



## The LNG Opportunity in BC: Separating Rhetoric from Reality – Part I

### Introduction

At the same time as China and Russia signed a massive 30 year, \$400 billion natural gas trade agreement<sup>1</sup>, the BC government continued its push to establish an LNG industry with a (successful) global LNG conference in Vancouver. The May event came on the heels of Premier Clark's fifth trip to Asia promoting, in part or full, LNG opportunities in the province.

The China-Russia agreement is emblematic of the changing energy supply landscape; it also speaks to the size of the potential opportunity for jurisdictions like BC considering the contract constitutes only 29% of China's future import requirement.<sup>2</sup>

Closer to home, critics continue to question whether BC can develop the LNG sector in a responsible and economically sensible manner that will deliver the benefits expected by the government.

In this two part *Energy and Environment Bulletin*, we assess the validity of arguments suggesting BC is making a mistake in seeking to advance LNG and that the province would be wise to halt, slow down or significantly change its approach to LNG development.<sup>3</sup>

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<sup>1</sup> The agreement also included a \$20 billion capital contribution for pipeline development.

<sup>2</sup> <http://www.resourceworks.com/graphic-russia-s-pipeline-deal-with-china-in-perspective.html>.

<sup>3</sup> Critiques of LNG development include those coming from: the Canadian Centre for Policy Alternatives; Clean Energy Canada; the David Suzuki Foundation; the Dogwood Initiative; the Pembina Institute; SkeenaWild; the Northwest Institute; the Green Party; Tyee columnist Andrew Nikiforuk; and academics such as UBC Professor Kathryn Harrison.

### LNG Critiques

Critics of LNG development raise a number of cautions and concerns that can be grouped into three main categories:

- (1) *market concerns*: natural gas exports into Asia from BC will be entering a highly competitive market with many supply options.<sup>4</sup> The price spread supporting the LNG opportunity in BC could easily disappear, leaving the province with little or nothing to show for its efforts to build the LNG sector.<sup>5</sup>
- (2) *climate change*: the significant rise in CO<sub>2</sub> output, from both accelerated upstream shale gas development and proposed LNG facilities, would result in the province missing its legislated GHG reduction targets. Critics contend that the government does not have a cogent plan to reduce LNG-related CO<sub>2</sub> emissions and that BC is overstating the global environmental benefits associated with greater use of natural gas.
- (3) *poor planning/externality impacts*: some critics suggest that BC is not prepared for and/or is not adequately addressing the

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<sup>4</sup> The alternative supply options most cited include: Russian and Turkmenistan natural gas shipped by pipelines; LNG from at least 18 countries, including the United States, Australia, Qatar, and several African nations. For a more detailed review see this Canada West Foundation report: [http://cwf.ca/pdf-docs/publications/ManagingExpectations\\_October2013-2.pdf](http://cwf.ca/pdf-docs/publications/ManagingExpectations_October2013-2.pdf).

<sup>5</sup> This critique also plays out in a more 'political' concern around the veracity of the LNG benefit numbers, notably in terms of jobs and revenue, cited by the government.

real and potential impacts of LNG at the community and regional level - including failing to plan for the cumulative environmental effects of large-scale energy development.<sup>6</sup>

The problem with the above list is that while some of the identified concerns are certainly worthy of analysis and debate, it does not logically follow that these kinds of uncertainties and complexities mean that government should stop or fundamentally alter its approach to LNG development. To do so would be economically and environmentally suspect, in our judgment.

To break this analysis down, this two-part *Energy and Environment Bulletin* is dedicated to assessing the merits of these criticisms. In Part I, we review the economic concerns relating to LNG development. In the forthcoming Part II, we consider the climate change and externality concerns expressed by critics.

### *LNG Economics*

A good place to start an economic assessment of LNG in BC is to look at what is happening in the marketplace with respect to relevant business transactions. These private sector decisions and actions provide a window into both the nature and scope of the LNG opportunities and also highlight some of the risks.

In the BC context, the scale of market activity in the LNG sector is remarkable. While one can quibble over the exact magnitudes, it is clear that the potential for private sector LNG capital deployment is unprecedented in BC's history.

To summarize the activity briefly, BC (and Alberta) have world-class upstream natural gas resources – estimated in excess of 500 trillion cubic metres of reserves. By virtue of these reserves, Canada is the 5<sup>th</sup> largest gas producer

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<sup>6</sup> Environmental concerns around fracking are also covered in this category and are discussed in Part II of the *Bulletin*.

in the world.<sup>7</sup> To date, these natural gas resources have been well developed by a cluster of companies that are global leaders in shale gas development. Combined with BC's institutional/regulatory stability, close proximity to Asia, and the existence of a significant price differential between Asian and North American natural gas markets, BC resource abundance has prompted as many as 13 proposed LNG projects – over half of which are led by major global energy companies on both the supply and demand sides.<sup>8</sup>

These proposed projects each represent capital deployments valued between \$1-2 billion for the smaller projects and up to \$20+ billion for the larger LNG facilities (not including associated upstream supply activity). When incremental midstream and upstream activity is added in, the total private sector capital deployment for a large LNG project will exceed \$36+ billion.<sup>9</sup> A status report on the main projects is detailed in Table 1 below.

### *Private Sector Investment Activity*

Hypothetical investment opportunities are one thing. But actual expenditures – dollars spent by proponents on regulatory work, front-end engineering and design, labour and supply chain activity and partnership development – are already in evidence. Breaking this down, we see significant investment and project related business activity occurring. We estimate that the cluster of LNG projects in BC has deployed well in excess of \$2 billion on project-related expenditures to date.<sup>10</sup>

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<sup>7</sup> See CAPP natural gas sector overview: <http://www.capp.ca/canadaIndustry/naturalGas/Pages/default.aspx>.

<sup>8</sup> The provincial government lists these projects at [www.lginbc.ca](http://www.lginbc.ca).

<sup>9</sup> \$36 billion is the publicly cited figure for the Petronas (Pacific Northwest LNG) project.

<sup>10</sup> Note that this figure does not include upstream drilling activity, which would add several billion additional dollars of spending.

LNG Projects – Where They Stand									
Name	Final Investment Decision	Partners	Price tag	Location	Capacity	EA	In-service Date	Export License	
Pacific North West LNG	2014	Petronas, Japex, Petroleum Brunei, Indian Oil Corp	\$1.1 billion	Land-based facility, Lelu Island, Prince Rupert	19.68 million tonnes per year of LNG	CEAA and BCEAO applications under review	2018	Approved by NEB	
Woodfibre LNG Export Pte. Ltd	Autumn 2014	Pacific Oil & Gas	\$1.7 billion	Squamish, BC	Export 2.1 million tonnes of LNG per year	Project Description filed with the CEAA and BCEAO	2017	Approved by NEB	
Stewart Energy LNG	2014	Canada Stewart Energy Group Ltd.		Floating and land-based facilities, Stewart	Targeting annual capacity of 5 million tonnes	Not yet commenced	2017	Application under review	
LNG Canada Gas	2015	Joint venture Shell Canada Ltd., Korea Gas Corporation (KOGAS), Mitsubishi Corporation and PetroChina Company Limited		Land-based facility, Kitimat	24 million tonnes per year of LNG	Application Information Requirements approved by BCEAO	2018	Approved by NEB	
Triton LNG	2015	AltaGas Ltd, Idemitsu Kosan		Floating facility, Kitimat or Prince Rupert	2.47 million tonnes of LNG per year	Not yet commenced	2017	Approved by NEB	
Kitsault Energy	2015	N/A		Floating and possibly land-based facilities, Kitsault	20 million tonnes per year of LNG	Not yet commenced	2018	Application under review	
Aurora LNG	About 2016	Nexen (CNOOC), INPex, JGC Corporation		Land-based facility, Grassy Point, near Kitimat	Applied to ship 24 million tonnes of LNG per year	Not yet commenced	2012, according to Chinese newspaper Caixin	Approved by NEB	
Kitimat LNG (KM LNG)	Later this decade	Chevron/Apache 50/50 equity		Land-based facility, Bish Cove, Kitimat	10 million tonnes per year of LNG	CEAA and BCEAO assessments complete		Approved by NEB	
Prince Rupert LNG	About 2017	BG Group	\$16 billion	Land-based facility, Ridley Island, Prince Rupert	21.6 million tonnes per year of LNG	Not yet commenced	Had planned 2020, but moved to "about 2022"	Approved by NEB	
WCC LNG	N/A	Imperial Oil/Exxon Mobil		N/A	30 million tonnes per year of LNG	Not yet commenced		Approved by NEB	
No name	N/A	Woodside Petroleum Ltd.		South site of Grassy Point, Kitimat		Not yet commenced	N/A	Not yet commenced	
Steelhead LNG	N/A	N/A		N/A	N/A	Not yet commenced	N/A	Not yet commenced	
Douglas Channel LNG	Was expected in 2014. Delayed.	BC LNG Export Cooperative, Haisla Nation, LNG Partners	\$500 million	Floating facility, Kitimat	1.8 million tonnes per year of LNG	Not required	Was expected in 2015. Delayed.	Approved by NEB	

Source: Pipeline News North, April 17, 2014; Fasken Martineau, Investing in BC's LNG Future: Projects Update Guide.

And several projects currently have go-forward budgets exceeding \$1 billion.<sup>11</sup> This activity includes a growing number of LNG project offices in BC and a material increase in the work flowing to goods and service companies as well as a sizable number of global LNG supply chain firms entering the local market.<sup>12</sup>

When the value of market transactions to build out project consortiums – upstream acquisition and partnership developments to diversify risk and build-in offtake agreements – is included, the relevant investments quickly grow by multi-billion dollar increments.

On the regulatory and permitting front, in terms of environmental assessment (EA) process activity, one LNG project is now fully certified, four are currently going through EA reviews, and several others are expected to enter the process and are in a pre-application phase.<sup>13</sup>

Turning briefly to LNG export requirements, permits to export have been issued to nine domestic-based LNG export facilities by the National Energy Board, with two others still in the review process.<sup>14</sup>

On the financing and partnership development side, most LNG projects continue to build and diversify their ownership structures, with domestic and Asian partners being announced for several projects. Overall, most project proponents have indicated that they expect to arrive at final investment decisions within the

next 6 to 24 months, although market conditions could extend these dates into the future.<sup>15</sup>

Judged against this backdrop of strong private sector investment interest and activity, the provincial government's desire to facilitate LNG development is sensible and economically prudent. Given the significant financial benefits that will be derived from establishing a viable LNG industry in British Columbia, we believe the government's approach is clearly in taxpayers' interest.

Concern that the LNG marketplace is highly competitive and that the BC government may be putting 'too many eggs' in the LNG basket is a frequent refrain of LNG critics. This may or may not turn out to have some validity. However, it is market factors and market forces that will determine the size and shape of the nascent LNG industry in British Columbia. BC is an economy that has faced commodity cycles many times in the past – the reality of global commodity market fluctuations is not particularly new. But entering this market does merit some caution as well as careful management of both policy development and public expectations.

At this stage we believe the high level of private sector interest and *real* expenditure activity around LNG in the province is a clear signal that government should continue to vigorously advance its work on the policy frameworks needed to enable LNG development. To back off at this stage would be equivalent to pulling out of the championship game in the sporting

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<sup>11</sup> Chevron/Apache has publicly acknowledged deployment of more than \$1 billion to date with a 2014 budget in excess of \$1+ billion. The Shell and Petronas led consortiums have each invested several hundred million to date.

<sup>12</sup> These numbers are based, in part, on the increased membership activity noted by Business Council staff.

<sup>13</sup> [www.eao.gov.bc.ca](http://www.eao.gov.bc.ca).

<sup>14</sup> <http://www.neb-one.gc.ca/clf-nsi/rthnb/pplctnsbfrthnb/lnxprtclncpplctns/lnxprtclncpplctns-eng.html>.

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<sup>15</sup> Pacific Northwest LNG, Canada LNG, Woodfibre and Chevron/Apache have all made recent announcements that incrementally advance toward final investment decisions: <http://m.pipelinenewsnorth.ca/article/20140417/PIPELINE0118/140419945/-1/pipeline/bcs-15-lng-projects-where-they-stand-today>.

world because the competition seems to be getting tougher.

What critics seem to gloss over and/or simply ignore is that, assuming an appropriate policy framework is put in place, it will be market forces that drive final investment activity, not the government. While this point is partially acknowledged in some commentaries, many critics fall into the trap of thinking that LNG is primarily a government initiative. This is untrue. At its core LNG is a private sector, market driven opportunity.

Drilling deeper into LNG critics' commentary, much of the focus centres on a complaint that government is rushing policy development and hasn't been transparent or consulted widely enough with other key interests. Below, we assess this concern as it relates to tax and fiscal matters associated with LNG development.

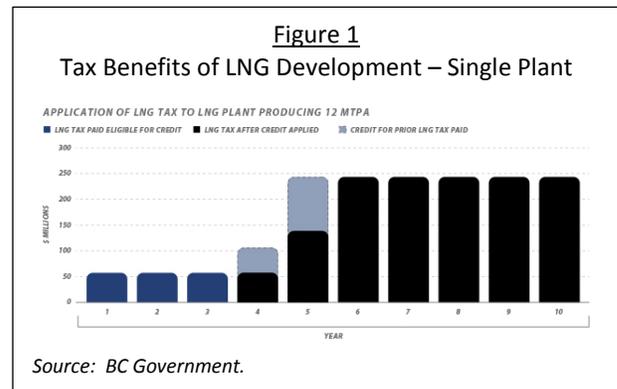
#### Assessing the Tax Framework

In the 2013 Throne Speech, the government announced that it would create a 'Prosperity Fund' with LNG tax revenues to ensure the public receives a fair portion of the potential 'rent' resulting from the price arbitrage opportunity between North American natural gas prices and Asian markets.<sup>16</sup> To assist with verifying the opportunity, the government commissioned and released an independent review of the potential tax benefits from LNG, built around a relatively optimistic growth/price scenario.<sup>17</sup>

Subsequently, in the 2014 budget, the government put forward additional details of the proposed 'two-tier' LNG income tax structure – with the benefits at a hypothetical plant level outlined in Figure 1.

<sup>16</sup> [http://www.leg.bc.ca/39th5th/Throne\\_Speech\\_2013.pdf](http://www.leg.bc.ca/39th5th/Throne_Speech_2013.pdf).

<sup>17</sup> [http://www.empr.gov.bc.ca/OG/Documents/Ernst\\_and\\_Young\\_LNG\\_Revenue.pdf](http://www.empr.gov.bc.ca/OG/Documents/Ernst_and_Young_LNG_Revenue.pdf).



The tabling of a proposed tax in advance of actually legislating the rates is a notable departure from traditional tax policy making. This step has provided legislators, industry and other stakeholders with an opportunity to consider and comment on the fiscal regime proposed for the LNG industry prior to the finalization of all of the relevant details. It has also provided negotiating flexibility between government and proponents.

Throughout this timeframe, the government has trumpeted the large *potential* job and tax benefits of LNG. The question is not whether there are there significant economic benefits to be reaped from LNG development (there clearly are) but rather about the magnitude and timing. Ultimately, whether the direct government tax value of future LNG development ends up closer to \$20 billion or \$100+ billion<sup>18</sup>, it's clear that the fiscal upside for the province is substantial.<sup>19</sup>

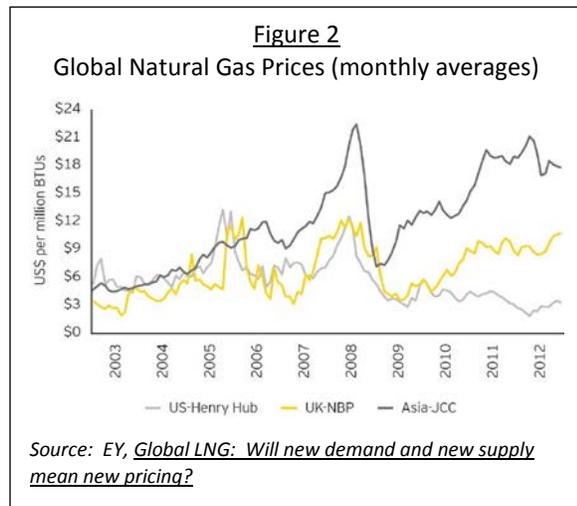
As the section below explains, while critics can question the government numbers, the reality is that much of the fiscal benefit will be determined not by government, but by the global marketplace for LNG.

<sup>18</sup> The \$20 billion is a 'low' scenario put forward by the CCPA; \$100 billion is a figure tabled by government as part of the analysis tabled with the 2013 budget and undertaken by Ernst & Young.

<sup>19</sup> Even assuming a modest build-out of the sector, the investment levels would be unprecedented.

LNG in the Global Marketplace for Energy

Globally, natural gas is going through an adjustment phase as the shale gas revolution transforms traditional regional supply and demand dynamics, driving price differentials that have opened up attractive market opportunities for natural gas exports into Asia.<sup>20</sup> Figure 2 below highlights these regional price spreads.



This adjustment process is slowly moving regional natural gas markets toward a future equilibrium based on a partially integrated global marketplace that blends supplies of conventional pipeline-supplied natural gas and LNG imports – primarily in the Asian marketplace.<sup>21</sup>

The Asian marketplace is in a very dynamic phase for natural gas import planning and supply option analysis by virtue of:

- the above noted price differentials;
- a growing diversity of new gas supply options;

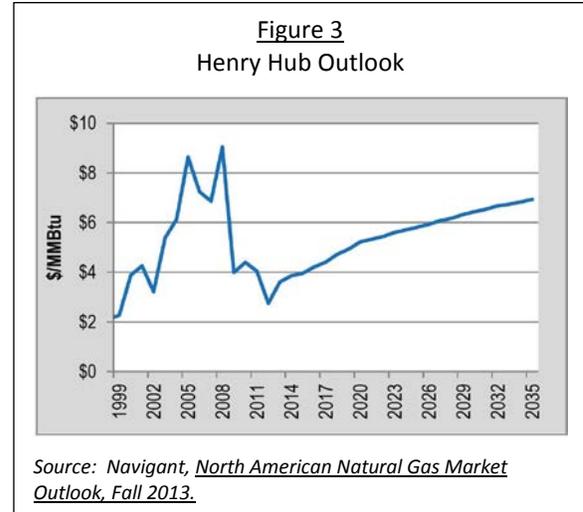
<sup>20</sup> This price differential is well explored in many other assessments.

<sup>21</sup> Europe could play an increasingly important role as a future market for LNG due to geo-political factors.

- risk diversification strategies being adopted to ensure secure natural gas supply;
- growing pressures to address climate change;
- serious pollution issues in China and other part of Asia.

As a result of these factors, LNG import planning in Asia is at a critical juncture that creates some urgency to ensure that BC’s supply options are fully and fairly explored.<sup>22</sup>

Importantly, and also linked to this analysis, BC (and Alberta) faces significant risk from continental natural gas prices that are likely to remain relatively flat for a decade or more as the implications of the North American shale gas bounty are priced into the domestic market.<sup>23</sup> Figure 3 below outlines the relatively modest predicted increase in North American natural gas prices over the next two decades.



<sup>22</sup> This situation is brought about by a number of factors: LNG contract cycles; major capital deployment choices between LNG and pipelines; geo-political tensions; and climate/air pollution matters.

<sup>23</sup> Analysis from the US EIA – [www.eia.com](http://www.eia.com).

The current phase of active planning by Asian energy importers will not last forever – even if natural gas demand in Asia continues to grow over time. As the recent Russia-China agreement highlights, long-term energy import decisions are being made now.

Taken in combination, there are clearly a series of market-driven imperatives that underpin the sense of urgency around LNG policy development in BC. While market pressures do not always make for an ideal environment within which to fashion public policy, we believe that critics who suggest BC should slow down the process because ‘Asian demand for LNG will always be there’ are misreading the situation. There is a real, market-driven urgency to advance the LNG opportunity in British Columbia as various Asian energy-importing countries take steps to secure energy supplies for the future.<sup>24</sup>

British Columbians (and Albertans) should be eyes wide open about this reality – if we fail to diversify our natural gas markets into Asia via LNG, we are likely to see a material erosion of economic activity in the northeast and northwest for an extended period of time – with corresponding negative impacts on BC’s exports, jobs and government revenues. This point is rarely, if ever, mentioned by critics seeking to derail or slow LNG development in BC.

#### *Historical Context of LNG Development*

As a final point around the economics of LNG development in BC, it is worth reflecting for a moment on the province’s industrial development history to provide some additional context.

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<sup>24</sup> Oddly, some critics also fail to recognize that much of the current and planned upstream activity in northeast BC is predicated on successful LNG development – LNG requires the entire value chain to work optimally.

Unlike many historical and global antecedents, these significant LNG investments will *not*, as currently envisioned, be the result of a government industrial ‘inducement’ strategy predicated on large subsidies such as discounted Crown tenures for water and/or land, as was sometimes the case in the past and remains commonplace around the world.<sup>25</sup> On the contrary, while there are modest incentives in the upstream environment and the proposed tiered tax system may embed some short-term incentives, overall the Crown, as well as First Nations, are set to realize significant benefits.

The plan to legislate a new LNG income tax on the sector to capture some of the resource rent related to the pricing ‘arbitrage’<sup>26</sup> is a clear signal of the Crown’s intent to generate revenue that would otherwise not be available.

Ultimately, it will be private capital, not taxpayer funds, that are exposed to the investment risks associated with major LNG projects. Again, this is something LNG critics overlook in their calls to halt or fundamentally change LNG development.

#### *Conclusion – A bright economic path ahead?*

Overall, we believe there is a solid economic fact base supporting the view that LNG development will be positive for BC economically and essential to realizing the benefits of the province’s vast shale gas resources over the short, medium and possibly the long term.

Based on our analysis of both current and predicted private sector investment activity, there is little doubt BC is benefitting from LNG

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<sup>25</sup> Examples include various forest tenures (TFLs, etc.), water licence for the Alcan smelter, and failed initiatives like the aluminum smelter strategy under the 1990s ‘Power for Jobs’ plan.

<sup>26</sup> This relates to the differential in the continental price for natural gas and the Asian price.

development now, with a strong possibility for transformational growth in the near future. Rather than a questionable ‘gold rush’ indicative of some past commodity activities, LNG and natural gas development hold real promise for sustained benefits over the medium to long term across many key metrics. In fact, we believe that slowing the pace of LNG development at this stage, as some critics suggest, would significantly disadvantage the province in the following ways:

- by sending a negative signal to investors who face important, multi-billion dollar decisions in the coming months and years;
- by potentially severing important supply chain linkages and partnerships that have formed or are currently under development;
- by depriving government treasuries (federal, provincial, First Nation and municipal) of major new tax revenue streams; and,
- by limiting options for BC families to find jobs in high-paying, high-growth sectors of our economy.

While the majority of LNG critics tend to focus mainly on environmental matters, the purely economic arguments against LNG development in BC are weak, in our view. We also find the largely political debate around the magnitude of the economic benefits of LNG to be a distraction judged against the more important task of ensuring that LNG is developed in the best manner economically and environmentally.

Critics would contribute more to the economic aspects of LNG policy debates by focussing on global competitiveness challenges as well as domestic distributional issues – such as looking at First Nations and community level benefits, infrastructure needs, downstream diversification opportunities, and the potential structure and governance of the proposed Prosperity Fund.

In Part II we will assess the critics’ concerns with respect to climate change and other externality impacts linked to LNG.

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