas in an “environmentally-acceptable” manner and concludes, again without evidence, that:

“The experience of gas production from the discovered resources and the progress of geological and engineering science relating to unconventional gas is likely to result in continuing... ..increases in the size of assessed resources.”

31. At page 65, in the footnotes, the Priddle Report states that “the government of Canada seeks to achieve a balance between the environmentally responsible production and use of energy, the growth and competitiveness of the economy, and secure and competitively priced energy and infrastructure.”, but does not explain how the Governments stated objectives would potentially disrupt the Canadian supply and demand of natural gas.

32. Under Annex 5: A Discussion of the “Economic and Market Factors Affecting Current and Future LNG development in Canada that may limit volumes of Canadian Gas Exports to 6.0 BCF/D” the Priddle Report stated at page 87, paragraph 6, that:

“Disadvantages facing Canadian projects include high costs to develop projects in remote locations with limited infrastructure, and, where the construction of new pipelines is required to supply the necessary gas. With LNG prices falling in recent years, the margins needed to justify this type of capital-intensive development have

eroded. Increased competition has also made it difficult for Canadian projects to sign long-term supply contracts.” (Emphasis Added)

33. Further to the previous paragraph, on pages 88 and 89, the Priddle report lists twelve project related economic or market risk factors which include, among other factors:
 - Commercial risk,
 - project economics,
 - environmental and other regulatory requirements; and
 - Aboriginal engagement, consultation and accommodation. (Emphasis Added)
34. Further to the previous paragraphs, on pages 89 and 90, the Priddle report lists four additional Global economic or market risk factors which include, among other factors:
 - Global and regional natural gas demand;
 - Alternatives to imported LNG;
 - Competition; and
 - Policy and regulatory issues within importing jurisdictions. (Emphasis Added)
35. With respect to the risks Priddle identified as outlined in the previous paragraphs, on page 90, paragraph 5, the Priddle Report concludes that while there are risks and uncertainties, that rather than addressing these uncertainties the Application relies solely on an out-of-date NEB⁷ report (hereafter” EF2016”) which states in its Executive Summary;

“It is important to note that the projections presented in EF 2016 are a baseline for discussing Canada’s energy future today and do not represent the Board’s predictions of what will take place in the future. The projections in EF 2016 are based on assumptions which allow for analysis of possible outcomes. Any assumptions made about current or future energy infrastructure or market developments are strictly theoretical and have no bearing on the regulatory proceedings that are or will be before the Board. (Emphasis added)
36. On page 1, paragraph 4, the Executive Summary of EF2016 the key findings include, among other things, that:
 - Recent developments have highlighted numerous uncertainties for Canada’s long-term energy outlook;
 - The levels of future oil and natural gas production are highly dependent on future prices, which are subject to considerable uncertainty;
 - The volume of liquefied natural gas exports is an important driver of Canadian natural gas production growth; and
 - GHG emissions related to that energy use will follow similar trends. (Emphasis Added)

⁷ EF2018 was released by the NEB prior to the preparation of the Priddle Report and represents the most current information on Canadian natural gas supply and demand.

37. With respect to the economic, political, and social context of the potential uncertainties outlined in EF2016 and the potential implications on the surplus conclusions contained in the Priddle Report, the Priddle Report has not provided any evidence whatsoever with respect to the potential market and supply/demand disruptions these uncertainties could cause, other than to accept and endorse the NEB's out-of-date EF2016 report.

38. With respect to natural gas imports and exports from Canada, at page 42, paragraph 2 of the Priddle Report, Priddle considers the potential effect of LNG imports on Canadian supply/demand and comments that:

“It is of course recognized that the provision of U.S. gas... ..by new and reversed pipelines is subject to uncertainties related to such matters as financeability, long-term shipper commitments, regulatory and environmental approvals.” (Emphasis Added)

39. Having regard to the previous paragraph, Priddle does not provide any evidence or meaningful analysis about the uncertainties mentioned in his report.

40. On page 36, paragraph 3, the Priddle report states that:

“It is impossible to project the rate of gas drilling expectable in the WCSB over a 50-year period.” (Emphasis Added)

41. Priddle goes on to state:

“What can be said today is that assessed gas resources have increased rapidly over the past 10-plus years in Canada⁸ and North America. This increase is attributable in large part to the revolutionary development of unconventional gas, based on the innovative technologies of horizontal drilling and multi-stage fracturing of mainly shale formations which started in the U.S. about 20 years ago.” (Emphasis added)

42. With respect to fracking, Priddle provides no evidence or meaningful analysis of the potential uncertainty around the public and scientific concerns about fracking and the fact that at least seventeen countries⁹ world-wide, or state/provincial jurisdictions in those countries, including both Canada and the United States, have implemented out-right bans on fracking or placed restrictions on fracking and the disruption of the Canadian natural gas supply/demand markets that would occur if fracking bans were implemented in Alberta or British Columbia.

43. At page 2, paragraph 3 of Chevron response to the Board's Information Request #1, Chevron did not identify where the natural gas under pinning the application would come from other than some broad assertions that it would be sourced from the WCSB markets.

44. At page 2, paragraph 6 of Chevron response to the Board's Information Request #1, Chevron indicated it does not have any gas purchase in support of the Application and suggest that they will not have contracts in place until after they make a final investment decision on the construction of the proposed Kitimat LNG facility.

⁸ Currently, over 70 percent of Canadian natural gas production is from unconventional natural gas produced using hydraulic fracturing technologies (Hughes 2019)

⁹ https://en.wikipedia.org/wiki/Hydraulic_fracturing_by_country

45. At page 5, paragraph 2, Chevron indicated that it “does not anticipate being able to provide details of any LNG export sales within the next two years”.
46. At page 9, paragraph 2, Chevron indicated that it is unable to provide the requested information on upstream pipelines connection.

Submission on Surplus Test

47. All of this section is based on the Hughes Report and provides a summary of the key findings of that report. The reader is advised to refer to that Report for detailed information.
48. At page 2, paragraphs 2 and 4, the Hughes Report documents¹⁰ that the Application will require 40 Tcf of natural gas over the 40-year project life with a daily throughput of 2.73 Bcf/d. The Hughes report also documents that the approved LNG Canada natural gas export licence will require 50 Tcf of natural gas over the 40-year project life with a daily throughput of 2.47 Bcf/d. Taken together these two projects will require 6.2 Bcf/d and consume approximately 90 Tcf over their 40-year project lives.
49. The Hughes report documents that the current 2018 gas production is 5.1 Bcf/d with remaining proven marketable reserves of only 41.2 Tcf. The combined natural gas volumes required for the Application in combination with the approved LNG Canada volumes exceeds the 87.2 Tcf of cumulative total of all raw gas discovered in British Columbia since the 1950s when exploration first started in British Columbia.
50. At page 3, paragraph 5, the Hughes Report outlines that natural gas reserves should be reported using National Instrument 51-101 that requires that in order to be classified as a reserve a deposit must be demonstrated to be economically recoverable with existing technology within a reasonable time frame (five years for probable reserves). This national standard is used by the BC Oil and Gas Commission but is not used in the Priddle Report which uses unconstrained resource estimates that may or may not even exist or be economical to produce.
51. At page 4, paragraph 3, the Hughes Report documents that while hydraulic fracturing has allowed production from previously uneconomic low permeability shales and as a result Canadian natural gas production has increased to 2015, however, since 2015 Canada's proven reserves have been declining.
52. The combined exports from the Chevron and approved LNG Canada projects would amount to approximately 127 percent of Canada's current proven reserves of natural gas.
53. At page 7, paragraph 1, the Hughes Report documents that the NEB's EF2018 report shows Canadian production increasing to approximately 22 Bcf/d with well over half of that production coming from the British Columbia and Alberta Montney formations while conventional natural gas is in steep decline. Notwithstanding that the Board's 208 projections accommodated LNG exports of ~ 3 Bcf/d and reducing Canadian's export of pipeline natural gas by over 60 percent, adding the proposed Kitimat LNG volumes in at 2031 would require increasing Canada's natural gas production by 15 percent above the most current NEB projection.

¹⁰ Based on the Application and the Priddle Report.

54. Even without LNG exports, the most current NEB projections estimate Canadian production at 135 Tcf from 2018 through 2044, or double Canada's current proved reserves.
55. At page 8, paragraph 2, the Hughes Report confirms that the NEB resource estimates are not NI 51-101 compliant and should be viewed as highly speculative.
56. At page 9 through 15, the Hughes Report is critical of the Priddle Report and concludes that there are many errors or exaggerations of the Canadian natural gas supply situation in the Priddle Report with the intention of appearing to satisfy the Section 118 surplus criteria.
57. Hughes summarized his findings with respect to Canadian natural gas supply and demand and the ability of Chevron to satisfy the Section 118 surplus criteria as follows:
 - a. Canada's proved reserves of gas are 71 tcf. These reserves will last 12.1 years at current production rates but with the approval of LNG Canada and now the Chevron Application Canada's proved reserves of natural gas will be reduced to 7.1 years. B.C.'s current proven natural gas reserves would be reduced from 21.9 years to 5.4 years.
 - b. Current estimates of undiscovered natural gas resources in the Western Canada Sedimentary Basin are 988 Tcf which are mainly tight- and shale-gas resources that require high-volume hydraulic fracturing and horizontal drilling to recover. Being undiscovered, their existence and economic recoverability are highly uncertain.
 - c. Chevron's claim of a sufficient surplus to allow Kitimat LNG exports of 40 tcf over 40 years is based on the assumed existence and economic viability of these undiscovered resources. Although it is likely that additional gas reserves will be discovered, Canadian reserves have been declining since 2015, and B.C. reserves declined in 2018. Basing a 40-year export license on the assumed existence and economic viability of undiscovered resources puts Canada's long-term energy security requirements at risk. Along with higher prices implications, the long-term gas supply for Canadians is at risk should speculative estimates of undiscovered resources not pan out.
 - d. Meeting the gas supply requirements of LNG Canada (3.47 bcfd) and Kitimat LNG (2.43 bcfd), will require increasing Canadian production by 6.2 bcfd. This will require doubling B.C.'s production from its current 5.1 bcfd, along with doubling the collateral environmental impacts of drilling on the landscape.
 - e. That the evidence of Chevron, and specifically that contained in the Priddle Report, is highly speculative, does not include the full period of the applied for licence, relies on many undefined and untested assumptions, does not properly identify or analysis the risks and transfers those risks directly onto the Canadian Public.
58. In summary, Chevron does not have adequate natural gas under its control to backstop n the applied for 40 year licence and has not supplied any evidence beyond the 25 year time horizon of existing forecasts, including those of the NEB. For the period of time between 25 and 40 years, out to 2070, Chevron has no evidence whatsoever other than to say "trust us. The market has always worked in the past and we see no reason why it shouldn't work in the future"
59. Sawyer respectfully submits that with respect to the Section 118 supply surplus criteria, Chevron as failed to meet its onus to provide evidence that supports its application.

Market Disruption and Greenhouse Gas Emissions

60. As mentioned in paragraphs 4 and 5 above, any discussion of environmental or social issues in the Sawyer submission is to be strictly interpreted as a discussion about the potential natural gas market disruptions that changes in public opinion, public policy, regulations and law, provincially, nationally and globally, may have on the supply and demand for Canadian natural gas.
61. Sawyer makes no substantive submissions on environmental or social issues other than identifying associated potential market disruptions.
62. As mentioned previously in paragraph ??, the Priddle Report raised the issue of Climate Change as a positive factor supporting the Application and claimed, without supporting evidence, that exporting LNG would result in a reduction of global greenhouse gas emissions. Sawyer respectfully submits that Priddle is simply wrong on this point and regardless, have supplied no evidence in their application to support their assertions.
63. The Priddle Report also raised the issue of Climate Change potential risk factor but provided no evidence with respect to how that risk could affect the Canadian natural gas supply and demand markets nor did Priddle provide any evidence that with respect to the likelihood of the Climate Change disrupting the Canadian natural gas markets. Sawyer respectfully submits that Priddle is correct that Climate Change is a risk factor but was wrong to simply dismiss it out of hand or to assume that the Board will simply accept it along with other uncertainties.
64. By way of background, Climate Change has been recognized provincially, nationally and internationally as a serious existential threat and that there is an urgent need to rapidly reduce global GHG emissions. Greenhouse gas emissions reduction targets were agreed to by 197 parties in 2015 in Paris at the 21st Council of the Parties of the United Nations Framework Convention on Climate Change (UNFCCC). Canada's commitments under the Paris Agreement are to reduce emissions by 30% from 2005 levels by 2030. B.C., through its Clean B.C. Plan, has committed to reduce emissions by 40% from 2007 levels by 2030 and 80% from 2007 levels by 2050.
65. The Canadian Government has declared a climate emergency.
66. Section 3 of the Hughes report , provides a detailed description about how the Chevron application, in conjunction with the approved LNG Canada natural gas export licence , will result in an increase of approximately 8.7 percent to Canada's oil and gas sector emissions..
67. The Hughes Report demonstrates that the GHG emissions associated with the Application, in conjunction with the emissions associated with the already approved LNG Canada application, will result in a doubling of oil and gas GHG emission by 2030, and would make achieving either national or BC provincial emission reduction goals virtually impossible. LNG related emissions would be triple the BC provincial target.
68. Hughes Report concluded that approving the Chevron Application is incompatible with Canada's emissions reduction targets under the Paris Agreement and the longer-term target of ECCC of 80 percent reduction by 2050. Hughes concluded that:

“It will be virtually impossible to meet Canada’s targets with LNG development and with projected production expansion of other oil and gas including the oil sands as projected in the NEB’s EF2018 reference case.” (Emphasis added)

69. The Hughes Report also concluded that approving the Chevron Application is incompatible achieving B.C.’s Clean B.C. Plan targets, as emissions from all non-oil and gas production sectors of B.C.’s economy would have to reduce emissions by over 100% by 2031, a virtually impossible task.
70. Sawyer submits that given that the Canadian Government has declared a Climate Change Emergency and given that both provincial and federal governments have made commitments to reduce GHG emissions to by 30 and 40 percent respectively, below 2005/2007 levels, new policies, regulations and legislation will be required to meet those targets. Those policies will almost certainly disruptive force to the Canadian natural gas supply and demand markets.
71. The Priddle Report did not contain any evidence or meaningful discussion about the implication of market disruptions of the Canadian natural gas supply/demand markets as a consequence of new provincial, federal or international policies, regulations or legislation to further curtail GHG emissions or the effect of probable changes on Canadian supply and demand markets.
72. With respect to matters relating to the potential for future GHG emissions to disrupt the natural gas markets, Sawyer respectfully submits that with respect to the Section 118 supply surplus criteria, Chevron as failed to meet its onus to provide evidence that supports its application.

Rebuttal to Priddle Claim about Clean Natural Gas

73. The Hughes Report states:

“The Priddle Report’s claim that B.C. LNG exports will reduce global emissions is false if full-cycle emissions are considered over a timeframe of 40-70 years. While it is true that at the burner-tip, natural gas emits only 54% of the emissions of coal, full-cycle greenhouse gas emissions from LNG include emissions from the production of the natural gas, pipeline transportation, liquefaction, shipping, and regasification.” (Emphasis added)

74. The Hughes Report used a life-cycle analysis model developed by the National Energy Technology Laboratory (NETL) of the U.S. Department of Energy analyzed life-cycle emissions of the LNG supply chain for British Columbia LNG exported to China and found that LNG sourced for NE British Columbia would have been 5.1 percent higher GHG emissions over a 20 year time horizon than a modern Chinese coal fired plant. This model was run assuming a 2 percent upstream methane leakage rate, which has been determined to be a conservative number.
75. The Hughes Report also found that when it ran the NETL model using an upstream methane leakage rate of 3.3 percent, based on contemporary research, LNG sourced for NE British Columbia would have been 19.2 percent higher GHG emissions over a 20 year time horizon than a modern Chinese coal fired plant.

76. Over a 100 year time horizon the effect of methane is diminished but in both the low and high methane leakage case, LNG sourced from NE British Columbia has higher GHG emissions than a modern Chinese coal fired plant.
77. The analysis and evidence contained in the Hughes Report demonstrates that Priddle's assertions about LNG reducing Global GHG emissions because LNG emissions are lower than coal is simply wrong.

Market Disruption and Indigenous Land Claims

78. While the Priddle Report did identify the potential for indigenous land claims, consultation and accommodation to be a risk factor, that Report did not contain any evidence or meaningful discussion about the implications of market disruptions of the Canadian natural gas supply/demand markets as a consequence of the changing relationship the federal and provincial governments have with both treaty and non-treaty indigenous communities.
79. To put that risk of market disruption into context, the federal government has adopted the United Nations Declaration on the Rights of Indigenous Peoples. Bankes (2018)¹¹ had the following to say about UNDRIP:

“The Declaration has been referred to in over 50 court cases and about 15 tribunal decisions in Canada. It has also been referenced in four statutes: two Ontario statutes, one federal statute and one Manitoba statute, Manitoba’s Path to Reconciliation Act, CCSM c. R 30.5, which called upon the responsible minister to develop a “strategy for reconciliation” guided by the calls to action of the Truth and Reconciliation Commission and principles set out in the Declaration (and see Manitoba Metis Federation Inc. v. The Government of Manitoba et al., 2018 MBQB 131). The Declaration is also referenced in British Columbia’s Bill 51 – 2018, Environmental Assessment Act and in the preamble of Bill C-69, An Act to enact the Impact Assessment Act and the Canadian Energy Regulator Act, to amend the Navigation Protection Act and to make consequential amendments to other Acts currently being debated on second reading in the Senate.” (Since proclaimed)

80. Bankes(2018) also noted that:

“In sum, it might be said that a consensus has yet to emerge from the case law as to the normative weight that should be accorded to the Declaration.”

81. Bankes(2018) continued to state:

“I think that if section 3¹² is enacted it will be impossible for a Court or tribunal to take the nihilistic approach of Justice Hinkson and deny outright the normative relevance of the Declaration. Making the Declaration “with application” will allow, and indeed require, a court to use the Declaration for all of the purposes referenced by Justice

¹¹ Bankes, N. 2018. Implementing UNDRIP: some reflections on Bill C-262.

<https://ablawg.ca/2018/11/27/implementing-undrip-some-reflections-on-bill-c-262/>

¹² Bill C-262, United Nations Declaration on the Rights of Indigenous Peoples Act; An Act to ensure that the laws of Canada are in harmony with the United Nations Declaration on the Rights of Indigenous Peoples. Status: Third reading (Senate), as of June 11, 2019

MacTavish and with respect to statutes, regulations and constitutional doctrines. Furthermore, since the section references the Declaration as a whole, I do not think that it should be necessary for a Court to inquire as to whether a particular provision of the Declaration represents customary international law. In enacting this language, parliament must be taken to have endorsed the domestic relevance or applicability of the entire text of the Declaration whatever its status in international law." (Emphasis added)

82. Sawyer submits that given the recent history of Supreme Court of Canada decisions, starting with the Delgamuukw case¹³ and more recently with the Tsilhqot'in case¹⁴, and more recently the third reading of Bill C-262, that there is very significant uncertainty with respect to the ability of indigenous communities to lawfully disrupt the Canadian natural gas supply and demand markets.
83. For example, the Blueberry River First Nation in NEBC has been engaged for many years in legal proceeding against the Government of British Columbia¹⁵ because of the cumulative effects of natural gas and forestry industry impacts on their traditional and unceded lands. This matter is currently before the courts.
84. Another example is the Wet'suwet'en legal battle¹⁶ with respect to the Coastal GasLink, the supply line for the LNG Canada plant located at Kitimat BC over land title and the right to not allow developments on their lands without their consent. This matter is also currently before the Courts.
85. With respect to matters relating to the potential for changes in government policies or legislation with respect to indigenous matters to disrupt the natural gas markets, Sawyer respectfully submits that with respect to the Section 118 supply surplus criteria, Chevron as failed to meet its onus to provide evidence that supports its application.

LNG Economic Risk and Supply Risk Disruption

86. All of this section is based on the Finn Report and provides a summary of the key findings of that report. The reader is advised to refer to that Report for detailed information.
87. As previously mentioned, the Priddle Report raises a number of risks that could cause disruption of the Canadian natural gas supply and demand markets. The purpose of the Finn report is to outline the economic risks and potential market disruptions the Chevron Kitimat LNG, in conjunction with other Canadian LNG export projects, face in launching these capital-intensive fossil-fuel projects.
88. LNG is a globally-traded commodity subject to the political, macro-economic, micro-economic factors which determine the thin margins and wild pricing variations typical of low value-add commodity industries with high capital costs and volatile, weather-dependant demand patterns. Current LNG spot prices are at approximately \$4.30 US per MMBtu, the

¹³ Delgamuukw v British Columbia, [1997] 3 SCR

¹⁴ Tsilhqot'in Nation v. British Columbia, 2014 SCC 44

¹⁵ <https://www.theglobeandmail.com/business/industry-news/energy-and-resources/article-blueberry-river-first-nation-back-in-court-to-fight-bc-over-forestry/>

¹⁶ <https://globalnews.ca/news/5397372/coastal-gas-link-first-nation-court-injunction/>

lowest in a decade, less than half the mean supply cost for western LNG sourced from NEBC¹⁷.

89. The Finn Report documents that there are 49 LNG export plants and a major Siberian natural gas pipeline under construction or proposed, an addition of over 400 MTPA in a world market demand of just over 300 MTPA. These and other factors will result in LNG prices staying low until approximately 2035.
90. The Finn report demonstrates that capital costs for a northern British Columbia LNG project are higher than competing American projects.
91. Mid-term projections for continued low prices for LNG will result in severe economic challenges for Canadian LNG projects that are intending to capitalize.
92. The Finn Report presents the results of an economic model of BC LNG projects, including the Chevron Kitimat LNG project and found that British Columbia LNG is, and will continue to be, unprofitable at most recent values of model input variables. The key variable, the spot price of LNG in N.E. Asia, will be a function of the balance between demand and supply, which as indicated above may be oversupplied for most of the next decade or two.
93. Finn Report identified several macroeconomic factors which individually and collectively suggest the potential for major disruptions in the Canadian natural gas supply/demand markets. Some of those variables, but not all, are as follows:
94. China's population growth has been a significant factor in the historical growth of its energy consumption and therefore energy demand. China's population is currently shrinking because of a variety of social, political and demographic factors in that country and is currently at less than 0.5 percent growth per year and will see negative growth before 2030. Currently at approximately 1.43 billion, China's population is projected to drop to 1.34 billion in 2050 with a further decline to 1.17 billion by 2065, an 18.2 percent decline in population in only 45 years. Declining populations in China will result in a corresponding decline in energy demand, in the absence of other market disruptions.
95. A very significant technology disruption is currently underway, largely the result of technology improvements and dramatic price declines in renewables technologies. Precipitous price declines in renewable technologies, including battery technology, have already driven a shift toward renewables backed by battery storage. In 2019, the cost of utility-scale lithium-ion batteries had fallen by 76% since 2012, and by 35% in just the past 18 months, to \$187 per MWh. Those prices are predicted to halve by 2030. The rapid reduction in cost in the renewables sectors is rapidly displacing non-competitive fossil-fuel plants and will likely curtail demand for more-costly and less-scalable LNG export projects, such as Chevron's Kitimat LNG project.
96. China has recently earmarked \$300B for investment in renewables, mostly for solar power projects. Japan currently produces about 10% of its electricity from renewable sources and in 2018, Japan's government pledged to increase renewable energy sources from 15% to 22–24% by 2030. In addition, India is on track to overshoot a key Paris Agreement target by

¹⁷ CERI: Competitive Analysis of Canadian LNG, July 2018.
https://ceri.ca/assets/files/Study_172_Full_Report.pdf

nearly 60% by obtaining close to two-thirds of its installed electricity capacity from renewable sources by 2030¹⁸.

97. The Priddle Report identifies renewables as a risk factor but then fails to provide any evidence or meaningful analysis of how that risk, or disruption, might affect Chevron's Application.
98. The Finn Report also identifies climate change as a likely disruptor of the Canadian natural gas supply and demand markets. Calls for increasingly punitive prices on the emissions of GHG-intensive fossil-fuel industries like the LNG industry will affect its profitability and the switch to mostly electric vehicles, planned for most OECD countries is driven in part by climate concerns and will result in significant declines in hydrocarbon demand, including natural gas.
99. As previously mention, the Priddle Report did not contain any evidence or meaningful discussion about the implication of market disruptions of the Canadian natural gas supply/demand markets as a consequence of concerns about GHG emissions or the effect of probable GHG-related changes on Canadian supply and demand markets.
100. Japan is currently the world's single largest LNG importing country, followed by China, South Korea and Taiwan and currently accounts for over 70 percent of Global LNG demand. Japan's rapidly shrinking population, projected to be reduced by 30 percent by 2060 and the recommissioning of Japan's moth-balled nuclear infrastructure are thought to be the primary drivers for a very significant reduction in energy and especially LNG demand over the next 20 years. ;
101. Again the Priddle Report did not contain any evidence or meaningful discussion about the implication of fundamental changes that are occurring in the Japan with respect to LNG demand or how those changes will disrupt of the Canadian natural gas supply/demand markets, and specifically the Chevron Kitimat LNG project.
102. The Finn Report identified the potential for a fracking ban, or a moratorium, as a possible disruption to the LNG industry. As was previously mentioned over 80 percent of the natural gas produced in the Western Sedimentary Basin is produced through hydraulic fracking and any changes to that regulatory regime would be a significant disruptor to the production of natural gas in NE British Columbia.
103. Again the Priddle Report did not contain any evidence or meaningful discussion about the implication of changes that are likely to occur with respect to fracking or how those changes will disrupt of the Canadian natural gas supply/demand markets, and specifically the Chevron Kitimat LNG project.
104. The Finn Report identified that indigenous land claims, opposition to upstream development of the natural gas resource and pipeline construction are beginning to cause disruption with the potential that these disruptions will become increasing significant in the near to medium term. As was previously mentioned, the majority of British Columbia is unceded lands without historical or modern treaties and even where historical treaties exist, for example Treaty 8 in NEBC, those indigenous communities are still challenging upstream natural gas

¹⁸ https://theenergymix.com/2019/07/22/india-renewables-capacity-on-track-to-overshoot-paris-target-by-60/?fbclid=IwAR3KKOZgpGm7EForv0t_eCD06-alyQ_58B-1VrVbPnbtI3KRHaSksk41hIY

development as infringing on their treaty rights and indigenous title. These factors are and will continue to be a significant disruptor to the production of natural gas in NE British Columbia.

105. Again the Priddle Report did not contain any evidence or meaningful discussion about the implication of indigenous land claims or opposition with respect to LNG demand or how indigenous legal rights might disrupt of the Canadian natural gas supply/demand markets, and specifically the Chevron Kitimat LNG project.
106. The Finn Report identified shortages in skilled labour as a potential market disruption and again the Priddle Report did not contain any evidence or meaningful discussion about the implication of labour shortages might disrupt of the Canadian natural gas supply/demand markets, and specifically the Chevron Kitimat LNG project.
107. The Finn Report also identified potential disruptions in Canada-China trade relations as a potential market disruption and again the Priddle Report did not contain any evidence or meaningful discussion about the implication of potential Canada-China trade disruptions might disrupt of the Canadian natural gas supply/demand markets, and specifically the Chevron Kitimat LNG project.
108. In summary, the Finn Report identified eight factors, some of which were raised in the Priddle Report, that have the potential to disrupt the Canadian supply and demand markets for Canadian natural gas, in the near, medium and long term. The Priddle Report did not contain any evidence or meaningful discussion about how any of these potential market disruptors would disrupt of the gas supply/demand markets for Canadian natural gas, or any discussion or quantification about the likelihood of any of those disruptors affecting the Chevron Kitimat LNG project and its ability to satisfy the surplus requirements of section 118 of the Act.

Summary and Conclusions

109. The onus to demonstrate their Application complies with the requirements of the Act and is in the public interest is Chevron's along and Sawyer submits that Chevron has not done so in their Application.
110. Sawyer submits that Section 7 of the Canadian Environmental Assessment Act 2012 prohibits the Board for making a decision with respect to Chevron's Application until the environmental assessment process that is currently under way with respect to the Kitimat LNG facility in Kitimat British Columbia has been completed.
111. Sawyer respectfully submits, based on a careful review of Chevron's evidence, including the Priddle Report and Chevron's response to the Boards information requests, that the Application has not met the onus to demonstrate that the quantity of oil or gas to be exported under the applied for Licence will not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada.
112. Having regard to the preceding paragraph, the Priddle Report identified a number of potential risk factors including economic, social and environmental factors that could affect the ability of Application to satisfy the section 118 surplus determination but then did not

provide any evidence or meaningful discussion of those factors. In essence, Chevron has supplied no evidence with respect to the risk factors identified in the Priddle Report.

113. The Priddle Report is relies heavily on assumptions¹⁹, including past decisions of the Board that are arguably not-on-point to this Application, and provided very little in terms of quantifiable evidence or meaningful discussion or analysis of any factor that might undermine the Application.
114. The Priddle Report relied on out of date publications of the Board when more current Board publications were available²⁰.
115. Chevron has explicitly acknowledged in their Application, and in their evidence, that they do not have adequate gas supplies under their control to satisfy the requested export licence. This is not in compliance with the Board's Guide Q.
116. Chevron acknowledges that the best available information only has a 20 year time horizon and that projecting Canadian gas supplies and demand from 2038 to 2070 is "impossible". Again, this is not in compliance with the Board's Guide Q
117. The Priddle Report misleadingly asserts that exporting LNG sourced from NEBC will allow China to reduce GHG emissions because natural gas is purportedly a clean burning fuel in comparison to coal. Priddle provide no evidence to back up his assertions. Evidence filed in support of the submission proves evidence that not only is Priddle's claims false but in fact, LNG produced using natural gas from NEBC and used in China has a significantly higher GHG intensity that coal.
118. Sawyer has presented evidence in this submission that demonstrates that there are factors in play that have the very real potential to disrupt the Canadian natural gas supply and demand markets.
119. Sawyer has presenting evidence that;
 - a. Chevron's assumptions about gas supply and demand are not based on the best available information and in many instances are demonstrably incorrect;
 - b. Canada's and British Columbia's proven reserves of natural gas are inadequate to satisfy the Application and still have due allowance for the reasonably foreseeable requirements for use in Canada;
 - c. The Government of Canada has declared a Climate Change Emergency;
 - d. Greenhouse Gas Emissions associated with the Application, in conjunction with GHG emission associated with the approved LNG Canada must be considered in the context of current and probable provincial, federal and international policy and legislation and if done so, the GHG issues present a very real and present danger that the supply and demand markets for Canadian natural gas will be disrupted.

¹⁹ The word assumption occurs 49 times in the Priddle report.

²⁰ Use of EF2016 instead of the more current EF2018.

- e. GHG emission from the Project, in conjunction with the already approved LNG Canada, will make very difficult, if not impossible for the Governments of British Columbia or Canada to meet their respective GHG reduction targets;
 - f. Indigenous land claims and related conflicts are, and will likely continue to potentially disrupt the supply and demand markets for Canadian natural gas;.
 - g. Short to medium term Global LNG pricing and macro-economic factors present serious economic risks to the LNG industry including Chevron proposed LNG project;
 - h. At current and projected mid-term LNG prices, the Chevron Kitimat LNG project is, and will continue to be, unprofitable.
 - i. China has been identified as the target market in support of the Application but China is projected to experience massive reduction in its population with a corresponding reduction in energy demand;
 - j. Renewable energy technology is current resulting in a massive global disruption in the traditional energy markets, including for LNG, as a result of significant reduction in the costs of renewable energy technologies, renewables can now compete directly with LNG fueled electrical generation.
 - k. China, Japan, India and other importers of LNG are investing heavily in renewables with expected reductions in demand of imported LNG;
 - l. The majority of natural gas that might be used to support the Application is produced using hydraulic fracturing technologies which have come under increasing public scrutiny. Many jurisdictions, including Canadian jurisdiction, have banned or placed moratoriums on the practice. Likely and potential changes in the regulations with respect to fracking will significantly disrupt the Canadian natural gas supply and demand markets;
 - m. Shortages of skilled labour will constrain or disrupt plans, such as proposed by Chevron, to construct the infrastructure required to support a LNG export scheme; and
 - n. Canada-China trade relations are at a historic low point and any retaliatory trade action by China could disrupt the Canadian natural gas supply and demand markets; and
120. None of these potential or actual market disruptions were addressed by Chevron in its Application or in its evidence and specifically not in the Priddle Report.

Relief Sought

121. In light of all of the foregoing, Sawyer submits that Chevron has not meet its burden of proof with respect to the Section 118 surplus test and that as a result:
- a. The NEB should deny Chevron's natural gas export licence Application; or that

- b. In the alternative, that the NEB establish a full regulatory process that would include the opportunity for intervenors to submit information requests to the Applicant and test the Applicant's evidence in a public hearing convene with respect to this matter,

If you have any questions about this submission, please contact the writer directly at 250-877-8678 or via email at sawyer@hayduke.ca

Respectfully

A handwritten signature in black ink, appearing to read 'Micheal D. Sawyer', with a stylized flourish extending to the right.

Micheal D. Sawyer, MEDes.

cc: Ms. Sheri Young, Secretary of the National Energy Board
Ms. Andrea Serjak, Chevron Canada Resources
Mr. Keith B. Bergner, Lawson Lundell LLP