



Potential Revenues to BC Government from
Potential Liquefied Natural Gas Development in BC

Ministry of Energy, Mines & Natural Gas

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1. Overview

1.1 Background

The Province of British Columbia (the “Province”) through the Ministry of Energy, Mines and Natural Gas (the “Ministry”) is seeking to engage the private sector to develop Liquefied Natural Gas (“LNG”) in British Columbia (the “LNG Projects”), and is currently negotiating with a number of potential private proponents.

As a result of the potential for significant revenues, and economic activity, from the LNG developments, the Province is working with its advisors to determine an appropriate taxation framework for the LNG Projects. This framework could include using the existing Provincial and Federal royalty regimes and taxation legislation as well as extending this on an appropriate, economic and competitive basis to maximize Provincial revenues while continuing to stimulate project development.

The Province has engaged Ernst & Young (“EY”) to develop an indicative range of Provincial revenues¹ that could result from the LNG Projects. The indicative projections have been based on an assumed taxation framework, provided by the Province, together with other assumptions as described below.

The scope of the engagement did not include EY commenting on the appropriateness of any proposed methods for revenue framework for the LNG Projects in the Province.

This Report provides an overview of the analysis conducted, including:

- ▶ A summary of the projections;
- ▶ A description of the key assumptions;
- ▶ A summary of the scope of analysis;
- ▶ Details of the process and methodology undertaken; and
- ▶ Limitations to the analysis.

¹ Provincial revenues include BC provincial government revenues which include existing royalties, corporate and personal income taxes and any proposed LNG specific revenue framework.

2. Summary outputs

The indicative range of total projected Provincial revenue associated with the LNG Projects, based on the assumptions set out in the report and over the construction and operating period (2013-2037), is shown in the following table:

2012\$ billions	Projected revenue	
	Low	High
BC Government revenue	79	162

The revenues include provincial corporate and personal income tax, sales tax, and royalty payments from the LNG Projects. The revenues exclude any carbon tax or non-employment related induced revenue as a result of the development of the LNG Projects.

The following table shows the range of average annual Provincial revenues in real 2012\$ during the 20 year operating period (2018 - 2037):

2012\$ billions	Average annual revenue during operating period (2018 - 2037)	
	Low	High
Base capacity (82 MTA)	4	8

The calculations of projected revenues are based on the assumptions set out in this report which may or may not materialise. As a result of the potential uncertainty and variability in the underlying assumptions, the actual revenues that may be received by the Province from the LNG Projects may differ significantly from these projections.

3. Assumptions

Due to the stage of development of the LNG Projects, the negotiations with potential proponents, and the development of a revenue framework of LNG projects in BC, this analysis is based on a number of high level assumptions as described below:

- ▶ LNG and Natural Gas (“NG”) prices:
 - ▶ Prices assumptions are based on the forecasts of crude oil and natural gas (“NG”) prices from the US Energy Information Administration (“EIA”), and LNG and NG prices from the Chicago Board of Exchange (“CBOE”) and the World Bank;
- ▶ Specific project-related assumptions provided by the Ministry including:
 - ▶ The number and scale of the proposed LNG Projects, and associated LNG volumes, upstream gas volumes and carbon emissions. Specifically, the LNG Projects are forecast, for the purpose of this analysis, to produce an aggregate 82 MTA² from 2018 under the Base Capacity scenario, and this is increased to 120 MTA by 2020 under the High Capacity scenario;
 - ▶ Aggregate exploration costs and upstream, pipeline and downstream capital and operating costs (including depreciation costs) over the construction and 20-year (2018 - 2037) operating period for the LNG Projects as a whole;
 - ▶ Timing of costs and volumes;
 - ▶ Employment forecasts from the LNG Projects;
- ▶ Industry information and other public information;
- ▶ A proposed revenue framework reflecting the current applicable revenue framework in BC (including certain assumptions from the Ministry in relation to retention of revenues within the Province), together with a potential new BC LNG revenue framework; and
- ▶ The analysis has been completed in real 2012 dollars over a 20-year operating period.

Due to the complexities of potential corporate structures, and the other development activities of the potential private sector proponents, it has been agreed with the Province that the LNG Projects are assumed to be ‘ring-fenced’ for the purposes of determining potential tax revenues. Therefore profits / losses from other entities owned, or other projects developed, by a developer will not be applied to the LNG Projects for the purpose of the analysis. Note that in reality the private developers will have other activities that are likely to impact the overall tax payable in the analysis.

In determining the range of potential revenues we have undertaken a sensitivity analysis on key assumptions. Key drivers in the analysis include:

- ▶ Price of LNG and NG;
- ▶ Capital and operating costs of the LNG Projects;
- ▶ Assumed capital structure of the LNG projects; and
- ▶ Depreciation rate of assets for taxation purposes.

² Million Tonnes per Annum

4. Scope of analysis

The scope of the analysis conducted has been to provide a range of indicative projections for Provincial government revenue from the proposed LNG Projects based on specific assumptions.

The following sources of revenue are included within the scope of the analysis:

- ▶ Taxes currently applicable in BC, including:
 - ▶ Corporate Income Tax;
 - ▶ Personal Income Tax;
 - ▶ Provincial Sales Tax;
 - ▶ Royalties; and
- ▶ A potential new BC LNG revenue framework provided by the Province.

The following have been excluded from the scope of the analysis:

- ▶ Carbon tax revenues;
- ▶ Any revenue flowing to the Federal Government;
- ▶ Any revenue assumed to flow to other jurisdictions; and
- ▶ Any non-employment related indirect economic benefits on the economy as a result of the development of the LNG Projects.

5. Process and methodology

The following summarises the high level process followed in developing the projections:

- ▶ The Province and its advisors have undertaken a detailed review of taxation frameworks for LNG projects on a global basis. As a result of this review the Province has determined that an appropriate comparator is the regime in place in Australia;
- ▶ The Ministry provided EY with the key assumptions associated with the LNG Projects, as described in section 3 of this report. EY updated the base assumptions, where appropriate, and provided certain other source assumptions, such as additional sources of price forecasts for NG and LNG and estimated capital structures, and considered potential variations in the key underlying assumptions;
- ▶ EY assessed the LNG Projects under the existing taxation regime in Australia in order to gain an understanding of the potential government revenues under the Australian regime;
- ▶ The Province provided EY with a potential revenue framework for the LNG Projects in order to estimate the range of potential revenues to the Province under the proposed revenue framework; and
- ▶ EY undertook a quantitative analysis on the potential taxation regime over a 20-year operating period, for both the base and high capacity scenarios.

6. Additional revenue projections

This section sets out the indicative projected total Provincial revenues from the LNG Projects, over a 20-year operating period, based on the two cases of LNG Project capacity assumptions, i.e.:

- ▶ Base capacity of approximately 82 MTA by 2018; and
- ▶ High capacity of approximately 82 MTA by 2018 and 120 MTA by 2020.

The indicative projected range of total revenues in real 2012\$ under both capacity scenarios is shown in the following table:

2012\$ billions	Projected revenue	
	Low	High
Base capacity	79	162
High capacity	112	224

This table indicates potential incremental Provincial revenues of between approximately \$33 billion to \$62 billion for the high capacity scenario over the base capacity scenario.

The following table shows the range of average annual Provincial revenues in real 2012\$ during the 20 year operating period (2018 - 2037) under both the base capacity and high capacity scenarios:

2012\$ billions	Average annual revenue during operating period (2018 - 2037)	
	Low	High
Base capacity	4	8
High capacity	5	11

7. Limitations

The Province engaged EY to develop an indicative projected range for potential government revenues under the assumptions described above.

The cost and operating inputs into the analysis have been provided by the Province on the basis of an aggregation of data obtained by the Province from the potential private sector proponents and other industry benchmarks. The assumptions do not contain any project specific inputs.

The assumptions provided are high level in nature and have not been itemised into component parts. As such:

- ▶ It has been assumed that all costs are eligible expenditures in determining tax bases; and
- ▶ Each of the individual asset classes (upstream, pipeline and downstream) will be comprised of numerous individual assets with a range of individual asset lives. For the purpose of the analysis, it has been assumed that the assets lives are a single average rate for each of the individual assets classes.

The scope of the engagement did not include EY commenting on the appropriateness of any of the potential methods for taxation of the LNG Projects in the Province.

The projections presented in this Report are for illustrative purposes only. They are based on a set of assumptions and other information at a given point in time. Projections can, and will, change based on global and local influences including commodity prices and economic factors and as the global market for LNG continues to develop. The inherent uncertainty and variability in the assumptions may result in the Province receiving significantly different revenue from the LNG Projects than estimated.

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