

GNL QUÉBEC INC.

Application for an LNG Export Licence to the National Energy Board

GNL Québec Inc. (GNLQ)



Export Impact Assessment (EIA)

An assessment of the present natural gas market circumstances and the impact of exports as applied for by GNL Québec Inc. upon Canadians to meet their future energy requirements over the requested licence term.



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Summary

The following assessment report reflects the requirements of section 118 of the National Energy Board Act ('NEB Act'), NEB Act Part VI (Oil and Gas) Regulations and the current Filing Manual – Guide Q, as well as the NEB's decision in LNG Canada Development Inc.'s application to export LNG issued in February 2013.

The following report is largely qualitative and is a compendium to the GNL Québec Inc. ('GNLQ') Supply and Demand Market Assessment (the 'SDMA') – a quantitative report prepared by Navigant Consulting, Inc. and attached as Appendix B to GNLQ's application for a long term export licence. Taken together, the reports assess the implications of GNLQ exporting LNG through the Energie Saguenay (ES) export project located at the Port of Saguenay, Québec over the period 2021- 2046 on the ability of Canadians to meet their gas requirements.¹ The reports also evaluate whether the gas applied for by GNLQ is surplus to Canadian requirements over the proposed licence term.

Owing to the extensive and well established Canadian energy and gas market that has performed well over the decades, the determination in this Export Impact Assessment (EIA) report is that the market is healthy and will be able to readily support the export of the volumes of gas applied for by the project over the 25 year proposed term. The finding is that the integrated gas market in North America is sufficiently capable of meeting the requirements of this application and due to recent gas supply successes across North America the market is even more capable of doing so today than previously – before the large scale success of gas shale development in Canada and the United States ('U.S').

This EIA report addresses the matter that the volumes being requested for export in the GNLQ application are small relative to the domestic Canadian supply that will support their delivery to the ES export project. Based upon a comparison to other NEB approved LNG export applications, the volume requested by GNLQ of 1.577 Bcf per day is also small compared to several other approved LNG export applications. As an example, GNLQ is only 48% of the size of the LNG Canada Development Inc.'s approved volumes of 3.23 Bcf per day.

This EIA report draws reference to the GNLQ SDMA prepared by Navigant Consulting, Inc. to support the finding that in fact, the Canadian market should benefit through the diversification of markets from the proposed application should it be approved. This EIA concludes that the natural gas to be exported by GNLQ if approved would not exceed the surplus remaining after allowance for the reasonably foreseeable requirements for use in Canada, having regard to the trends in discovery of oil and gas in Canada.

¹ The export period requested is for 25 years. Depending upon the actual start-up date the start-up date could be as late as 2025. The study period of the Navigant SDMA is therefore through 2050.

This EIA also finds that Canadians will not need to adjust their energy consumption patterns by means of energy conservation or fuel switching to alternative fuels as a result of the application, should it be successful.

The EIA also concludes with the finding that especially due to the expected growth and past trends in gas discoveries in the gas market over time including the trends of Canadian and North American gas demand and supply, the integrated nature of the industry across North America as well as the generally long standing performance of the Canadian gas industry, there are safeguards that are built into the market that will support the ability to accommodate the increasing demand likely to be placed on Canadian supply. The ES project is also unique from some other export applications recently made to the NEB in that it will provide a new Eastern Canadian based market for gas supply sourced from Western Canada which potentially could be served through existing Canadian infrastructure that has become increasingly underutilized.

Historical Reference Material

This EIA has been prepared primarily based upon the following material that includes material which has been the subject of other previous export applications:

1. The National Energy Board Act ('NEB Act'), Part VI, section 118, that provides the legislative basis for the factors the National Energy Board ('Board' or 'NEB') shall take into account in licensing exports of natural gas;
2. The NEB Act Part VI (Oil and Gas) Regulations ('the Regulations') section 12 (g), which establish the EIA as part of the information to be furnished by applicants for licences for exportation;
3. NEB Reasons for Decision ('RfD') GHR-1-87 (Review of Natural Gas Surplus Determination Procedures), which establishes a procedure for export licence applicants to submit an assessment of the impact of the exports on Canadian energy and natural gas markets to be considered. This decision also introduced the Market-Based Procedure ('MBP'), including the EIA as one part of an export licence application;
4. NEB RfD GHW-4-89 (Review of Certain Aspects of the Market-Based Procedure), in which the NEB highlighted the legislative basis for licensing exports of natural gas by specifying that the Board shall:
 - Satisfy itself that the quantity of oil, gas or power to be exported must not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada having regard, in the case of an application to export oil or gas, to the trends in the discovery of oil or gas in Canada (the 'Surplus Criterion');
 - In these RfD, three factors we identified as key to the MBP –
 1. A Complaints Procedure
 2. An Export Impact Assessment
 3. A Public Interest Determination
 - These RfD went on to outline that the first two items are designed to address 'surplus' to Canadian needs while the third item is to include all other factors to assess whether the exports are in the public interest but concludes that this does not include a cost-benefit analysis as had been used even prior to the MBP going back to the 1970's to assess benefits of exports versus the social costs.

5. The application of the MBP was confirmed in the Board's decision respecting Repsol Canada Energy Ltd.'s application for a licence to import natural gas in liquefied form and licence to export natural gas (GH-1-2008).
6. Subsequently, the Board confirmed the applicability of the MBP in assessing LNG export applications in GH-1-2011 (decision in respect of an application for an export licence by KM LNG Operating General Partnership) and GH-03-2011 (decision in respect of an application for an export licence by BG LNG Export Co-operative LLC).
7. With the enactment of the Jobs, Growth and Long-Term Prosperity Act ('JGLTP Act'), which received Royal Assent on 29 June 2012, the considerations by the Board in deciding an application for a licence to export, were limited to the Surplus Criterion.
8. In its decision relating to the first application for an export licence after the coming into force of the JGLTP Act on June 29, 2012, the Board confirmed that it may only consider the Surplus Criterion in deciding whether to issue an export licence (Letter Decision respecting an application for an export licence by LNG Development Canada Inc. ('LNG Canada'), 4 February 2013). In finding that the Surplus Criterion was satisfied in the LNG Canada decision, the Board considered an EIA that was based upon the MBP and the documents referenced above.
9. Subsequently, by Filing Manual Release 2013-03, the Board provided Guide Q – Export and Import Authorizations (Part VI of NEB Act and Part VI Regulations). In this Guide Q, the filing requirements were described for natural gas (including LNG) export licence applications as follows. To provide:
 - The source and volume of gas to be exported.
 - 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.
 - A description of expected gas requirements (demand) of Canada (including underlying assumptions) over the requested licence term.
 - The implications of the proposed export volumes on the ability of Canadians to meet their gas requirements.
10. Further guidance was provided in Guide Q that the onus is on the Applicant to demonstrate that the criterion in section 118 of the NEB Act is met and that the filing requirements can be met in a variety of ways, both quantitatively or qualitatively. Suggestions were that the Applicant may consider:
 - Trends in Canadian gas demand and supply and the availability of the sources of gas to Canadians.

- Available gas supply from the United States and other global sources.
 - Past trends in gas discoveries and whether, in the Applicant's opinion, these trends can be extrapolated into the future and why.
 - The expected technological improvements in resource assessment and innovations.
11. The application by GNLQ is also being made in recognition of a number of other LNG export applications that have been made to the NEB over the last three years. As of October 20, 2014, we note eight (8) Canadian LNG export applications have been approved by the NEB including the earliest recent application approval by the Kitimat LNG Export project in October 2011. Since the LNG Canada Development Inc. approval in February 2013, six (6) LNG export projects have been approved in Canada. Two applications that Navigant provided the supporting SDMA and EIA market studies have been approved. In all cases the NEB has consistently applied the same criteria and has arrived at the same conclusions as what Navigant has arrived at and has carried through in its methodology of analysis contained in the SDMA and EIA that were prepared for GNLQ.

Approach

As has been established in the Reference Material summarized above, this EIA for GNLQ, is one of the two reports being filed to demonstrate that the volume of gas being applied to export meets the requirements outlined in Guide Q – Export and Import Authorizations (Part VI of NEB Act and Part VI Regulations). The EIA is a generally qualitative view of the Canadian and North American gas markets developed with a deep understanding and extensive experience in analyzing the market and is prepared in order for GNLQ to meet the filing requirements for export as outlined in Guide Q for the exportation of gas from Canada. As such this EIA addresses the following:

- Whether the exports proposed by GNLQ are likely to cause Canadians difficulty in meeting their energy requirements;
- Whether the EIA takes into account the size and significance of the proposed export;
- Whether the Canadian gas producing sector has the ability to satisfy Canadian needs given the proposed exports and considering trends in reserve additions relative to drilling effort and transportation requirements from wellhead to market and their feasibility;
- Whether the exports proposed for GNLQ are apt to cause the need for Canadians to adjust their energy consumption patterns by means of energy conservation or switching to alternative fuels;
- The impact of GNLQ proposed exports on future gas prices; and
- Whether there are safeguards against extraordinary demands being placed on Canadian supply as a result of the GNLQ proposed export.

Assessment

The following represents the findings having regard for key questions to be answered by this Export Impact Assessment.

- 1. Whether GNLQ's application to export a volume of 568.5 billion cubic feet of natural gas per year (1.577 Bcfd), for a period potentially through 2050 is likely to cause Canadians difficulty in meeting their energy requirements at fair market prices?**

Canadian Natural Gas in the North American Natural Gas Market

Natural gas possesses remarkable qualities including having the lowest carbon intensity amongst fossil fuels, emitting less carbon dioxide (CO₂) per unit of energy than other hydrocarbons such as coal or oil, and burning cleanly and efficiently with very few non-carbon emissions. Natural gas also has favorable characteristics with respect to its development and production. The high compressibility and low viscosity of natural gas allows high recoveries from conventional reservoirs at relatively low cost and also enables natural gas to be economically recovered from even the most unfavorable subsurface environments, as developments in shale formations have demonstrated.

Yet as a result of the physical properties of natural gas – its gaseous form and low energy intensity, natural gas is uniquely disadvantaged compared to other fossil fuels in terms of transportation and storage. Natural gas by its nature is dependent upon pipeline transportation systems that have often resulted in the development of local and regional gas markets rather than a truly global market for natural gas. This is in contrast to a robust global market that has developed for oil over the last 40 years or more.²

From a global perspective there are three distinct gas markets that have developed – North America, Europe, and Asia, with other localized markets elsewhere. Of the three developed global markets, the North American market that includes the U.S., Canada and Mexico is distinguished from the others for its maturity and as to its recognized sophistication –

² Massachusetts Institute of Technology, 'The Future of Natural Gas, an Interdisciplinary MIT Study', Page 3; 2010.

functioning with access to important characteristics that have allowed this continental market to develop and to perform reliably at fair prices even during periods of significant market upheaval and change.

By way of background, the U.S. and Canada are both among the leading natural gas producers in the world producing together almost 25% of the global natural gas production.³ With gas shale and other unconventional gas resources leading the way recently, the U.S. is now the world's largest natural gas producer at 65 billion cubic feet per day having overtaken the Russian Federation in 2011. Canadian gas production at over 15 billion cubic feet per day places Canada in third place of natural gas producing countries in the world.⁴

As evidence of its increasing market penetration in North America, natural gas has moved to serve a larger part of the continental energy mix, making up 26.2% of total primary energy consumption in 2012, a 16% increase from 22.6% in 2007.⁵ This has been made possible by the development of an interconnected interstate and intrastate natural gas pipeline system in the U.S., an interprovincial and provincial pipeline system in Canada and local distribution systems in both countries. The network in the U.S. consists of 2.4 million miles of mainline and other pipelines to link production areas and natural gas markets.⁶ This has allowed the delivery of more than 24 trillion cubic feet of natural gas during 2012 to 71 million customers.⁷ In Canada the delivery system consists of over 200,000 miles of natural gas transmission, distribution and service pipelines to 6.3 million homes, businesses, industries and others in 2010 that reached over half of the Canadian population.⁸ In 2011, the Canadian pipeline delivery system delivered 2.825 trillion cubic feet and exported a further 3.192 trillion cubic feet to the U.S.⁹

Besides the transportation system, the U.S. gas delivery network consists of over 125 natural gas storage operators who manage 400 active underground storage fields.¹⁰ North American natural gas storage plays an important role in balancing supply and demand, particularly during peak-demand periods and is an important facet of the North American gas industry that is only in its infancy or does not yet exist in other global natural gas markets. Besides the value of conventional storage in managing seasonal and intra-day load variations, storage may also provide financial advantages in order to reduce pipeline demand charges, to hedge against natural gas price increases or to take advantage of price arbitrage opportunities that may present themselves in the market. Storage can also be used in conjunction with financial instruments such as futures and options and swaps arrangements as part of a risk management

³ BP Statistical Review of World Energy – June 2013; Page 22.

⁴ Ibid; Page 22.

⁵ Energy Information Administration, International Energy Outlook 2013, World Total Primary Energy Consumption by Region (Tables A1 and A6).

⁶ American Gas Association website - <http://www.aga.org/Pages/default.aspx>.

⁷ Ibid.

⁸ Canadian Gas Association, Industry at a Glance – Information Sheet.

⁹ Ibid.

¹⁰ NaturalGas.org Website, <http://naturalgas.org/business/industry/>

product. A more recent application for gas storage is in the use of high deliverability storage facilities such as salt cavern storage and other reservoirs that allow for more rapid cycling of their inventories than conventional storage operations. High deliverability storage has grown significantly in Canada and the U.S. over the past 20 years with the growth of the gas-fired generation sector of the gas industry. Gas storage may also be provided through liquefying natural gas to be placed in above-ground tanks as LNG and through what is referred to a pipeline 'line-pack' or by using the capacity available in gas pipelines itself.

The Union Gas owned storage facility located south of Sarnia Ontario, the Dawn storage facility, in fact is the largest underground storage facility in Canada with 155 billion cubic feet of gas of high deliverability storage.¹¹ The Dawn storage facility with its interconnectivity to numerous pipelines, is an important link in the movement of gas from Western Canada and U.S. supply basins for markets in central Canada and to the Great Lakes region and may well play an important role in the reliable delivery of natural gas from Western Canada to the GNLQ project.

Another aspect of the North American natural gas market is the presence of substantial LNG import/regasification facilities that were built largely after 2000 on a market that was pre-gas shale and on the expectation that LNG imports were going to be required in North America to meet demand. Today we know these facilities including the only Canadian LNG import project, the Canaport LNG project in Saint John, New Brunswick, have been largely non-operational or operating at low utilization rates due to North American domestic supply abundance as a result of the technological advances that allowed for large scale volume increases in gas production. In some cases the sites on which these import facilities have been built have been or are being redeveloped as LNG export facilities on the recognition of the fundamental market change that has occurred with the advent of economically producible domestic gas shale.

Integration and Sophistication Are Hallmarks of the North American Gas Market

The sophistication and transparency of the North American gas market is apparent by the existence of twenty-four major trading hubs or regional market centers that feature additional pipeline interconnections and the ability to offer balancing services, parking, loan, back-haul and storage services with a variety of pipelines. Navigant's North American gas market model contains over ninety pricing delivery locations where prices are forecast and trading activity occurs, however, in some instances the volumes and number of trading participants are low, making the prices less reliable than at the major hub locations. Physical price discovery occurs at the key market hubs as well as at other trading points and financial price discovery occurs by way of a robust and even larger market by volume - the New York Mercantile Exchange (NYMEX) futures market pegged to the Henry Hub delivery point in Louisiana. The NYMEX financial exchange provides an important price discovery and transparency function allowing natural gas to be financially traded at market hubs throughout the U.S. and in Canada.

¹¹Spectra Energy website - <http://www.spectraenergy.com/Operations/Storage/Dawn-Hub/>

Physically the Canadian and U.S. domestic markets are directly connected to each other through a large number of import and export points between the Canadian and U.S. pipeline systems. Gas can operationally flow seamlessly from one country to the other through an interconnected pipeline system at these points. There are at least thirty-one of these connection points across the continent from British Columbia to New Brunswick and many points in between that effect the free flow of gas through the interconnected pipeline grid between the two countries.¹² To the south, the U.S. market is also connected by pipeline to Mexico at eighteen additional import/export locations, securing the operation of a pan-North American gas market.

By way of its physical connection and through the financial connection of the NYMEX, the U.S. and Canadian gas markets have been directly integrated in very important ways for several decades.

Historically the North American Gas Market Has Performed Well

Both the Canadian and U.S. gas markets have been able to perform well during periods of substantial market change and challenges as a result of fundamental market shifts such as in the rapid growth of the gas-fired power generation sector in the 1990's, gas price spikes in 2000-2001 as a result of the Western energy market crisis, periods of abnormal weather patterns such as the 2005 Gulf Hurricanes and through significant regulatory restructuring of the natural gas pipeline industry in both countries at various times. Through this change, the market has proven to be able to perform reliably, delivering supply to buyers at prices that were agreeable. Even during Hurricane Katrina in August of 2005, as the market faced an extraordinary natural catastrophe, the gas market was able to provide gas supply to cover market demand (albeit at high prices of almost \$13 per MMBtu in the spot market). Even more remarkably, this was before the effects of gas shale development had become apparent and despite significant disruptions of supply due to large portions of the Gulf of Mexico production network going offline as a result of the hurricanes. Demand interruptions that also occurred due to the hurricanes helped to balance the market.

Over the past forty years, the North American market has absorbed many regulatory changes in both countries. In Canada, the industry has evolved and adapted through important developments such as the Western Accord in 1985 and more recently the TransCanada PipeLine restructuring case decided in March 2013. In the US there have also been important regulatory developments such as regulations regarding 'open-access' in the mid 1980's leading to the US Order No. 636 that in 1992 made unbundling of pipelines' merchant and transportation services mandatory. As with all of these regulatory achievements for the last two decades, Order 636 has allowed the U.S. pipeline industry and therefore the entire US natural gas industry to become

¹² U.S. Energy Information Administration, Natural Gas, Natural Gas Import / Export Location List, 2009, Website - http://www.eia.gov/pub/oil_gas/natural_gas/analysis_publications/ngpipeline/impex_list.html

even more competitive, while the North American gas market has grown while offering services at attractive prices versus those of other competing fuels. One measure of the success of the industry is the continued growth of the pipeline industry with the building of additional pipeline capacity to attach new supply to serve new markets as well as to supply existing markets. Although the pipeline build process is sometimes 'uneven' as to its timing, the history of the industry has been that pipelines have been built where there is new supply to attach to growing market demand over time.

The interconnected gas market has functioned well historically over the past 20 years under a variety of circumstances and as evidenced by the ongoing growth of its pipeline network.

Shale Gas Has Transformed the North American Gas Market

An aspect of the North American gas market in both Canada and the U.S. is the fundamental change brought about by the upstream technological breakthrough of hydraulic fracturing and horizontal drilling as applied to the gas shale industry. The market change which became evident in 2008 driven by gas shale production increases, has over the last six years transformed the market from one that was apparently running out of gas supply to a market that is in a situation of 'oversupply' today. The development of gas shale that started in Texas and Louisiana, then in the Mid Continent and in the Northeast in the Marcellus and finally into British Columbia continues to reshape the market - as possibly the biggest and most impactful development in the gas industry in history.

Shale development has been identified broadly as one of the top five 'game changers' to the U.S. economy that could accelerate growth by its potential to 'spur productivity gains, boost GDP, and generate significant numbers of jobs by 2020'.¹³ The expectation is that shale-gas technology will have significant consequences upon the economy and the combined effects of its expansion upon the oil industry will transform the energy environment. The evidence as to the economic benefits of gas shale development in the U.S. is clearly outlined in several U.S. Department of Energy (DOE) LNG non-Free Trade Agreement export applications where several projects have included detailed economic analysis supporting the economic benefits of the LNG projects by way of job creation, construction spending as well as upstream economic stimulus to the natural gas producing industry.¹⁴

¹³ McKinsey Global Institute, 'Game Changers: Five Opportunities for U.S. Growth and renewal', July 2013, page 1.

¹⁴ See e.g. Navigant Economics 'Economic Impact Analysis Study', Appendix B to Southern LNG Company, LLC Docket 12-100-LNG, Application for Long Term Authorization, Multi-Contract Authorization to Export Liquefied Natural Gas to Non-Free Trade Agreement Countries at - http://www.fossil.energy.gov/programs/gasregulation/authorizations/2012_applications/12_100_Ing.pdf and Navigant Economics 'Economic Impact Analysis Study', Appendix B to Gulf LNG Liquefaction Company (Docket No. 12-101-LNG) at- http://www.fossil.energy.gov/programs/gasregulation/authorizations/2012_applications/12_101_Ing.pdf, and ECONorthwest analysis in Appendices C,D,E,F filed in 'Application of Jordan Cove Energy Project, L.P. for Long Term Authorization to Export Natural Gas to Non-Free Trade Agreement Nations,(Docket No. 12-32-LNG) at http://www.fossil.energy.gov/programs/gasregulation/authorizations/2012_applications/12_32_LNG_Application.pdf

The transformation of the integrated gas industry as a result of gas shale development is apt to cause dramatic changes to gas flows across North America that will be beneficial to Canadians and make it improbable that GNLQ's application for export will cause Canadians difficulty in meeting their gas requirements. The SDMA's Gas Resource Life analysis in Tables 3 and 4 clearly draw reference to this assessment.¹⁵ As a result of the ongoing development of the Marcellus gas shale play, one region that has benefited and will likely continue to benefit is the Eastern Canadian market by way of new gas supply being made available by the displacement of what would previously have been exports to the U.S. and is now supply available to serve Canadian markets including the ES project. As production from the U.S. Northeast region's Marcellus and Utica gas shale basins have continued to grow, already the effects upon the flow of natural gas at the border at Niagara has occurred with the first exports since 1980 from the U.S. into Canada occurring in January 2012. Finally, beginning in November 2012 import volumes into Canada from the U.S. for the month exceeded exports on a net basis from Niagara and the reversal of direction of the flow of gas delivery at the Niagara export point was made clear.¹⁶ While only at one export point, this was a historic event in the interrelationship of the Canadian and U.S. gas markets. Over time other export delivery points likely to be affected along the TransCanada PipeLines mainline by this emerging market trend include Waddington, New York into the Iroquois pipeline and at Pittsburg, New Hampshire into the Portland Pipeline. The reversal of historical flow patterns (as have occurred at Niagara) are expected to continue as expanding Marcellus supplies push Canadian imports back over the border into Canada which will make available additional Canadian gas supply for Canadian markets. Navigant forecasts indicate an overall flow reversal for U.S. Northeast supply by about 2027, with imports from the U.S. Northeast region into Canada surpassing Canadian natural gas exports into the region on a net basis.¹⁷ This regional market flow dynamic however does not alter the conclusion that overall net Canadian gas supply exports to the U.S. persist over the full contract term to 2050.¹⁸

An example of the transition to flow reversals in the U.S. Northeast is the 2012 proposal to build a new pipeline into the Dawn hub in Ontario from the Utica shale that may further displace traditional Canadian supplies into Dawn.¹⁹ Flows on other pipelines owned by TransCanada Pipe Lines (Great Lakes Gas Transmission (GLGT), ANR Pipeline Company (ANR) and Northern Border Pipeline Company (Northern Border)) and Energy Transfer Partners, L.P. (ETP) pipeline – all pipelines that deliver to the Dawn-hub, are also expected to be affected. Flow patterns will change supply and delivery patterns from the Gulf region to the U.S. Northeast and from Western Canada via the GLGT system into Eastern Canada and into the U.S. Northeast. The flow patterns will change as large new gas supply volumes become

¹⁵ Navigant Natural Gas Supply and Demand Market Assessment, GNL Québec Inc., Section 3.2.1.1, Tables 3 and 4, Pages 14 and 15.

¹⁶ Statistics Canada. Table 129-0004. Exports and Imports of Natural Gas to and From the U.S., monthly.

¹⁷ Navigant Summer 2014 Gas Outlook forecast.

¹⁸ Navigant Natural Gas Supply and Demand Market Assessment, GNL Québec Inc., Section 3.8, Figure 21: Net Canadian Pipe and LNG Export Forecast, Page 38.

¹⁹ Nexus Gas Pipeline is a joint venture between Enbridge, DTE and Spectra (Union Gas). The pipeline would be 250 miles long with a capacity of 1 Bcf per day. In service is scheduled for 2016.

available, which Navigant estimates will be over 21 Bcfd by 2022²⁰ from the Marcellus, compared to an average wellhead production volume of 10 Bcfd in 2013 and 6.5 Bcfd in 2012.²¹ This is new production that is situated near to the large and previously gas supply deficient eastern U.S. and Eastern Canadian gas markets that will change flow patterns of gas to and from the region. Three major pipeline projects that have entered into final pipeline development stages would move U.S. gas into Canada or would at least displace Canadian gas that has historically been delivered into the U.S. Northeast are discussed in Navigant's SDMA.²² Importantly, through displacement this will assist in the availability of Western Canadian gas to serve Eastern Canadian markets – including support for GNLQ.

The pending full impact of Marcellus and Utica gas shale development is large such that with the benefit of an integrated pipeline system and market structure, its impact will be felt across most of North America. Effectively, Marcellus and Utica supply will 'displace' Canadian gas that would otherwise have been exported to the U.S. but now is available to meet the supply requirements of GNLQ and other Canadian gas markets.

It is also not likely that the changes to the market driven by the Marcellus/Utica are going to end soon either, as some changes are structural not cyclical. Already action is being taken by TransCanada PipeLines to adjust to this changed competitive market situation by the recent reports of a planned conversion of a portion of the TransCanada PipeLines mainline gas pipeline to crude oil service as part of its Energy East Pipeline project which appears to be supported by binding, long-term contracts for oil transportation service.²³ It appears TransCanada PipeLines has recognized the changes in fundamental market conditions and is able to make decisions to adapt its pipeline operations to respond to significant changes in the market that have impacted their mainline pipeline. This by taking out of service a portion of their mainline pipeline capacity that have been shown to be surplus to market requirements to better align their pipeline with changing market conditions. Nevertheless, significant capacity back to the Western Canadian Sedimentary Basin through the remaining TransCanada mainline capacity as well as other Western Canadian pipelines such as the Alliance Pipeline remain in order to deliver requisite supply to potential GNLQ receipt points. The bottom line impact upon natural gas supply in Western Canada, in Alberta and in British Columbia will be that more supply is apt to be available in Canada – natural gas that will be looking for alternative markets as a result of displacement by U.S. gas supply in U.S. markets. This will present additional challenges particularly for expanding gas shale development in Western Canada and that will be looking increasingly for new markets in Canada and abroad.

Increasing access by Eastern Canadian markets to new gas supply in the Marcellus through interconnections and existing, plus new pipeline capacity that will be built will have dramatic

²⁰ Navigant Summer 2014 Gas Outlook forecast.

²¹ LCI Energy Insight, Total Monthly Shale Production Report, spreadsheet Tab 'Shale Production'.

²² Navigant Natural Gas Supply and Demand Market Assessment, GNL Quebec, Inc., Section 3.9, Page 40

²³ Reuters, August, 2013, 'TCPL receives long term contracts for Energy East Pipeline', at <http://www.reuters.com/article/2013/08/01/transcanada-pipeline-id>

effects on natural gas flow patterns in Canada and in the U.S.. Although the changing flow patterns will be dramatic, the changes and access to additional gas supply is viewed as a positive development for Canadian consumers and potentially for new and existing markets to be developed in Canada and abroad such as presented by GNLQ. The bottom line going forward is that the Canadian market should have an even a higher degree of assurance of gas supply availability and reliability at fair market prices as U.S. pipeline exports from Canada are increasingly challenged by abundant and low cost U.S. domestic gas supply. Nowhere in Canada is this apt to be more of an issue than in Eastern Canada.

2. Whether the conclusions in #1 take into account the size and significance of the GNLQ Exports?

The conclusions of this EIA report do take into account the size and significance of the GNLQ exports.

The conclusion is supported by the SDMA that was prepared by Navigant Consulting and which forms part of the GNLQ application. The Navigant SDMA was based upon a fundamental understanding of the integrated North American natural gas market including certain analysis contained within Navigant's latest North American natural gas market model forecast. The conclusion is also based upon the analysis in this EIA report and in recognition of past work developed by the National Energy Board.

The findings are that the proposed export by GNLQ is small in volume compared to the overall North American supply resource and smaller still in light of the trend in development of Canadian and U.S. gas supplies.

In comparison to the overall size of the North American energy market, the annual volume of 568.5 Bcf per year (1.577 Bcfd) is about 1.577 percent of the average total North American energy market during the project life (average from 2021-2046) of 133.9 Bcf per day.²⁴

In relation to Navigant's estimated North American gas production of 87 Bcfd in 2013 rising to 155 Bcfd by 2050, the GNLQ proposed exports are about 1.8% in 2013 declining to about 1.0% towards the end of the requested term. The volumes at both time periods are insignificant in relationship to the size of the North American market and well within the capabilities of both the Canadian and U.S. markets - taking into account the growth of supply development over the past number of years and the expected trend for continuing gas supply growth in the future.

An important aspect of the transformed natural gas market in North America is that the natural gas industry as a result of gas shale has in many respects moved closer to a manufacturing type industry. In fact, compared to the industry in the past, the effort of the gas industry is less focused upon exploration or finding the resource as the resource location is often now well known. In fact in some instances until the technological breakthrough of hydraulic-fracturing

²⁴ Navigant 2014 Summer Outlook. North American demand equals 114.4 Bcfd in 2021 and 148.5 Bcfd in 2046.

and horizontal drilling made production possible, the Appalachian basin which is the region of the Marcellus and Utica shales that had been known about for over a century with many attempts made to develop the resource unsuccessfully.

Today with the technological breakthrough applied to gas shales that has made additional economic gas development possible, more production can occur if and when markets are available. The significance of a shift to a manufacturing type industry is that the industry can 'manufacture' the gas from gas shale virtually on demand. The existing abundance of gas shale now and the growing gas shale potential in the future, reveals market demand to be the scarce commodity in this supply/demand equation. The challenge for the upstream gas industry has shifted towards a focus on production rather than upon exploration. To the extent that advancements are continuing to be made in the production of gas, the upstream natural gas industry collectively has increasing ability to be able to manage the resource.

As gas shale becomes a larger share of the natural gas supply mix in Canada and in the US, Navigant analysis has shown the percentage of dry gas production from shale will be 58% by 2020 up from only 6% of the total dry gas production in 2006.²⁵ Therefore as time goes on, the expectation is that there will be an increased opportunity to better balance supply to demand. We also believe this will have important implications upon gas price volatility which has the opportunity to decline with additional gas shale development under a closer to manufacturing style of industry structure.

Although increased volumes of natural gas are expected to be exported from Canada over the next 7 to 10 years, we are not aware of concerns that have been expressed by any Provincial Government or regulatory body or others. In fact, Provincial Government support in British Columbia has been very proactive in terms of its initiatives in favor of natural gas development and the role LNG exports will have in the Province of British Columbia's future economic development.

For these reasons, we believe that we have carefully taken into account the size and significance of the proposed application by GNLQ for the export of natural gas from Canada. In doing so, we conclude that it is unlikely that the exports will cause Canada difficulty in meeting its energy requirements for the long term.

3. Whether the Canadian producing sector will be able to satisfy Canadian needs given the proposed exports?

Canadian natural gas supply will be more than adequate to meet Canadian needs through the term of the licence requested by GNLQ. That the Canadian producing sector will be able to satisfy the needs for Canada also seems assured – based upon the long established track record of the gas producing and pipeline sectors that exist in Canada.

²⁵ Navigant Summer 2014 Outlook forecast.

As shown in the Navigant SDMA, natural gas supply will be available to meet the demand for natural gas in all Canadian and North American sectors over the forecast period. Figure 22: North American Supply – Demand Balance at page 38 shows that North American demand including LNG exports will be met over the forecast period. In fact, Navigant’s view expressed in Section 3.7.2 on page 36 of the Navigant SDMA is that Western Canadian gas development could be at risk in the event sufficient incremental natural gas demand does not develop. GNLQ presents another opportunity to offset lost U.S. gas markets with a Canadian LNG export project – this in ‘Eastern Canada’ with the potential to help support existing pipeline infrastructure in Canada and toward balancing an oversupplied Canadian gas market.

That the integrated North American market is in a supply surplus situation deserves additional discussion. One way to view surplus is to refer to production – a production surplus, or surplus producing capacity to be able to deliver additional volumes of natural gas ‘but for’ the lack of demand. This can include volumes that could be produced but are kept ‘behind pipe’ in the ground. There are many examples of this in the major shale play areas with reports of significant volumes that have been developed with drilling and completion expenditures having been incurred in wells that are not producing. The most blatant example of this may be in the Gulf of Mexico, Offshore. Beginning in 2008 with the abundance of gas shale, production volumes declined from over 6 Bcfd to levels today that are under 4.0 Bcfd.²⁶ A decline in production of 2 Bcfd from the Gulf of Mexico that is without doubt due to the increasing volumes of abundant new and lower cost gas shale now available in the onshore from regional basins like the Barnett, Fayetteville and the Haynesville gas shale plays. Given different market circumstances these offshore gas volumes could be produced again - without additional infrastructure investment - just as these resources had been produced before the proliferation of onshore gas shale. The declining production in Alberta may be another example of supply – that has been increasingly challenged to compete against U.S. domestic supply that in some instances is located much closer to existing U.S. gas markets. Another instance where surplus production exists is in areas where development has occurred but local gathering systems or regional pipeline capacity is not yet available to connect the supply. The Marcellus is one region where ‘shut-in’ supply estimates are large and where estimates range from 200-300 wells to over 1000 wells ‘shut-in’ in the first quarter of 2013. At the higher level of shut-well estimates, these wells would average nearly 3 Bcfd if brought online over a one year period.²⁷ In other areas, such as the Bakken and in the Eagle Ford oil shale, large volumes of associated natural gas are currently being flared due to the current lack of pipeline capacity to capture the gas and to deliver it to market.²⁸ Estimates in the Bakken were that 266,000 Mcfd was being flared in May 2013 or 36% of total production. Low prices are not the reason these volumes are not being marketed. Rather, this is due to lack of pipelines or other form of transport as well as the lack of processing capacity to get the gas to market that is the limiting factor. At some point many of

²⁶U.S. U.S.EIA, Natural Gas Gross Withdrawals and Production reports.

²⁷ Platts – ‘Marcellus well backlog will lead production growth: Barclays’, March 17, 2013, Available at - https://www.gasbb.com/?PageID=157&article_id=8110

²⁸ Reuters, July 29, 2013, ‘Bakken Shale Burns Nearly One-Third of Natural Gas Drilled, New Study Finds’, Available at - http://www.huffingtonpost.com/2013/07/29/bakken-shale-flaring_n_3669649.html

these wells will likely be 'tied-in' to gathering systems and into the pipeline grid. But it may be awhile until markets are developed and in the meantime the volumes are surplus to existing markets.

Finally however, perhaps the true measure of surplus rests with the size of the resource itself. In the Navigant SDMA at Table 3, the technically recoverable resource estimates shown indicate a resource life in Canada of over 263 years based upon 2013 estimates of Canadian total gas demand. The same Table 3 also shows how, even with GNLQ export volumes included, the resource life is 234 years. If GNLQ volumes plus currently approved Canadian LNG project volumes were included in total Canadian demand, the reserve life would be 104 years. If a full 41.9 Bcfd coming from all approved and applied for Canadian LNG projects as of September 30, 2014, plus GNLQ, was included in forecast Canadian demand, the reserve life is 69 years.²⁹ This later scenario is widely discounted amongst industry observers and by Navigant.

The SDMA prepared by Navigant also includes resource estimates for the U.S. These estimates have been built up from Navigant's resource estimates starting in 2008, with the first major North American resource study that was prepared regarding the North American including Canadian resource base. A study that unveiled a dramatically changing gas supply situation that was emerging – itself a result of a technology breakthrough applied to unconventional gas shale development.³⁰ At the time the consensus was that the U.S. was running out of natural gas supply. In Navigant's study, the findings were that the total gas resource was 1,680 Tcf mean, with 274 Tcf of gas shale – 143 Tcf more gas shale than was reported in previous studies. At these levels the resource translated into 88 years of gas supply assuming current production levels.

More recently in April 2013, the U.S. Potential Gas Agency (PGC) and the Colorado School of Mines, released their biennial assessment of its latest assessment of the U.S.'s natural gas resources indicating a total technically recoverable resource base of 2,384 Tcf mean as of the end of December 2012. This was reported as the highest in the PGC's forty-eight year history and exceeds their previous assessment by 486 Tcf or by 25.6%. At these levels, the total recoverable resources would meet the requirements of the U.S. for over 100 years based on consumption levels of 70 Bcfd.³¹

In Navigant's SDMA at Figure 21 on Page 37, net pipeline exports to the U.S. from Canada are forecast to decrease markedly over the mid-term to 2020, and then to increase slowly to eventually stabilize over the later portion of the forecast period. The decline in net exports from Canada to the U.S. are largely due to the rapid changes occurring in the Marcellus gas shale basin in the U.S. Northeast that are in turn affecting shipments into the U.S. Northeast region on

²⁹ Navigant Natural Gas Supply and Demand Market Assessment, GNL Quebec Inc., , Section 3.2.1.1, Table 3, page 14.

³⁰ North American Natural Gas Supply Assessment; prepared by Navigant Consulting, Inc. in July 2008, for the American Clean Skies Foundation. Available for download at Navigant at - <http://www.navigant.com/insights/library/energy/2011/north-american-natural-gas-supply-assessment/>

³¹ Potential Supply of Natural Gas in the United States – Report of the Potential Gas Committee', December 31, 2012. Released April 9, 2013. See link - <http://potentialgas.org/download/pgc-press-release-april-2013-slides.pdf>

the TransCanada PipeLine mainline pipeline system and also on the Great Lakes Gas Transmission system and the Vector Pipeline system. All three pipelines directly or indirectly flow gas from Western Canada to Eastern Canadian and U.S. Northeast region as we have suggested previously. The changing North American gas flow patterns that are a result of the ramping Marcellus and Utica producing basins are expected to decrease the need for gas from Canada (and from other U.S. gas supply regions) and result in lower net total natural gas exports from Canada to the U.S.. These displaced Canadian gas exports will require alternative market access such as provided by GNLQ.

The lower Canadian net exports to the U.S. especially in the near term however are not to overlook that the U.S. remains an important export market to Canada on a net 'inflow versus outflow' basis for the study period to 2050. Figure 21 of the SDMA makes this very clear.³²

The declining Canadian net exports in the near term are also a function of the stage of development of the British Columbia gas shale industry, which is 2-5 years behind the development of gas shale in the U.S.. Allowing that the U.S. is still in its relatively early stages of gas shale development, Navigant expects that not unlike the development of the U.S. shale plays, Canadian gas shale and tight gas development will also ramp-up as the resource basins become better understood through additional development activity and to the extent additional markets become available. It may also be noted that while the potential for vast additional Alberta unconventional gas production including gas shale exists, it remains to be seen how much of this unconventional gas shale resource can be produced. Navigant's forecasts do not reflect significant volumes of gas shale production at this time from Alberta. This reflects another aspect of Navigant's generally conservative approach taken to its gas resource estimates in its market model.

Driven by the development of U.S. gas shale, Navigant projects pipeline exports to the U.S. from Canada largely to the U.S. Northeast and the Midwest to decline in the short term to 2020 and then to increase slightly before stabilizing at 4.3 Bcfd to 2035 then increase to 5.4 Bcfd over the last fifteen years of the forecast to 2050. Exports, closer to the Western Canadian producing basins will compensate for declining deliveries from Canada to the U.S. Northeast and the Midwest region over the mid and long run. Exports from Canada over time will result in net Canadian pipe export volumes that at the end of the forecast period are only slightly above the current levels of net Canadian pipeline exports to the U.S. of 5 Bcfd.

The Western shift of gas supply delivery from the WCSB is again part of the changing flow pattern for North America gas supply driven largely by the Marcellus and Utica plays. It also supports the increasing ability of Canadian gas supply to meet the needs of the Canadian market plus exports to alternative export markets such as those contemplated by GNLQ.

³² Navigant Supply Demand Market Assessment, GNL Quebec Inc., Section 3.8, Figure 21, Page 38.

4. Whether the proposed exports are likely to cause Canadians any need to adjust their energy consumption by means of conservation or fuel switching?

Particularly given the characteristics of the ‘new’ North American gas market ‘post-gas shale’, it is unlikely that Canadians will need to adjust their energy consumption through conservation or fuel switching. As gas supply has become more readily available across North America, the large, sophisticated and integrated North American gas market is apt to make more gas readily available to Canadians and at lower prices than price forecasts prepared by most industry forecasting entities prior to the emergence of the ‘new’ North American market that began in 2008.

Over the first six years of the ‘new’ North American gas market, two facets of the industry have occurred and are continuing – i) competitive natural gas prices, and ii) abundant supply on steadily increasing total production. Navigant’s SDMA provides a historical depiction of U.S. dry gas production growth over a period of 40 years going back to 1973.³³ Ramping production growth over the period since 2008 is evident during a period when gas production grew at a compound annual growth rate of 4.4% and from a market size of 18.5 Tcf to 24 Tcf or by almost 30% in a span of six years. The annual U.S. dry gas production in 2013 of 24.3 Tcf was at the highest levels in U.S. history.

In Canada, the current gas shale induced upward trajectory of gas production lags behind that of the U.S., with Canadian production reaching a peak in 2001, followed by a decreasing trend since then as can be seen in Figure 11 of the Navigant SDMA.³⁴ Navigant expects Canadian production, however, to increase in the future as shale gas production ramps- up, as shown in Figure 12 of the SDMA.³⁵

As total U.S. gas production has increased largely due to gas shale, prices have decreased reflecting a well-functioning North American gas market. Gas prices have come down from monthly prices which at its peak were nearly \$13.00 per MMBtu at Henry Hub in August 2008 to current prices at Henry Hub of \$4.13 per MMBtu for September 2014.³⁶ Current prices at AECO in Alberta are even lower than those in the U.S. (U.S. \$3.74 per MMBtu for September 2014) reflecting the regional effects of abundant gas supply in Canada and lost demand that has not yet been replaced by alternate markets.³⁷ At these levels, North American gas prices are also substantially lower than North American oil that is trading consistently in 2014 at over \$90 per barrel for WTI (and equivalent to U.S. \$14.00 per MMBtu) which is over three times more expensive than current natural gas prices at Henry Hub on a heat equivalent basis. Over the long term, Navigant projects that natural gas will continue to be traded at a substantial discount to oil on an energy equivalent basis. Navigant’s price projection in the Navigant SDMA, at Figure 24 forecasts gas prices to remain at historically low levels and just over \$6.00 per MMBtu

³³ Navigant Supply and Demand Market Assessment, LNG Québec; Section 3.5.2 Figure 15, Page 29.

³⁴ Navigant Supply and Demand Market Assessment, LNG Quebec, Section 3.5.1, Page 25.

³⁵ Ibid. Section 3.5.2, Page 27.

³⁶ Platts Gas Daily, October 2014, Henry Hub, South Louisiana.

³⁷ Platts Gas Daily, October 2014, AECO-C.

through 2025 and just over \$8.00 per MMBtu in 2050 at Henry Hub (2013\$). AECO and Westcoast Station 2 Canadian gas prices are to retain a discount to Henry Hub throughout the forecast term. Crude oil prices are forecast to reach \$134 per Barrel in 2050 (2013\$).³⁸ As a result of the continuation of large differentials in price of the two commodities in the future and due to its 'cleaner' emissions qualities, natural gas is expected to continue to at least hold market share and likely gain market share in the future versus oil. Given its supply 'abundance', natural gas appears to be well placed to be an attractive energy supply source to Canadians for the foreseeable future.

Navigant's work with six U.S. LNG export projects that have applied to the U.S. DOE for authority to export to non-Free Trade agreement countries is also helpful in assessing whether Canadians may need to adjust their energy consumption patterns as a result of approval to GNLQ's NEB export application. Navigant's work, including detailed project specific modeling for LNG export projects on the East Coast, in the Gulf and on the West Coast, provides evidence that the price impact of exports is minimal. Measured at market hub locations nearest to the LNG export facilities and at Henry Hub, Navigant's findings were that average price impacts were in all cases less than 10% on a monthly basis and by far more often (over the 300 months in each study period) much less.³⁹ For the composite of these factors and due to the integrated nature of the North American market, and although the same detailed price impact modeling was not done for GNLQ at its Port of Saguenay, Québec site location, it is our view that Canadians should have no need to adjust their energy consumption patterns by means of conservation or fuel switching as a result of the approval of export volumes as applied for by GNLQ.

5. How the proposed exports by GNLQ may affect future gas prices?

An important aspect of the current North American gas market is that it is a continental market. It is not meaningfully attached to the global gas market at this time. It is in this respect an island market. Only upon the start-up of LNG exports from Canada and from the U.S. will the North American market effectively have access to the global natural gas market through LNG exports.

Even then, it is unlikely that the volume of natural gas that is ultimately exported from North America will be of a magnitude to materially affect prices in North America. While natural gas prices in the global LNG market are currently at high prices compared to low prices in North America (which are in fact amongst the lowest gas prices in the world), it is unclear how long or whether some of these global LNG prices that are indexed to crude oil prices will remain at these relatively very high levels. Moreover, how long the indexing of LNG sales tied to crude oil prices remains unclear. Future global gas prices as a result are a key uncertainty in the global

³⁸ Navigant 'Natural Gas Supply and Demand Market Assessment', LNG Québec, Section 3.4.1, Figure 10, page 24.

³⁹ Navigant has prepared reports to support DOE Non-Free Trade export applications for six LNG export projects that filed for export approval to the U.S. Department of Energy. The LNG projects that Navigant prepared market assessments for include: Chenier Energy – Sabine Pass (approved), Dominion - Cove Point LNG (approved), Jordan Cove Energy Project (approved), Oregon LNG (approved), Gulf LNG – Pascagoula, MS (pending), Southern LNG – Elba Island, Georgia (pending). A summary and link to all of these reports are found on the U.S. DOE website at - http://fossil.energy.gov/programs/gasregulation/reports/summary_lng_applications.pdf

market. Their long term stability is undermined by a number of factors, including the abundance of natural gas in the world including gas shale that is expected to exist but has not been produced to date, except in North America. Potentially gas shale development could occur in many different countries of the world to compete with North America for the global LNG market. Major new exports are expected from places like Australia, Indonesia, Alaska, East Africa and the Eastern Mediterranean. Other countries like Qatar and Russia are also known to possess and currently supply large volumes of natural gas.

Given this competition, Navigant believes that LNG exports will be more limited for the foreseeable future than the number of applications for LNG export approval might suggest. Our view clearly is that not all LNG export projects will go ahead. In our estimation, export volumes in the 8 Bcfd to 10 Bcfd range from North America seem to be a reasonable estimate of the eventual volumes. At these levels, LNG exports represent only 9 percent to 11 percent of the current market in 2013 and from just over 5 percent to 6.5 percent of the North American gas market in 2050.⁴⁰ At these levels, we believe it is unlikely that even if global gas prices remain high, they will be able to materially affect prices in the North American market.

6. Whether there are safeguards against extraordinary demands being suddenly placed on Canadian supply by the GNLQ Exports?

Yes there are safeguards. As discussed in the totality of Navigant's SDMA, the likelihood of safeguards being necessary against extraordinary demand being suddenly placed on Canadian supply are remote. Given the size of the interconnected North American market supporting Canadian supply, the project's demand as we have previously shown is small, representing only 1.5% of the average annual market demand of 140.5 Bcfd over the 25 year project term for 2021-2046 as per Navigant's 2014 Outlook.⁴¹

It has also been indicated that the North American gas market is the largest and most sophisticated gas market in the world. It has also been shown how the North American gas market has performed reliably over a variety of circumstances and market change over time.

As Navigant analysis indicates in its resource estimates in the SDMA, Canada by itself has the capacity to meet current demand in the country plus the proposed GNLQ exports for over 234 years.⁴² The study further demonstrates that Western Canadian gas resources in Alberta and British Columbia should by themselves meet current regional Canadian gas demand plus the proposed GNLQ exports for over 234 years.⁴³ The study further shows a profile of steadily increasing Canadian dry gas production growth over the application period from 15.4 Bcfd in 2013 to 25.1 Bcfd in 2050, representing an increase of 62% over the export period.⁴⁴

⁴⁰ Navigant 'Natural Gas Supply and Demand Market Assessment', LNG Québec Figure 15, page 29. 2013 North American gas production is 87 Bcfd. $8/87=9\%$; $10/87=11\%$. 2045 North American gas production is 155 Bcfd. $8/155=5.2\%$; $10/155=6.5\%$

⁴¹ See note 24, supra. .

⁴² Navigant 'Natural Gas Supply and Demand Market Assessment', LNG Québec, Section 3.2.1.1 Table 3 on page 14.

⁴³ Ibid.

⁴⁴ Navigant 'Natural Gas Supply and Demand Market Assessment', LNG Québec, Section 3.5.2, Figure 12, page 27.

Despite the relative enormity of the Canadian resource relative to the requirements of the Canadian market, a further protection and assurance against unforeseen and extraordinary demands being placed on Canadian supply is due to the size and time it will take to construct the GNLQ terminal project. GNLQ has estimated that the initial construction lead time for the LNG export liquefaction project will be 42 months for the first train, such period to begin well after all supply contracts are in place and the final investment decision or FID has been made. Compared to the normal gas production cycle from start of drilling to on-stream date that is commonly estimated to be nine to 12 months, the project construction period is in excess of the gas well development time period which gives producers planning time to support their contractual obligations with more than adequate time to 'make ready' their wells to deliver. This practical reality of the long construction period for GNLQ therefore provides practical project development assurances that in fact provide safeguards regarding Canadian supply being able to meet the contract gas demand for the project.

In the event that extraordinary demands were to be placed on Canadian supply, the increasingly integrated North American gas market provides end-users a variety of ways to mitigate the price effects of such extraordinary demands, using a variety of both physical and financial tools. By having access to such tools, we suggest there are in fact a variety of safeguards against extraordinary demand being suddenly placed on Canadian supply by the GNLQ application for export, if approved.

Conclusion

With regard to the foregoing EIA report, it is hereby submitted that GNLQ's application to export a volume of up to 568.5 billion cubic feet of natural gas per year (1.577 Bcfd) for a period of 25 years is not likely to cause Canadians difficulty in meeting their energy requirements at fair market prices. Furthermore GNLQ as an Eastern Canadian LNG export project seeks to provide an incremental market for Canadian natural gas that has been displaced in supplying the U.S. export market by new abundant U.S. domestic gas shale supply located close to large eastern U.S. markets.

As established at the outset of this EIA, the Approach taken to come to the foregoing conclusion is to recognize that the EIA is but one of the two reports that have been prepared for GNLQ to support the filing requirements as included in Guide Q – Export and Import Authorizations by the NEB. In the foregoing EIA we have provided detailed information that addressed several key components to be included in the export application. We have provided answers to six key questions in this EIA. As indicated, the North American natural gas market, as one of the world's largest, has a long history of sophistication and performance – made up of key components of a well-functioning commodity market that has allowed the market to be reliable over the years. And, in fact to be a market that has grown significantly over the last several decades.

The EIA outlined the extensive natural gas delivery network that includes both the pipeline and storage network. It also highlighted that both networks facilitate an integrated market structure that provides for a sophisticated and transparent physical and financial trading and price discovery market system across the continent and between Canada and the U.S.. It was also pointed out that the North American gas market has performed well through both significant regulatory changes in Canada and in the U.S. and during periods of upset as a result of natural catastrophe. Finally, the state of the current market was described in some depth - - a market transformed and reinvigorated and that has made available abundant and economic gas in volumes not believed possible only a few years ago. We have outlined a market that over the course of the last five to six years has undergone fundamental market change as a result of a technological breakthrough that has made gas shale reshape the North American market providing supply abundance at competitive prices.

The EIA provides details as to how the size of the proposed export by GNLQ is taken into account in forming its conclusion. The EIA addresses the small size of the proposed export volumes relative to the integrated Canadian gas market. It also points out the insignificance of the proposed volumes as compared to North American integrated gas supply volumes contained in Navigant's SDMA over the requested application term. The EIA also points out the positive role that expanded 'markets' including GNLQ can play in the future gas market that increasingly is made up of growing supply of gas production.

The EIA concludes that the Canadian producing sector and resource base will be able to satisfy Canadian needs given the proposed exports. It highlights the quantitative finding of Navigant in its SDMA that makes clear the capability of the integrated Canadian market to satisfy Canadian needs plus those of the GNLQ proposed exports. The EIA further concludes that it is unlikely that Canadians will need to adjust their energy consumption patterns by means of energy conservation or switching to alternative fuels as a result of the proposed export. This conclusion is based upon the rapid growth of Canadian and North American gas production as a result of gas shale development over the last six years and the prospects for additional gas production growth in the future..

Finally, the EIA concludes that the likelihood of the proposed GNLQ exports placing extraordinary demands on Canadian supply is remote. It was also indicated as to how there are safeguards against this occurrence. This due to the size of the integrated and well-functioning gas market that is shown in the Navigant SDMA to have a profile of increasing dry gas production growth in Canada and in the U.S. over the proposed GNLQ export period.
