Appendix A

Natural Gas Supply and Demand Forecast to 2053

For

NewTimes Energy Ltd

By GIT

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This report, entitled "Natural Gas Supply and Demand Forecast to 2053 for NewTimes Energy Ltd prepared by GIT" ("the Report"), is prepared by General Information Technology, Inc. ("GIT") to support NewTimes' application to the National Energy Board for a Licence to export Liquefied Natural Gas. Copyrights are reserved by GIT. No other third party may use this report without GIT's prior written consent.

Historic data[1] from the National Energy Board (NEB), U.S. Energy Information Administration (EIA), Canadian Association of Petroleum Producers (CAPP) and Potential Gas Committee (PGC) are used as the basis of the model for analysis. Future assumptions have been made as yield factors of modeling variables, based on third parties' reports as noted in the footnotes of this report. Data and forecasts are diligently and carefully analyzed and concluded by GIT. The opinions and points made in this report are GIT's. However, GIT does not guarantee the accuracy of these opinions and points as 100% completed, as of this date, they are subject to change. Besides, third party material and NEB material that are referred here may become dated e.g. statistical data where the stats get updated. But GIT has examined all the references in the report on the date submitted to NEB. All the references in the report are available for NEB upon request.

GIT does not account for any liability for any third party relying upon this report outside the scope of the export licence application for NewTimes Energy Ltd to the National Energy Board.

[1] Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035 - Appendices, https://www.neb-one.gc.ca/nrg/sttstc/ntrlgs/stt/mrktblntrlgsprdctn2014.xls; U.S. Energy Information Administration (EIA), http://www.eia.gov/dnav/ng/hist_xls/N9050US2a.xls; http://www.eia.gov/forecasts/aeo/excel/aeotab_13.xlsx; Canadian Association of Petroleum Producers (CAPP), http://statshb.capp.ca/SHB/Sheet.asp?SectionID=3&SheetID=327.

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Executive Summary

NewTimes Energy Ltd (NewTimes) is submitting an application to the National Energy Board ("NEB") for a licence to export natural gas from Canada. NewTimes is proposing to build a LNG export facility ("the Project") at a site near the Port of Prince Rupert, BC (the "Project"). The Project will be designed to export 16 600 000 10^3 m^3 of liquefied natural gas in any term of 12-month period (natural gas equivalent of approximately 12 million tonnes per year or 1.6 billion cubic feet per day (Bcf/d)).

The Report is prepared to support NewTimes' export licence application and the accompanying Implications report (Appendix B) that will meet the requirement of "an assessment of the impact of the proposed exportation on Canadian energy and natural gas markets to determine whether Canadians are likely to have difficulty in meeting their energy requirements at fair market prices."[2] The Report also supports a showing that the quantity of natural gas proposed to be exported by NewTimes "does not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada, having regard to the trends in the discovery of oil or gas in Canada."[3]

Over the past several years in the North American energy landscape and market, changes have been taken place rapidly due to a new era of the development of shale gas and oil. Thanks to technological advances in drilling and well completion techniques, the outlook for North American natural gas and oil production has been transformed rapidly.

Hydraulic fracturing and horizontal drilling has taken North America to a new era of energy abundance. The natural gas market had been quite different than it is today. Natural gas producers had to drill as many gas wells as possible to try to maintain reserves to production ratios, which had fallen to less than ten years and liquefied natural gas (LNG) imports from abroad were increasingly supplementing the North American gas supply. The landscape of natural gas in North America changed dramatically, switching from a tight supply and demand balance to a market in which natural gas supplies are considerably more abundant at lower costs.

This reversal can be largely attributed to technological advancements in natural gas drilling and well completion methods. These technologies had been little used before and are now being extensively applied in deep shale and tight gas drilling. Extended reach horizontal drilling entails drilling down vertically, possibly to depths of two thousand metres or more, and then drilling horizontally within the target formation for considerable distances.

In particular, a combination of extended reach horizontal drilling, multi-stage hydraulic fracturing and pad drilling have allowed producers to recover gas from areas that were previously thought to be technically impossible or not profitable.

[2] See National Energy Board Act Part VI (Oil and Gas) Regulations, Part II, Division I, Section 12 (g).
[3] Section 118 of the NEB Act, as quoted by the Board in its Letter Decision issuing a LNG export licence to LNG Canada Development Inc. on February 4, 2013 (File OF-EI-Gas-GL-L384-2012-01 01), at 3. The Board stated that the quoted material is what the Board is "legally mandated and authorized to consider" when assessing a gas export licence application.

While Canada is still the largest gas and oil exporter to U.S., U.S. begins its pace to transform from an importer country to an exporter country for gas and oil since it became the largest gas producer, and will soon be the largest oil producer in the world. The impacts of these advances, and other shifting trends in the energy system, have important implications for Canadians to seek exporting its abundant gas reserve to other areas of world.

Both Canada and the U.S have approved a number of LNG export terminals, which indicates that the North American market is not only very well-supplied currently, but also has a great potential.

However, the demand domestically is very steady or in a slow pace to increase overall; while the demand globally, which is what LNG exports depend on, is not only limited but also facing a strong competitions from North American country U.S., from other LNG export countries such as South East Asia, Australia, Russia, East Africa, not to mention the currently largest supply Middle East country Qatar. In addition, LNG will face competitions from pipeline gas from Russia and West Asian countries. Pipeline gas has lower cost as it does not need to liquefy for transportation, ships to overseas and gasify for use.

For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as its first cargo will start to export in 2015.

Over the history, LNG market is dominated by long-term contracts which are to ensure a low-cost stable supply and a warranty of Return of Investment (ROI). Once the long-term contracts are signed, only short-term and SPOT deals will be available for a relatively small amount.

Nevertheless, the current LNG price structure is not only oil based for Asian market, but also destination based. LNG produced from the same origin will cost significantly more when it ships to Asia than to Europe. The irrational price structure can be easily broken when North America LNG exports enter the Asian market. At the end of the day, price is all what matters for buyers. North American does not have a dominant advantage geographically or production cost over other areas in the world. Our view here is that the demand for LNG exports will be limited and very competitive, and so will the price of natural gas in North American. Global balance is the key how LNG exports will play in today's world.

So far, there are no big buyers who have committed to purchase long-term LNG from Canada yet. We are sure that they will come eventually if the price is right but we predict that it will not flood in unless some catastrophic events. This will be favorable to satisfy the Surplus Criterion on one hand as demand is not in back orders; on the other hand, Canada can leverage the situation and promote to attract buyers from the world according to Canadian's needs after surplus determination.

Below is the summary table of natural gas supply, demand and balance historic data comparing to forecasts for 2053 in Trillian Cubic Feet (Tcf).

Table 1: GIT Forecast Summary Table in Trillian Cubic Feet (Tcf)

	Natural Gas	History Data 2013	Forecast Results 2053
Canada	Resource	1,093	
	Supply	4.82	9.63
	Demand	4.80	9.60
	Balance	0.02	0.03
United States	Resource	2,688.5	
	Supply	25.70	40.23
	Demand	25.6	40.01
	Balance	0.10	0.23

The views, points and conclusions from the Report can be summarized as follows:

The gas resource base in Canada and North America is large in relation to the gas exports proposed by NewTimes.

Past trends in the discovery of gas in Canada and North America have been favorable and, based on published information about the geological resource and the expectation of continuing technical improvement, there is every reason to believe that future trends will continue to be so.

The gas supply outlook from Canadian and North American sources is robust and NewTimes should be able to acquire adequate quantities of gas regardless what are the commercial mechanisms (for example: equity gas, market purchases, long-term supply arrangements with others) used to obtain those quantities.

Production forecasts are necessarily based on assumptions which carry some uncertainties. However, the supply outlook presented here is a global one relating to very large and varied Canadian and North American gas resources rather than on specific local reserves and resources which increases GIT's confidence in them.

It is not expected that gas supply for Canada will be required from other global sources. Canada has the capability to import 1 Bcf/d by way of LNG. Seasonal-peak imports to serve local needs are a possibility but given the large price differentials between North American and global gas markets, differentials which are encouraging the development of Canadian LNG export potential, it is unlikely that there will be large-volume continuing base-load imports of LNG to meet Canadian gas requirements during the forecast period.

The industry has demonstrated remarkable technical progress, particularly in developing unconventional sources of gas which are going to be the predominant source of new supply as far ahead as one cares to look.

This technical progress can be expected to continue and the incremental cost of new production to replace LNG exported by NewTimes is likely to be low.

The gas supplies available to the Canadian market, which include supplies from the U.S., can easily accommodate reasonably foreseeable Canadian demand as well as the LNG exports proposed by NewTimes and a plausible potential increase in demand.

There is necessarily uncertainty regarding LNG exports from Canada over the term of the exports proposed by NewTimes. GIT's demand projections are based on the assumption that the total quantity of gas so far licensed by the Board being exported. The Board has received evidence in other licence applications which states that this is not likely. The Board in its Energy Future Report November 2013 assumes 3 Bcf/d by 2022. The Government of BC states that it is committed to having three LNG facilities in operation by 2020. The average size of the 12 projects licensed for export by the NEB is equivalent to 2 Bcf/d which would mean a total of 6 Bcf/d during the 2020s. Clearly the gas resource base and the supply of gas available to Canada are sufficient to meet the needs of the Canadian internal market and to supply gas for LNG across this range of potential exports. It is noted for perspective that the US Department of Energy, Fossil Energy, has been using advice from the EIA to "test" the effects of cumulative LNG exports of 6 and 12 Bcf/d on domestic energy markets.

Our prediction of gas export impact is $0.09 per MMBTU, which representing a 1.5% increase over the case without LNG exports with an assumption of gas price is $6.00. The projected impact is greatest near the export terminals but dissipates with distance away from Canadian customers. Given the projected price impact, it is highly unlikely that it would cause Canadian industry to be uncompetitive in global markets and lead to a loss of jobs. The N.A. has lower gas prices than most industrialized countries and is projected to continue to have lower gas prices, in part due to continued growth in shale gas production. An increase in gas price of less than 2% is unlikely to change the Canadian's competitiveness in global markets and is unlikely to cause Canadian difficulty to use natural gas.

Furthermore, even with exports, Canadian gas prices will be lower than those in the importing countries. Otherwise, export would be unprofitable. The high cost to construct a liquefaction plant plus the high transportation cost of a LNG tanker is estimated to require a spread of around more $4-6 to Asia in order to make LNG export profitable to those regions. Exporting LNG from Canada is being considered now because the price spreads from N.A. to the import regions are well above those levels. However, the key point is that even with LNG exports, the domestic customers have a built-in cost advantage for natural gas because of the cost differential, called tolling plus transportation cost.

Regional price differential exists due to the limited transportation capacity. Export cost would prevent prices from coupling. Even domestically, the same phenomena occur in N.A. during peak winter days when there are often big price differences between Henry Hub and New York City. Henry Hub price can be much cheaper than New York due to the transportation cost between the regions. Transportation

bottlenecks prevent Henry Hub's prices from rising along with New York City prices and cause these regions to surge. Exporting limited LNG would not mean that Henry Hub price would rise to the level of the import prices minus the tolling and transportation costs differential. So there is no unified world gas price, in contrast to the oil market in which there is a world oil price. Natural gas, unlike oil, is highly unlikely to ever have a world price. The cost of tolling and transportation is much higher for gas than it is for oil. Therefore, global gas markets will remain partially interconnected regional markets with prices within each region determined by regional supply and demand balances.

Historically, Henry Hub Natural Gas Spot prices are volatile, although there has been no LNG export. Comparing to other countries who have LNG exports, it shows they have less volatile than N.A. , so LNG export will not cause domestic gas price to be more volatile. Long term contracts are the key to keep gas price steady. As a matter of fact, LNG export industry is dominated by long term supply agreement. LNG exports will be anticipated by producers and supplies will be made available when they are needed. Prospective LNG exporters are usually lining up potential gas suppliers to provide gas for liquefaction before they invest to build LNG facilities and LNG carriers.

The capability and capacity of Canadian and North American gas production is strong and robust enough to meet the demand quickly and dynamically, thus the supply and demand will be well balanced based on the market.

Gas price will be affected rather slightly due to the well-balanced supply-demand and low cost production of unconventional gas and rapid response capability to the market demand, including export.

As exports can be planed, gas producers, pipeline players, and consumers can work on to mitigate the price impact. Producers will make more supplies available, pipeline flows will be adjusted, and consumers will react to price change resulting from LNG exports.

The cycle to build a LNG plant is much longer and much more challenge than to increase gas production, adjust pipeline flow and trigger consumer reaction, therefore, LNG export to affect domestic price is always a few steps behind.

Historical catastrophic event such as Tsunami in 2011 did not cause gas supply difficulty to LNG export countries, but to the LNG import counties, due to limitation of LNG production facility and the limitation of LNG transportation.

Finally, the Report demonstrates a forecast on gas supply, demand, price and their balance analysis for the period of 2016-2053 in summary. The related conclusions drawn from the Report is to support NewTimes' application for LNG export Licence for an annual amount up to 12 million tonnes from 2019 for a period of 25 years, with a ramp-up amount of LNG that may be exported, not to exceed 5 533 000 10^3 m^3 in 2019; not to exceed 11 670 000 10^3 m^3 in 2020; not to exceed 16 600 000 10^3 m^3 in 2021, with 15% tolerance allowed not to exceed as 6 363 000 10^3 m^3 in 2019; not to exceed 12 727 000 10^3 m^3 in 2020; not to exceed 19 090 000 10^3 m^3 in 2021.

Introduction

NewTimes Energy Ltd (NewTimes) is applying to the National Energy Board ("NEB") for a licence to export natural gas from Canada. NewTimes is proposing to build a LNG export facility ("Project") at a site near the Port of Prince Rupert, BC (the "Project"). The Project will export 16 600 000 10^3 m^3 of liquefied natural gas in any term of 12-month period (natural gas equivalent of approximately 12 million tonnes per year or 1.6 billion cubic feet per day (Bcf/d)) with 15% tolerance allowed to exceed.

The Report is prepared to support NewTimes' export application to satisfy the Board's Surplus Criterion in conformity with its Filing Requirements, Guild Q Export and Import Authorizations (Part VI of the NEB Act and Part VI Regulations) issued 28 August 2013, Release 2013-03., including:

> Filing Requirement #2:
> ***A description of gas supplies, including Canadian gas supply, expected to be available the Canadian market (including underlying assumptions) over the requested licence term***;
>
> Filing Requirement #3:
> ***A Description of expected gas requirements (demand) for Canada (including underlying assumptions) over the requested licence term;***

With the accompanying Implication report packaged and submitted with NewTimes' application as Appendix B, the Report also support to satisfy the file requirements according to the Guild Q:

> Filing Requirement #4:
> ***The implications of the proposed export volumes on the ability of Canadians to meet their gas requirements***.

The Report is also prepared to support NewTimes' export application and the accompanying Implication report that will satisfy the requirement of "***an assessment of the impact of the proposed exportation on Canadian energy and natural gas markets to determine whether Canadians are likely to have difficulty in meeting their energy requirements at fair market prices.***"[4] The report also supports a showing that the quantity of liquefied natural gas to be exported by NewTimes "***does not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada, having regard to the trends in the discovery of oil or gas in Canada***."[5]

[4] See National Energy Board Act Part VI (Oil and Gas) Regulations, Part II, Division I, Section 12 (g).
[5] Section 118 of the NEB Act, as quoted by the Board in its Letter Decision issuing a LNG export licence to LNG Canada Development Inc. on February 4, 2013 (File OF-EI-Gas-GL-L384-2012-01 01), at 3. The Board stated that the quoted material is what the Board is "legally mandated and authorized to consider" when assessing a gas export licence application.

For the above purpose, the Report consists of the following three parts:

Part A:

A description of gas supplies, including Canadian gas supply, expected to be available the Canadian market (including underlying assumptions) over the requested licence term (responds to Filing Requirement #2);

Part B:

A Description of expected gas requirements (demand) for Canada (including underlying assumptions) over the requested licence term (responds to Filing Requirement #3);

Part C:

Gas Supply and Demand Balance (responds to need to integrate the supply and demand Filing Requirements and reach a conclusion)

Forecast Methodology and Assumptions Overview

General Forecast Method

This report, in its simplest form, adopted a methodology for assessment of potential gas forecast which is derived by

1) Input historic data from trusted published sources such as NEB and EIA;
2) Estimate the volume of potential;
3) Multiply this volume by a yield factor;
4) Discount to allow for the probability.

A yield factor represents the quantity of gas expected to be from a given unit. It is calculated using data from known gas accumulations considered analogous to the prospective ones being evaluated. Yield is the volume of discovered gas (i.e., cumulative production plus proved reserves) divided by the volume containing the gas. The yield factor applied to any prospective area may be adjusted to accommodate variations appropriate to the prospective area.

Yield factors for High case (1) higher estimates of onshore tight oil, tight gas, and shale gas resources than in the Reference case, as a result of higher estimated ultimate recovery (EUR) per well and closer well spacing; (2) tight oil development; (3) higher estimates of offshore resources; and (4) higher rates of long-term technology improvement; Similar yield factors applied for low case and Reference case.

General Forecast Data

The following data from Canadian and U.S. governments was used for forecast modeling. Energy is a large economic sector which is closely watched and monitored by government and regulators resulting in a huge amount of available material on which we build the NewTimes' model for analysis and model input data. Sample data displayed here:

1) ***Data from NEB, Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035 - Appendices:***

Table 2: Canada Natural Gas Resources

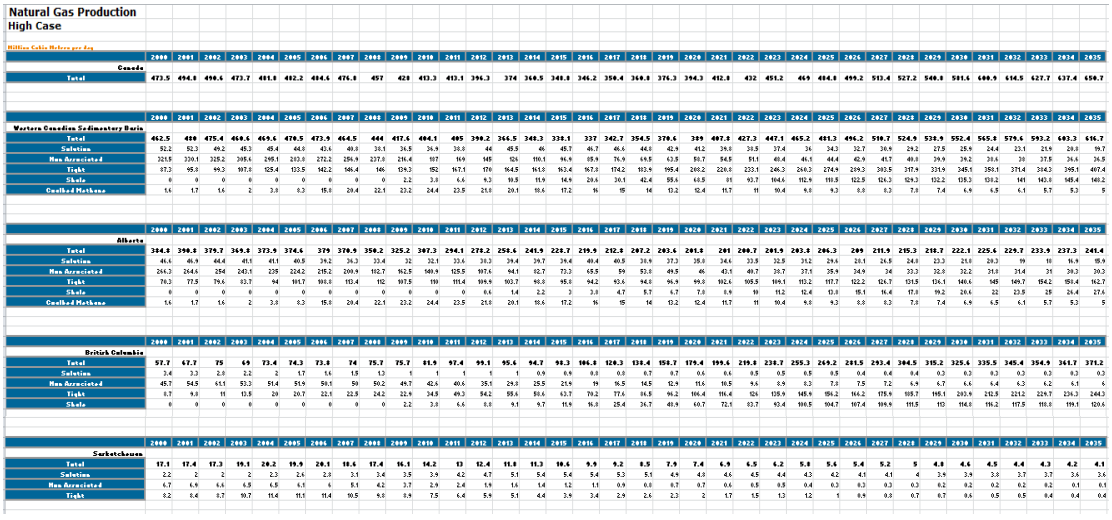
Natural Gas Resources

Estimates of technically and economically recoverable gas, as of Dec. 31, 2012.

Remaining Marketable Gas Resources by Case Billion cubic metres				Projected Cumulative Production 2013 to 2035 by Case		
	Reference	Low	High	Reference	Low	High
WCSB						
Conventional	17099	13565	26646	2201	1472	2730
Tight Gas Portion	15027	11478	24594	1764	1099	2248
Montney Tight Portion	12720	9926	20963	1095	619	1440
CBM	992	595	1501	86	79	90
Shale Gas	6300	4447	9557	659	473	777
Horn River Portion	2210	1728	2720	521	399	592
Sub Total	25698	18607	37704	4710	3124	5845
Ontario	28	28	28	2	2	2
Quebec	198	85	283	0	0	0
Maritimes Basin	28	28	28	0	0	0
Frontiers						
NS & NL	2550	2550	2550	34	34	34
Mackenzie-Beaufort	2153	2153	2153	2	2	74
Arctic Islands	1133	1133	1133	0	0	0
Other Frontiers	482	482	482	0	0	0
Sub Total	6317	6317	6317	37	37	109
Canada	30963	25066	44362	4749	3162	5955

Remaining Marketable Gas Resources by Case Trillions of cubic feet				Projected Cumulative Production 2013 to 2035 by Case		
	Reference	Low	High	Reference	Low	High
WCSB						
Conventional	604	479	941	78	52	96
Tight Gas Portion	530	405	868	62	39	79
Montney Tight Portion	449	350	740	39	22	51
CBM	35	21	53	3	3	3
Shale Gas	222	157	337	23	17	27
Horn River Portion	78	61	96	18	14	21
Sub Total	861	657	1331	166	110	206
Ontario	1	1	1	0	0	0
Quebec	7	3	10	0	0	0
Maritimes Basin	1	1	1	0	0	0
Frontiers						
NS & NL	90	90	90	1	1	1
Mackenzie-Beaufort	76	76	76	0	0	3
Arctic Islands	40	40	40	0	0	0
Other Frontiers	17	17	17	0	0	0
Sub Total	223	223	223	1	1	4
Canada	1093	885	1566	168	112	210

Table 3: Canada Natural Gas Production



Natural Gas Production
High Case

Billion Cubic Metres per day

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Canada																																				
Total	473.5	494.8	499.6	477.7	481.8	482.2	484.6	476.8	457	428	413.3	413.1	396.3	374	360.5	348.8	346.2	350.4	360.8	376.3	394.3	412.8	432	451.2	469	484.8	499.2	513.4	527.2	540.8	551.6	560.9	614.5	627.7	637.4	650.7

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Western Canadian Sedimentary Basin																																				
Total	462.5	488	475.4	460.6	469.6	470.5	473.9	464.5	444	417.4	404.1	405	390.2	364.5	348.3	338.1	337	342.7	354.5	370.6	389	407.8	427.3	447.1	465.2	481.3	496.2	510.7	524.9	538.9	552.4	565.8	579.6	593.2	603.3	616.7
Saltstone	52.2	52.3	49.2	45.3	45.4	44.8	43.6	40.8	38.1	34.5	34.9	38.8	44	45.5	46	45.7	46.7	46.6	44.8	42.9	41.2	39.8	38.5	37.4	36	34.3	32.7	30.9	29.2	27.5	25.9	24.4	23.1	21.9	20.8	19.7
Non Associated	203.5	220.1	228.2	205.6	249.1	263.8	272.2	284.9	277.8	276.4	197	169	148	126	110.1	94.9	85.9	76.9	69.8	62.8	59.7	54.8	51.1	48.4	46.1	44.4	42.9	41.7	40.8	39.9	39.2	38.6	38	37.8	36.4	36.8
Tight	87.2	95.9	96.2	107.8	125.4	123.5	142.2	146.4	146	134.2	152	167.1	170	164.5	161.8	163.4	167.8	174.2	192.9	199.4	209.2	220.6	233.1	246.2	264.3	274.9	289.3	303.5	317.9	331.9	345.1	359.1	371.4	384.2	395.1	407.4
Shale	0	0	0	0	0	0	0	0	0	2.2	3.8	6.6	9.3	16.8	11.9	14.9	29.6	34.1	42.4	55.6	68.8	81	92.7	104.6	112.9	119.8	122.5	124.3	124.3	132.2	135.3	134.2	141	143.4	148.4	148.2
Coalbed Methane	1.6	1.7	1.6	2	3.8	8.3	15.8	29.4	32.1	23.2	24.4	23.5	21.8	20.1	18.6	17.2	16	15	14	13.2	12.4	11.7	11	10.4	9.8	9.3	8.8	8.3	7.8	7.4	6.9	6.5	6.1	5.7	5.3	5

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Alberta																																				
Total	394.8	398.8	379.7	369.8	373.9	374.6	379	370.9	350.2	325.2	307.3	294.1	278.2	258.6	241.9	228.7	219.9	212.8	207.2	203.6	201.8	201	200.7	201.9	203.8	206.3	209	211.9	215.3	218.7	222.1	225.6	229.7	233.9	237.3	241.4
Saltstone	46.4	46.9	44.4	41.1	41.1	40.5	39.2	36.3	33.4	32	32.1	33.6	36.3	39.4	39.7	39.4	40.4	40.5	38.9	37.3	35.8	34.6	33.5	32.5	31.2	29.6	28.1	26.8	25.8	24.8	23.3	21.8	20.3	19	18	16.9	15.9
Non Associated	264.2	264.6	254	243.1	239	224.2	215.2	209.9	192.7	162.5	140.9	125.5	107.6	94.1	82.7	72.3	65.5	59	53.8	49.5	46	43.1	40.7	38.7	37.1	35.9	34.9	34	33.3	32.8	32.2	31.8	31.4	31	30.3	30.2
Tight	76.2	77.9	79.6	83.7	94	101.7	109.8	113.4	112	107.5	110	111.4	109.9	100.7	90.8	85.8	94.2	92.6	94.8	96.9	99.9	102.4	105.9	109.1	110.2	111.7	122.2	126.7	131.8	136.1	140.6	145	149.7	154.2	159.4	162.7
Shale	0	0	0	0	0	0	0	0	0	0	0	0	0.6	1.4	2.2	3	3.8	4.7	5.7	6.7	7.8	8.9	10	11.2	12.4	13.8	15.1	16.4	17.8	19.2	20.6	22	22.8	23	24.4	27.6
Coalbed Methane	1.6	1.7	1.6	2	3.8	8.3	15.8	29.4	32.1	23.2	24.4	23.5	21.8	20.1	18.6	17.2	16	15	14	13.2	12.4	11.7	11	10.4	9.8	9.3	8.8	8.3	7.8	7.4	6.9	6.5	6.1	5.7	5.3	5

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
British Columbia																																				
Total	57.7	67.7	75	69	73.4	74.3	73.8	74	75.7	75.7	81.9	97.4	99.1	95.6	94.7	98.3	106.8	120.3	138.4	158.7	179.4	199.6	219.8	238.7	255.3	269.2	281.5	293.4	304.5	315.2	325.6	335.5	345.4	354.9	361.7	371.2
Saltstone	3.4	3.3	2.8	2.2	2	1.7	1.6	1.5	1.3	1	1	1	1	1	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2
Non Associated	45.7	54.5	61.1	53.2	51.4	51.9	50.1	50	50.2	49.7	42.6	40.6	35.1	29.8	25.5	21.9	19	16.5	14.5	12.9	11.6	10.5	9.6	8.9	8.3	7.8	7.5	7.2	6.9	6.7	6.6	6.4	6.3	6.2	6.1	6
Tight	8.7	9.9	11	13.5	20	20.7	22.1	22.9	24.2	22.9	34.5	49.3	54.2	59.4	59.6	63.7	73.2	77.6	86.9	96.2	106.4	116.4	126	135.9	145.9	154.2	164.2	175.9	185.7	196.1	203.9	212.9	221.2	229.7	236.3	244.2
Shale	0	0	0	0	0	0	0	0	0	2.2	3.3	6.6	8.8	9.5	9.7	11.9	15.3	25.4	34.7	43.9	50.7	72.1	83.7	93.4	100.5	104.7	107.4	109.9	111.5	112	114.8	116.2	117.5	118.8	119.1	120.6

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Saskatchewan																																				
Total	17.1	17.4	17.3	19.1	20.2	19.9	20.1	18.6	17.4	16.1	14.2	13	12.4	11.9	11.3	10.6	9.9	9.2	8.5	7.9	7.4	6.9	6.5	6.2	5.9	5.6	5.4	5.2	5	4.8	4.6	4.5	4.4	4.3	4.2	4.1
Saltstone	2.2	2	2	2	2.3	2.6	2.8	3.1	3.4	3.5	3.9	4.2	4.7	5.1	5.4	5.6	5.4	5.3	5.1	4.9	4.8	4.6	4.5	4.4	4.3	4.2	4.1	4.1	4	3.9	3.9	3.8	3.7	3.7	3.6	3.6
Non Associated	6.7	6.9	6.6	6.8	6.8	6.1	6	5.1	4.2	3.7	2.9	2.4	1.9	1.6	1.4	1.2	1.1	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1
Tight	8.2	8.4	8.7	9.7	11.4	11.1	11.4	10.5	9.8	8.9	7.5	6.4	5.9	5.1	4.4	3.9	3.4	2.9	2.6	2.3	2	1.7	1.5	1.3	1.2	1	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.4

2) Data from US Energy Information Administration:

Table 4: U.S. Gas Production, Consumption and Price[6]

ref2014.d102413a

Report: Annual Energy Outlook 2014
Scenario: ref2014 — Reference case
Datekey: d102413a
Release Date: April 2014

13. Natural Gas Supply, Disposition, and Prices
(billion cubic feet, unless otherwise noted)

Supply, Disposition, and Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2040
Production																															
Dry Gas Production 1/	22.55	24.06	24.19	24.28	24.63	25.68	26.38	27.20	28.19	29.09	29.70	30.39	30.92	31.44	31.86	32.47	33.07	33.65	34.09	34.43	34.66	35.04	35.39	35.73	36.09	36.36	36.68	37.04	37.36	37.54	1.8%
Supplemental Natural Gas 2/	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.0%
Net Imports	1.96	1.51	1.34	1.35	1.08	0.76	0.60	-0.66	-1.40	-1.93	-2.30	-2.49	-2.88	-3.19	-3.41	-3.74	-4.11	-4.45	-4.76	-4.94	-5.04	-5.24	-5.34	-5.41	-5.53	-5.62	-5.68	-5.76	-5.85	-5.80	--
Pipeline 3/	1.68	1.37	1.22	1.21	1.05	0.92	0.84	0.45	0.22	0.00	-0.13	-0.32	-0.51	-0.62	-0.84	-0.97	-1.18	-1.28	-1.42	-1.57	-1.67	-1.87	-1.97	-2.04	-2.16	-2.25	-2.31	-2.39	-2.48	-2.43	--
Liquefied Natural Gas	0.28	0.15	0.12	0.14	0.04	-0.16	-0.61	-1.11	-1.62	-1.93	-2.17	-2.17	-2.37	-2.57	-2.57	-2.77	-2.97	-3.17	-3.35	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	--
Total Supply	**24.57**	**25.64**	**25.59**	**25.63**	**25.78**	**26.50**	**26.47**	**26.61**	**26.85**	**27.23**	**27.47**	**27.77**	**28.11**	**28.31**	**28.52**	**28.79**	**29.02**	**29.27**	**29.39**	**29.56**	**29.69**	**29.86**	**30.12**	**30.38**	**30.63**	**30.88**	**31.06**	**31.34**	**31.57**	**31.81**	**0.8%**
Consumption by Sector																															
Residential	4.71	4.17	4.81	4.67	4.50	4.51	4.51	4.49	4.47	4.46	4.45	4.44	4.43	4.42	4.40	4.39	4.38	4.37	4.35	4.33	4.31	4.30	4.28	4.25	4.23	4.20	4.18	4.16	4.14	4.12	0.0%
Commercial	3.16	2.90	3.19	3.16	3.11	3.13	3.15	3.15	3.15	3.16	3.18	3.19	3.20	3.21	3.22	3.23	3.25	3.26	3.27	3.28	3.30	3.32	3.35	3.38	3.40	3.43	3.46	3.50	3.54	3.57	0.7%
Industrial 4/	6.90	7.14	7.35	7.40	7.70	7.83	7.91	7.93	7.99	8.09	8.16	8.25	8.31	8.36	8.41	8.45	8.50	8.53	8.52	8.52	8.54	8.56	8.57	8.58	8.59	8.60	8.63	8.66	8.68	8.68	0.2%
Natural Gas-to-Liquids Heat and Power 5/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural Gas-to-Liquids Production 6/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electric Power 7/	7.56	9.25	8.13	7.79	8.04	8.68	8.48	8.52	8.62	8.81	8.90	9.08	9.28	9.37	9.49	9.65	9.76	9.89	9.96	10.06	10.12	10.20	10.35	10.53	10.67	10.75	10.87	11.00	11.11	11.23	0.7%
Transportation 8/	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.21	0.24	0.26	0.31	0.35	0.39	0.43	0.48	0.55	0.62	0.69	0.76	0.85	11.23	
Pipeline Fuel	0.68	0.72	0.71	0.71	0.69	0.68	0.69	0.70	0.71	0.73	0.73	0.74	0.74	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.81	0.81	0.81	0.82	0.81	0.82	0.82	0.82	0.83	0.5%
Lease and Plant Fuel 9/	1.32	1.42	1.40	1.41	1.40	1.44	1.50	1.53	1.57	1.74	1.79	1.81	1.87	1.92	1.95	1.98	2.02	2.05	2.08	2.11	2.13	2.16	2.19	2.22	2.24	2.27	2.30	2.32	2.34	2.35	1.0%
Total	**24.38**	**25.64**	**25.65**	**25.29**	**25.51**	**26.33**	**26.31**	**26.44**	**26.88**	**27.06**	**27.38**	**27.68**	**27.94**	**28.14**	**28.35**	**28.63**	**28.86**	**29.10**	**29.22**	**29.39**	**29.52**	**29.69**	**29.94**	**30.20**	**30.44**	**30.62**	**30.88**	**31.15**	**31.38**	**31.63**	**0.8%**
Discrepancy 10/	0.19	0.00	-0.07	0.49	0.27	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.18	--
Natural Gas Prices																															
Henry Hub Spot Price																															
(2012 dollars per million Btu)	4.07	2.75	3.69	3.74	3.74	4.14	4.49	4.89	4.66	4.38	4.67	4.82	4.96	5.12	5.23	5.36	5.49	5.59	5.78	6.00	6.17	6.36	6.59	6.74	6.92	7.16	7.23	7.26	7.42	7.65	2.7%
(nominal dollars per million Btu)	4.00	2.75	3.66	3.86	3.93	4.41	4.76	5.27	5.19	4.96	5.37	5.64	5.90	6.20	6.45	6.72	7.00	7.26	7.63	8.12	8.47	8.91	9.41	9.83	10.31	10.93	11.23	11.53	12.04	12.69	5.6%
Delivered Prices																															
(2012 dollars per thousand cubic feet)																															
Residential	11.22	10.69	10.62	11.44	11.24	10.92	11.25	11.71	11.88	11.85	12.06	12.16	12.32	12.58	12.75	12.86	13.00	13.18	13.47	13.80	13.95	14.01	14.25	14.65	14.93	15.32	15.49	15.62	15.96	16.33	1.5%
Commercial	9.16	8.29	8.49	9.29	9.11	8.91	9.21	9.62	9.76	9.70	9.90	9.97	10.12	10.35	10.51	10.61	10.73	10.89	11.15	11.44	11.54	11.73	12.01	12.22	12.53	12.64	12.73	13.04	13.37	1.7%	
Industrial 4/	5.21	3.85	4.70	4.91	5.05	5.26	5.55	5.97	6.08	5.92	6.07	6.09	6.19	6.36	6.46	6.50	6.57	6.68	6.88	7.14	7.26	7.38	7.58	7.74	7.93	8.22	8.27	8.31	8.52	8.78	3.0%
Electric Power 7/	4.90	3.51	4.42	4.57	4.53	4.57	4.79	5.07	5.29	5.35	5.36	5.41	5.54	5.75	5.88	5.94	6.04	6.16	6.28	6.44	6.76	6.97	7.09	7.25	7.45	7.74	7.90	7.95	8.07	8.24	3.1%
Transportation 8/	16.25	14.96	15.79	15.84	15.98	16.07	16.15	16.24	16.26	15.96	15.97	15.97	15.85	15.77	15.67	15.91	15.89	15.94	16.26	16.60	16.99	17.20	17.35	17.67	18.14	18.49	18.99	19.21	19.36	19.68	20.10	1.5%
Average 12/	6.98	5.50	6.25	6.74	6.63	6.57	6.86	7.26	7.38	7.25	7.41	7.45	7.56	7.76	7.89	7.94	8.03	8.16	8.40	8.68	8.80	8.90	9.11	9.33	9.54	9.87	9.96	10.04	10.30	10.61	2.4%
(nominal dollars per thousand cubic feet)																															
Residential	11.02	10.69	10.77	11.60	11.60	11.64	12.07	12.65	13.25	13.42	13.69	14.23	14.67	15.23	15.70	16.11	16.57	17.11	17.90	18.59	19.25	19.83	20.37	21.06	22.22	23.20	24.07	24.79	25.69	27.07	3.4%
Commercial	9.00	8.29	8.62	9.60	9.57	9.59	9.95	10.56	10.88	10.99	11.29	11.67	12.04	12.53	12.95	13.29	13.68	14.13	14.73	15.40	15.95	16.36	16.77	17.52	18.20	19.07	19.64	20.21	21.15	22.16	3.8%
Industrial 4/	5.11	3.85	4.77	5.07	5.30	5.61	6.00	6.56	6.78	6.70	6.98	7.12	7.36	7.71	7.96	8.14	8.38	8.66	9.10	9.62	9.97	10.34	10.84	11.29	11.81	12.51	12.86	13.19	13.82	14.56	4.3%
Electric Power 7/	4.90	3.51	4.48	4.72	4.75	4.87	5.18	5.68	5.90	5.87	6.17	6.33	6.59	6.96	7.25	7.45	7.69	7.99	8.43	8.93	9.28	9.63	10.12	10.57	11.09	11.77	12.12	12.46	13.09	13.82	5.0%
Transportation 8/	15.97	14.96	15.82	16.37	16.77	17.13	17.47	17.94	18.13	18.08	18.38	18.55	18.77	19.22	19.60	19.92	20.32	21.00	21.94	22.97	23.61	24.30	25.25	26.47	27.54	28.90	29.85	30.73	31.92	33.33	2.9%
Average 12/	6.86	5.50	6.44	6.97	6.96	7.09	7.41	7.87	8.22	8.21	8.54	8.72	9.00	9.40	9.71	9.95	10.24	10.60	11.10	11.68	12.09	12.47	13.02	13.61	14.21	15.01	15.49	15.94	16.71	17.59	4.2%

Forecast Key Assumptions

1) GDP Growth Assumption

Here is the projection of GDP growth Assumption by Congressional Budget Office:

Table 5: Projection of GDP growth Assumption by Congressional Budget

CBO's Economic Projections for Calendar Years 2014 to 2024

	Estimated, 2013	Forecast				Projected Annual Average, 2018-2024
		2014	2015	2016	2017	
	Fourth Quarter to Fourth Quarter (Percentage change)					
Gross Domestic Product						
Real	2.1	3.1	3.4	3.4	2.7	2.2
Nominal	3.5	4.7	5.2	5.3	4.7	4.2

Following the year of 2024 to extend the outlook beyond the last year of the CBO report[7], GIT makes a key assumption that the final year GDP of 2.2 percent will be continued to the end of the forecast period 2053 where energy export will make a great contribution.

[6] U.S. Energy Information Administration (EIA), http://www.eia.gov/dnav/ng/hist_xls/N9050US2a.xls; http://www.eia.gov/forecasts/aeo/excel/aeotab_13.xlsx

[7] Congressional Budget Office: http://www.cbo.gov/sites/default/files/cbofiles/attachments/45010-breakout-Chapter2.pdf

Table 6: Key Assumptions in CBO's Projection of Potential GDP

Key Assumptions in CBO's Projection of Potential GDP

(By calendar year, in percent)

	Average Annual Growth						Projected Average Annual Growth		
	1950-1973	1974-1981	1982-1990	1991-2001	2002-2013	Total, 1950-2013	2014-2017	2018-2024	Total, 2014-2024
Overall Economy									
Potential GDP	4.0	3.3	3.2	3.2	2.2	3.3	2.0	2.2	2.1
Potential Labor Force	1.6	2.5	1.6	1.3	0.8	1.5	0.6	0.5	0.5
Potential Labor Force Productivity[a]	2.4	0.8	1.5	1.9	1.5	1.8	1.4	1.7	1.6
Nonfarm Business Sector									
Potential GDP	4.0	3.7	3.3	3.6	2.5	3.5	2.4	2.6	2.5
Potential Hours Worked	1.4	2.4	1.6	1.2	0.5	1.3	0.5	0.6	0.6
Capital Services	3.9	4.1	4.0	4.3	2.5	3.8	2.9	3.2	3.1
Potential TFP	1.9	0.8	1.0	1.4	1.5	1.5	1.2	1.2	1.2
Potential TFP excluding adjustments	1.9	0.8	1.0	1.4	1.2	1.4	1.2	1.2	1.2
Adjustments to TFP (Percentage points)[b]	0	0	0	0.1	0.2	*	**	0	**
Contributions to the Growth of Potential GDP (Percentage points)									
Potential hours worked	0.9	1.7	1.1	0.9	0.3	0.9	0.4	0.4	0.4
Capital input	1.2	1.2	1.2	1.3	0.8	1.1	0.9	1.0	0.9
Potential TFP	1.9	0.8	1.0	1.4	1.5	1.5	1.2	1.2	1.2
Total Contributions	4.0	3.7	3.3	3.6	2.5	3.5	2.4	2.6	2.5
Potential Labor Productivity[c]	2.7	1.3	1.7	2.4	2.1	2.2	1.9	2.0	2.0

Source: Congressional Budget Office.

Projection by TD bank for U.S. and Canada has similar results of economic growth rates[8].

Table 7: Key Assumption of Economic Growth extended by GIT

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024 ~ 2053
4.15%	4.19%	3.87%	2.76%	2.49%	2.38%	2.25%	2.18%	2.19%	2.20%

The strength of the economy will influence natural gas markets greatly. During periods of economic growth, the increased demand for goods and services from the commercial and industrial sectors generates an increase in natural gas demand. The increased demand can lead to increased production and higher prices. Declining or weak economic growth tends to have the opposite effect.

2) Oil Price Assumption

Oil Future price from US Energy Information Administration historic data[9]:

[8] TD bank, TD Economics, http://www.td.com/document/PDF/economics/qef/long_term_dec2014.pdf

Figure 1: Oil Future Price From US Energy Information Administration Historic Data

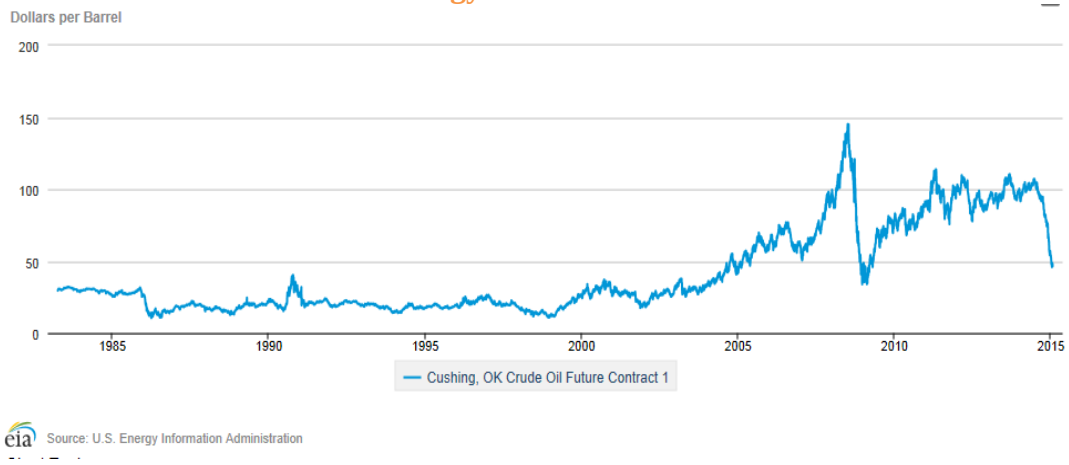


Table 8: Oil Future price from U.S. Energy Information and Natural Resources Canada[10]

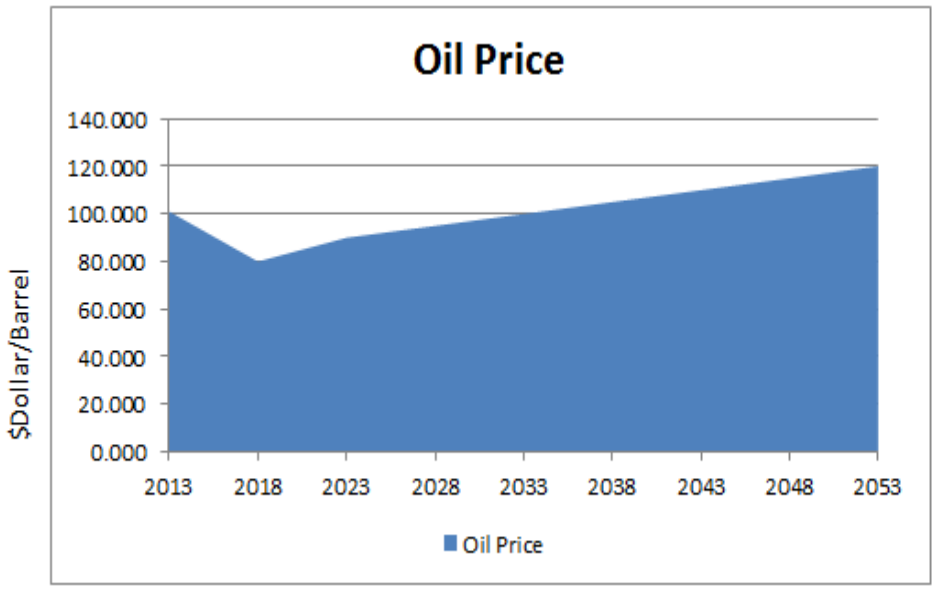
Long-Term Projections of World Oil Prices
(Constant 2008 Dollars Per Barrel)

Reference (unless indicated)	2015	2020	2025	2030
High Price Case 2010 U.S. EIA AEO - Reference Low Price Case	$144.72 $94.52 $51.48	$185.51 $108.28 $51.90	$196.51 $115.09 $52.02	$203.90 $123.50 $51.90
High Price Case NEB - Reference Low Price Case	$116.98 $85.30 $56.98	$121.16 $89.60 $61.16	N/A	N/A
Deutsche Bank - Reference	$93.18	$105.81	$114.65	$121.16
INFORUM - Reference	$92.50	$107.98	$109.74	$116.81
IEA Reference	$86.67	$100.00	$107.50	$115.00
IEA 450 Scenario	$86.67	$90.00	$90.00	$90.00
IHS Global Insight - Reference	$85.07	$81.93	$74.86	$77.27
Energy Venture Analysis - Reference	$80.35	$84.45	$90.98	$100.45
Energy SEER - Reference Energy SEER - Multi-Dimensional	$79.20 $99.03	$74.31 $101.52	$69.73 $105.81	$65.43 $113.19
Average Reference Cases	**$87.27**	**$94.10**	**$96.57**	**$101.20**
Source: U.S. Energy Information and Natural Resources Canada				
Oil prices converted into constant 2008 dollars.				

[9] U.S. Energy Information Administration (EIA), http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=RCLC1&f=D
[10] U.S. Energy Information and Natural Resources Canada , http://www.nrcan.gc.ca/energy/publications/markets/6511

Oil future price assumption by GIT in this report is going to use this above Average Reference Cases and extending to 2053. With the shale oil and gas available, Canada and North America enters a new age of energy abundance, crude oil will be stabled during the Project period with an average increase rate of 1%:

Figure 2: Oil Future Price Assumption by GIT



3) Weather Condition Assumption

Weather condition is factor for energy use. Cold weather will use more natural gas for heating. Hot weather will use more electricity for air condition, which depends on if power generation is gas based or others energy source.

Our assumption here does not use weather as a major factor, because long term weather forecast is very difficult and normal not very accurate.

Hurricanes and other severe weather can affect the supply of natural gas. For example, in the summer of 2005, hurricanes along the U.S. Gulf Coast shut down about 4% of total U.S. production between August 2005 and June 2006.

During cold months, residential, and commercial end users consume natural gas for heating, which places upward pressure on prices as demand increases. If unexpected or severe weather occurs, the effect on prices intensifies because supply is often unable to react quickly to short-term increases in demand. The effects of weather on natural gas prices may be exacerbated if the natural gas transportation system is already operating at full capacity. Under these conditions, prices tend to increase, which reduces overall demand for natural gas. Natural gas supplies that were placed in storage during periods of lesser demand may be used to cushion the impact of high demand during inclement weather.

Temperatures can also have an effect on prices during the cooling season. About 30% of U.S. electricity is generated by natural gas. Warmer than normal temperatures can increase the demand for air conditioning which increases the power sector's demand for natural gas and can lead to increased prices.

4) Catastrophic events Assumption

Catastrophic events are not considered here as a factor for the modeling, but some analysis will be discussed in the section C.2.4 and other parts of this report.

5) Other Assumptions

Variations in the amount of natural gas being produced:

> Unplanned gas production and lack of long-term supply-demand agreement will cause gas supply and demand unbalanced.

The unexpected volume of gas being imported and/or exported:

> Unexpected gas being imported or exported will interrupt the balance or plans made by producers and consumers.

The amount of gas in storage facilities:

> The overall supply picture is also influenced by the level of natural gas held in underground storage fields. During the heating season, natural gas in storage is a critical supply component. Natural gas in storage helps satisfy sudden shifts in supply and demand, helps accommodate stable production rates, and helps support pipeline operations and hub services. Levels of natural gas in storage typically increase during the refill season when demand for natural gas is low, and decrease during the heating season when space heating demand for natural gas is high. Natural gas in storage represents a source of supply immediately available to the market. This can counteract the effects of sudden increases in demand for natural gas, or counteract supply disruptions that cause demand to exceed supply and lead to higher prices.

Competition with other fuels:

> Large-volume gas consumers (primarily industrial consumers and the electricity generation fleet) can switch between natural gas, coal, and oil, depending on the prices of each fuel.

Part A: Supply - A description of gas supply, including Canadian gas supply, expected to be available the Canadian market (including underlying assumptions) over the requested licence term (responds to Filing Requirement #2)

A.1 Natural Gas Resource in North America

Technological advancements in natural gas drilling and well completion methods contributed largely to this gas revolution to reverse the North American energy landscape. Specifically, it is the combination of extended reach horizontal drilling, multi-stage hydraulic fracturing and pad drilling that makes it happen for producers to recover gas from areas that were previously thought to be technically impossible or not profitable. These technologies have largely been applied in deep shale and tight gas plays with little or no previous development. Extended reach horizontal drilling entails drilling down vertically, possibly to depths of two thousand metres or more, and then drilling horizontally within the target formation for considerable distances. As technology has progressed, the length of horizontal legs being drilled has increased. Future technology could increase well productivity while reducing costs. This has led to incredible increase in available oil and gas—known as "unconventional"— that are now recoverable in North America.

Tight gas refers to gas produced from low-permeability sandstone, siltstone, and carbonate reservoirs in this report. Tight gas reservoirs will typically not have sufficient natural pathways through the rock for natural gas to successfully flow to the wellbore in vertical wells. Therefore, they require some form of artificial stimulation to create pathways, such as hydraulic fracturing, or horizontal drilling to connect as many natural fractures as possible, or a combination.

The authoritative Potential Gas Committee (PGC) at the Colorado School of Mines completed its biennial resource evaluation in 2010, it indicated that total natural gas resources in the United States were at their highest level in the Committee's 46-year history (the PGC's estimates of total U.S. resources—2.17 quadrillion cubic feet— is slightly more conservative although this still represents a century supply of domestic natural gas.)[11].

A.1.1 Natural Gas Resource in Canada

Canada has an estimated 573 Tcf of technically recoverable shale gas resources, according to an updated assessment prepared by EIA12; Canada's technically recoverable Marketable Gas Resources was 1093

[11] Potential Gas Committee http://potentialgas.org/download/pgc-brochure-2013.pdf
[12] U.S. EIA, http://www.eia.gov/countries/cab.cfm?fips=ca

Tcf[13]; an estimate from NEB's report which increased its 2011 estimate of Canada's remaining marketable gas resources by 65 percent, from 664 Tcf.

Table 9: Remaining Marketable Natural Gas Resources, as of 31 December 2012

	WCSB(a)	West Coast	Northern Canada	Ontario and Quebec	East Coast	Canada
BCM	24 390	482	3 286	227	2 578	30 963
Tcf	861	17	116	8	91	1093

This large growth is due to the new technology of Hydraulic fracturing and horizontal drilling to recover shale gas and tight gas. It is the primary reason for the increasingly healthy view of Canadian recoverable gas resources. Most of Canada's natural gas resources to date have been found in WCSB including British Columbia, Alberta, and Saskatchewan, as well as offshore Nova Scotia and Newfoundland.

Western Canada Sedimentary Basin (WCSB)

Most of Canada's production is in the Western Canada Sedimentary Basin. The advanced application of hydraulic fracturing and horizontal drilling is unlocking new sources of gas increasingly, including shale and coalbed methane. Technically recoverable gas in shale exceeds 388 trillion cubic feet.

Horn River

The Horn River play is the largest source, which covers parts of British Columbia and the Northwest Territories. Horn River is the second largest source with an estimated of 132 trillion cubic feet of technically recoverable gas.

Montney Shale

Montney Shale located in British Columbia and western Alberta, just south of the Horn River play is another source of shale gas in Canada with an estimated 222 trillion cubic feet of natural gas, of which about 69 trillion cubic feet is technically recoverable..

CBM

Canada also has coalbed methane in Alberta with an estimated 500 trillion cubic feet of CBM resources in the southern portion of the province, or Horseshoe Canyon region.

Offshore

Offshore, Sable Island Offshore Energy Project is the largest gas production site, producing about 500 million cubic feet per day. Canada also has more than 40 trillion cubic feet of accessible gas offshore.

[13] Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035 https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2013/ppndcs/pxgsprdctn-eng.html and - Appendices, https://www.neb-one.gc.ca/nrg/sttstc/ntrlgs/stt/mrktblntrlgsprdctn2014.xls

A.1.2 Natural Gas Resource in U.S.

The total amount of natural gas that is recoverable in North America is approximately 4.2 quadrillion (4,244 trillion)[14] cubic feet, while U.S. consumption is currently about 26.131 trillion cubic feet[15] per year. Total recoverable gas resources in the United States are astounding: 2.7 quadrillion (2,688.5 trillion cubic feet)[16].

This is enough gas to provide the United States with 100 years of natural gas at current rates of consumption, or with electricity alone for 520 years at current natural gas generation levels or for residential use only for 864 years at current usage rates.

Table 10: Data from US Energy Information Administration

Supply, disposition, and prices	Reference case							Annual growth 2012-2040 (percent)
	2011	2012	2020	2025	2030	2035	2040	
Supply								
Dry gas production[1]	22.55	24.06	29.09	31.86	34.43	36.09	37.54	1.6%
Supplemental natural gas[2]	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.1%
Net imports	1.96	1.51	-1.93	-3.41	-4.94	-5.53	-5.80	--
Pipeline[3]	1.68	1.37	0.00	-0.84	-1.57	-2.16	-2.43	--
Liquefied natural gas	0.28	0.15	-1.93	-2.57	-3.37	-3.37	-3.37	--
Total supply	**24.57**	**25.64**	**27.23**	**28.52**	**29.56**	**30.63**	**31.81**	**0.8%**
Consumption by sector								
Residential	4.71	4.17	4.46	4.40	4.33	4.23	4.12	0.0%
Commercial	3.16	2.90	3.16	3.22	3.28	3.40	3.57	0.7%
Industrial[4]	6.90	7.14	8.09	8.41	8.52	8.59	8.68	0.7%
Natural-gas-to-liquids heat and power[5]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural gas to liquids production[6]	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electric power[7]	7.56	9.25	8.81	9.49	10.06	10.67	11.23	0.7%
Transportation[8]	0.04	0.04	0.08	0.14	0.28	0.48	0.85	11.3%
Pipeline fuel	0.68	0.72	0.73	0.75	0.80	0.82	0.83	0.5%
Lease and plant fuel[9]	1.32	1.42	1.74	1.95	2.11	2.24	2.35	1.8%
Total consumption	**24.38**	**25.64**	**27.06**	**28.35**	**29.39**	**30.44**	**31.63**	**0.8%**
Discrepancy[10]	**0.19**	**0.00**	**0.17**	**0.17**	**0.17**	**0.19**	**0.18**	--

Source: US Energy Information Administration[17]

Barnett Shale

The Barnett Shale in north Texas has been and continues to be one of the most productive, especially in recent years among the many shale gas fields in the United States with annual production in Barnett

[14] Institute for Energy Research: http://www.energyforamerica.org/wp-content/uploads/2012/06/Energy-InventoryFINAL.pdf; (Energy Information Administration, Assumptions to the Annual Energy Outlook 2011, April2011, http://www.eia.gov/oiaf/aeo/assumption/oil_gas.html, http://www.eia.gov/analysis/studies/usshalegas/pdf/usshaleplays.pdf, U. S. Geological Survey, http://www.usgs.gov/newsroom/article.asp?ID=2893&from=rss_home, USGS, Circum-Arctic Resource Appraisal, Estimates of Undiscovered Oil and Gas North of the Arctic Circle, http://pubs.usgs.gov/fs/2008/3049/fs2008-3049.pdf; USGS, Natural Gas Hydrates-Vast Resource, Uncertain Future, http://pubs.usgs.gov/fs/fs021-01/fs021-01.pdf, Natural Gas Market Outlook, http://www.energia.gob.mx/res/PE_y_DT/pub/NG%20Outlook%202007-2017.pdf)

[15] US EIA: http://www.eia.gov/totalenergy/data/monthly/pdf/sec4_3.pdf and http://www.eia.gov/totalenergy/data/monthly/pdf/sec4_5.pdf

[16] Potential Gas Committee: http://potentialgas.org/press-release

[17] Energy Information Administration, http://www.eia.gov/forecasts/aeo/pdf/0383(2014).pdf

exceeding 1,800 billion cubic feet in 2010, almost a five-fold increase over production levels just five years before, and more than 160 times as much as was produced less than two decades earlier in 1993.

Haynesville Shale

Haynesville is the largest producing onshore gas field in the United States with both fields producing between more than 6 billion cubic feet per day. It is across parts of northern Louisiana, east Texas, and southern Arkansas. Growth in the Haynesville has also been significant recently.

Marcellus Shale

The Marcellus Shale has more than 500 trillion cubic feet of natural gas, according to geologists at Penn State University—making it potentially the second largest natural gas field in the entire world located across from West Virginia through Pennsylvania and into New York. It has more than the proved oil reserves of Russia in MMBTU and over 4 times as much energy as US's own proved reserves. Much of the recent development in the Marcellus has been in Pennsylvania, where production has grown significantly in the past two years. Currently, operators are producing more than 3.2 billion cubic feet of natural gas each day. By 2020, geologists at Penn State predict that Pennsylvania alone will produce as much as 13.5 billion cubic feet of natural gas a day, or near five trillion cubic feet per year. Pennsylvania would rank as the most prolific gas-producing state in the nation, only behind Texas

CBM

CBM will certainly be a significant source of unconventional natural gas found in seams of underground coal, also known as coalbed methane (CBM). When coal forms underground over millions of years, the process also generates large quantities of methane, which remains locked in the coal formations. For decades this gas was a risk involved in coal production, but now—due to advancements in technology—companies are able to extract CBM itself in large quantities. The United States has an estimated 1.5 quadrillion (1,499 trillion) cubic feet of in-place coalbed methane resources, and the U.S. Geological Survey has estimated that Alaska alone could hold as much as one quadrillion cubic feet of coalbed methane due to its enormous resources of coal in the ground.

Overall

Overall, when conventional and unconventional sources are combined, Texas has the largest proved onshore natural gas reserves in the United States with 80 trillion cubic feet. Wyoming is the second largest with more than 35 trillion cubic feet, followed by Colorado (23 trillion cubic feet), Oklahoma (22.7 trillion cubic feet), and Louisiana (20.7 trillion cubic feet).

A.1.3 Natural Gas Resources in Mexico

Mexico has about 17.224 trillion cubic feet of proved reserves, but more than 740 trillion cubic feet in technically recoverable resources in 2013[18]. Of this recoverable natural gas, 681 trillion cubic feet is in shale[19], which remains largely untapped in Mexico.

A.2 Natural Gas Reserves

With the total amount of recoverable natural gas is greater, proved reserves of natural gas throughout North America are abundant.

Natural gas proved reserves in North America by US Energy Information Administration is listed as below:[20]

Table 11: Proved Reserves of Natural Gas (Trillion Cubic Feet)

	2010	2011	2012	2013
North America	374.161	378.541	412.387	393.826
Canada	61.950	61.950	61.004	68.166
US	272.509	304.625	334.067	308.436
Mexico	12.702	11.966	17.316	17.224

A.2.1 Natural Gas Reserves in Canada

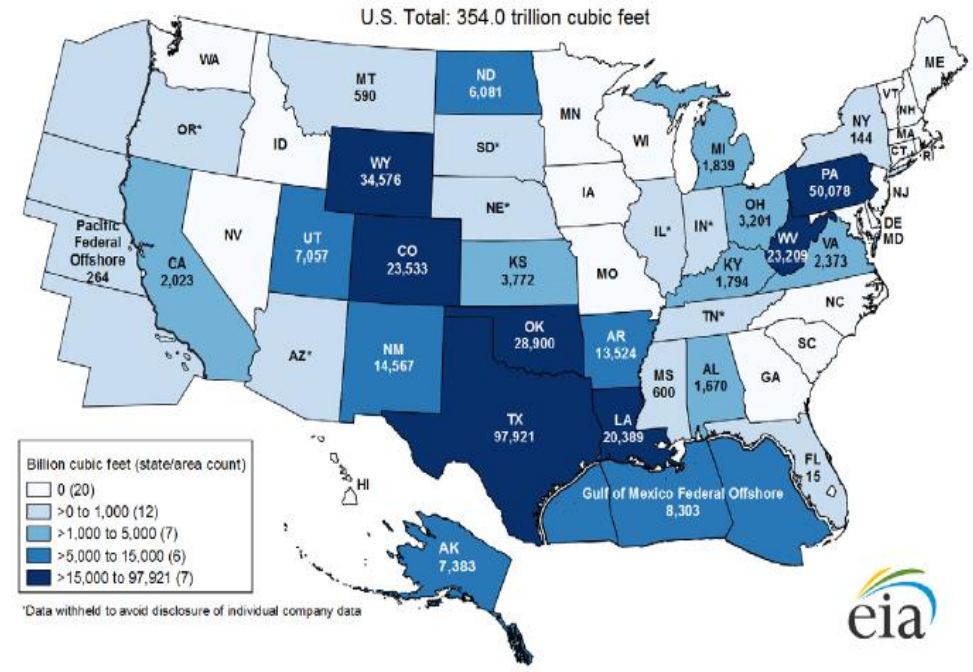
Canada proved reserves are just over 68.166 trillion cubic feet in 2013

A.2.2 Natural Gas Reserves in U.S.

The EIA estimates that the United States has 308.436 trillion cubic feet of natural gas, but these are proved reserves and not total recoverable resources.

[18] Mexico, http://www.energia.gob.mx/res/PE_y_DT/pub/NG%20Outlook%202007-2017.pdf
[19] Energy Information Administration, World Shale Gas Resources: An Initial Assessment of 14 Regions Outside the United States, April 5, 2011, http://www.eia.gov/analysis/studies/worldshalegas/
[20] Energy Information Administration, http://www.eia.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=3&pid=3&aid=6

Figure 3: US Natural Gas Reserve by States[21]



Source: U.S. Energy Information Administration, Form EIA-23L, Annual Survey of Domestic Oil and Gas Reserves.

Table 12: US Proved Gas Reserve

billion cubic feet

		Changes in reserves during 2013									
State and subdivision	Published Proved Reserves 12/31/12	Adjustments (+,-)	Revision Increases (+)	Revision Decreases (-)	Sales (-)	Acquisition (+)	Extension (+)	New Field Discoveries (+)	New Reservoir Discoveries in Oil Fields (+)	Estimated Production (-)	Proved Reserves 12/31/13
Utah	7,775	-576	500	458	494	661	121	0	0	472	7,057
Virginia	2,579	-9	137	271	1	0	80	0	0	142	2,373
West Virginia	14,881	-561	2,161	2,597	48	0	10,019	96	0	742	23,209
Wyoming	31,636	1,433	3,909	1,787	715	698	1,440	0	11	2,049	34,576
Federal Offshore[a]	9,853	148	1,375	1,377	1,079	464	271	88	77	1,253	8,567
Pacific (California)	652	14	6	387	11	11	0	0	0	21	264
Gulf of Mexico (Louisiana)[a]	7,704	17	1,066	827	891	381	184	88	59	986	6,795
Gulf of Mexico (Texas)	1,497	117	303	163	177	72	87	0	18	246	1,508
Miscellaneous[b]	233	-7	27	58	0	0	6	0	0	13	188
U.S. Total	322,670	693	49,515	46,721	10,186	11,473	51,074	263	1,680	26,467	353,994

[a] Includes federal offshore Alabama.
[b] Includes Arizona, Illinois, Indiana, Maryland, Missouri, Nebraska, Nevada, Oregon, South Dakota, and Tennessee.

A.3 Natural Gas Supply

[21] US Energy Information Administration, http://www.eia.gov/naturalgas/crudeoilreserves/pdf/uscrudeoil.pdf

As technology has progressed, the length of horizontal legs being drilled has increased. Prospects for production from tight oil and shale gas resources are uncertain, both because large portions of the formations have little or no production history, and because future technology could increase well productivity while reducing costs. Increased natural gas production would meet most demand from added LNG exports[22].

Canada is currently the world's fifth largest producer of natural gas, with average production exceeding five trillion cubic feet per year[23]. Most of Canada's production (75 percent) is in the Western Canada Sedimentary Basin[24]. The increasing application of hydraulic fracturing and horizontal drilling is unlocking new sources of gas, including shale and coalbed methane.

A.3.1 Natural Gas Supply in Canada

Canada is currently the world's fifth largest producer of natural gas, with average production exceeding five trillion cubic feet per year.

Data from Canadian National Energy Board

The WCSB continues to see production increases in tight and shale gas and declines in non-tight conventional and CBM production. Montney production, as well as some other tight production, can include significant volumes of NGLs. NGL prices are typically linked to oil prices and can generate additional revenues to improve the production economics. Natural gas production increases from the Montney formation from B.C. and in Alberta. The Alberta Deep Basin region currently produces large amounts of tight gas, and this continues. Canadian marketable natural gas production declines from 373.1 Mcm/d (13.2 Bcf/d) in 2013 to 318.2 Mcm/d (11.2 Bcf/d) in 2018. As rising prices and LNG exports support higher drilling levels, production ramps up continuously from 2019 onwards, reaching 494.0 Mcm/d (17.4 Bcf/d) in 2035[25].

Data from Canadian Association of Petroleum Producers (CAPP)

Table 13: Canada Gas Production by Area

CANADIAN NATURAL GAS PRODUCTION*

2010 - 2013

Thousand Cubic Metres at 101.325 kPa and 15°C

	Territories	British Columbia	Alberta	Saskatchewan	Western Canada	Ontario	Quebec	New Brunswick	Eastcoast Offshore	Eastern Canada	Canada
2010	230,135	34,991,762	131,317,685	6,827,222	173,366,804	233,987	-	183,894	3,290,886	3,716,468	177,283,271
2011	209,467	41,441,414	123,052,814	6,167,443	170,871,138	224,781	-	162,810	2,829,809	3,217,400	174,088,538
2012	193,259	40,982,111	120,254,099	5,630,916	167,060,385	200,297	-	124,944	2,147,410	2,472,651	169,533,036
2013	133,483	44,567,314	117,775,308	5,538,343	168,014,448	185,720	-	111,790	1,921,106	2,218,616	170,233,064
Total**	25,978,052	930,499,806	5,409,594,436	258,991,376	6,625,063,670	36,464,616	67,515	2,109,830	54,156,835	92,798,796	6,717,862,466
*Raw natural gas production less raw and processed gas injection											
** Includes historicals on previous page											

Canadian Association of Petroleum Producers (CAPP), Calgary, Alberta 403-267-1100 StatsHandbook@capp.ca

[22] Energy Information Administration, http://www.eia.gov/todayinenergy/detail.cfm?id=18771
[23] Energy Information Administration, "Increased natural gas production would meet most demand from added LNG exports", http://www.eia.gov/countries/cab.cfm?fips=CA
[24] Canadian Association of Petroleum Producers, http://www.capp.ca
Production:
http://statshb.capp.ca/SHB/Sheet.asp?SectionID=3&SheetID=327
http://statshb.capp.ca/SHB/Sheet.asp?SectionID=3&SheetID=326
[25] Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035 https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2013/ppndcs/pxgsprdctn-eng.html

Table 14: Canada Gas Production Historic Data

SALES OF NATURAL GAS IN CANADA

1986 - 2013

Million Cubic Metres Per Day

	Residential	Commercial	Industrial	Direct	*	Total
1986	33.4	28.4	69.9	2.1		133.8
1987	31.4	26.7	67.9	5.0		131.0
1988	34.9	29.3	69.7	10.0		143.9
1989	38.0	31.5	74.8	11.5		155.8
1990	37.0	30.7	70.6	10.9		149.2
1991	37.4	30.8	68.4	13.2		149.8
1992	38.9	31.3	67.2	17.9		155.3
1993	40.7	31.6	68.7	22.2		163.2
1994	42.6	31.6	67.5	25.4		167.1
1995	43.3	31.7	67.3	31.9		174.2
1996	47.7	34.3	67.0	34.3		183.3
1997	45.2	31.9	66.7	40.8		184.6
1998	38.7	26.6	59.4	50.7		175.4
1999	39.2	28.1	56.1	58.1		181.5
2000	47.3	35.3	60.4	55.8		198.8
2001	43.3	33.8	51.6	54.4		183.1
2002	46.6	35.9	48.2	61.7		192.4
2003	48.5	36.9	53.4	61.0		199.8
2004	47.0	34.9	53.5	61.6		196.9
2005	46.7	34.3	51.7	59.1		191.8
2006	44.6	32.8	54.4	58.4		190.1
2007	37.4	22.9	58.8	82.7		201.9
2008	38.2	26.1	62.8	66.8		193.9
2009	39.3	26.8	66.5	73.8		206.3
2010	37.6	25.0	68.5	73.5		204.6
2011	40.8	26.6	74.0	76.3		217.7
2012	39.9	26.0	82.9	75.1		223.9
2013	43.8	28.5	87.2	73.7		233.2

[1]*Direct sales volumes not available prior to 1977.

Canadian Association of Petroleum Producers (CAPP), Calgary, Alberta 403-267-1100 StatsHandbook@capp.ca

Table 15: Canada Gas from US Energy Information Administration

Data from Energy Information Administration[26]:

Natural Gas (Billion Cubic Feet)			Previous Year			Latest Yea
		History	Canada	North America	World	Rank	Canada
Production		(1980-2013)	5,069.61	30,798	118,910	6	5,128.83
Consumption		(1980-2013)	3,057.47	31,012	119,568	8	3,159.99
Net Export/Imports(-)		(1990-2013)	2,012.14	-275	--	86	1,968.85
Proved Reserves (Trillion Cubic Feet)		(1980-2014)	68.17	394	6,846	18	66.72
Coal (Million Short Tons)			Previous Year			Latest Yea	
Electricity (Billion Kilowatthours)			Previous Year			Latest Yea	
Total Primary Energy (Quadrillion Btu)			Previous Year			Latest Yea	
Carbon Dioxide Emissions (Million Metric Tons of CO_2)			Previous Year			Latest Yea	

A.3.2 Natural Gas Supply in U.S.

US natural gas production history is as follows:

[26] Energy Information Administration: http://www.eia.gov/countries/country-data.cfm?fips=ca

Data from Energy Information Administration:

Figure 4: US Natural Gas Marketed Production[27]

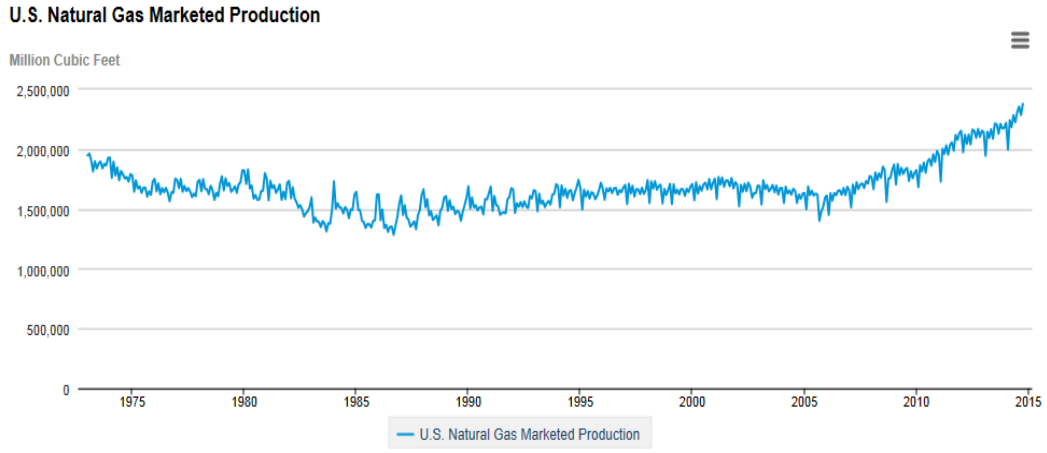


Table 16: US Natural Gas Marketed Production[28]

U.S. Natural Gas Marketed Production (Million Cubic Feet)

Decade	Year-0	Year-1	Year-2	Year-3	Year-4	Year-5	Year-6	Year-7	Year-8	Year-9
1900's	128,000	180,000	206,000	239,000	257,000	320,000	389,000	407,000	402,000	481,000
1910's	509,000	513,000	562,000	582,000	592,000	629,000	753,000	795,000	721,000	746,000
1920's	812,000	674,000	776,000	1,025,000	1,162,000	1,210,000	1,336,000	1,471,000	1,596,000	1,952,000
1930's	1,978,911	1,721,902	1,593,798	1,596,673	1,815,796	1,968,963	2,225,477	2,473,483	2,358,201	2,538,383
1940's	2,733,819	2,893,525	3,145,694	3,515,531	3,815,024	4,042,002	4,152,762	4,582,173	5,148,020	5,419,736
1950's	6,282,060	7,457,359	8,013,457	8,396,916	8,742,546	9,405,351	10,081,923	10,680,258	11,030,248	12,046,115
1960's	12,771,038	13,254,025	13,876,622	14,746,663	15,546,592	16,039,753	17,206,628	18,171,325	19,322,400	20,698,240
1970's	21,920,642	22,493,012	22,531,698	22,647,549	21,600,522	20,108,661	19,952,438	20,025,463	19,974,033	20,471,260
1980's	20,179,724	19,955,823	18,582,001	16,884,095	18,304,340	17,270,223	16,858,675	17,432,901	17,918,465	18,095,147
1990's	18,593,792	18,532,439	18,711,808	18,981,915	19,709,525	19,506,474	19,812,241	19,866,093	19,961,348	19,804,848
2000's	20,197,511	20,570,295	19,884,780	19,974,360	19,517,491	18,927,095	19,409,674	20,196,346	21,112,053	21,647,936
2010's	22,381,873	24,036,352	25,283,278	25,690,878						

- = No Data Reported; -- = Not Applicable; NA = Not Available; W = Withheld to avoid disclosure of individual company data.

Release Date: 12/31/2014
Next Release Date: 1/30/2015

With US natural gas production faster than consumption, export becomes possible. Shale gas will be the largest contributor.

[27] US Energy Information Administration, http://www.eia.gov/dnav/ng/hist/n9050us2m.htm
[28] US Energy Information Administration, http://www.eia.gov/dnav/ng/hist/n9050us2m.htm

A.4 Expected Gas Supply

A.4.1 Expected Gas Supply in Canada

A.4.1.1 Supply Forecast Method for Canada

In its simplest form, our assessment of potential gas forecast is derived by

1) Input historic data from trusted published sources such as NEB and EIA;
2) Estimate the volume of potential;
3) Multiply this volume by a yield factor;
4) Discount to allow for the probability.

A yield factor represents the amount of gas expected to be from a given unit. It is calculated using data from known gas accumulations considered analogous to the prospective ones being evaluated. Yield is the volume of discovered gas (i.e., cumulative production plus proved reserves) divided by the volume containing the gas. The yield factor applied to any prospective area may be adjusted to accommodate variations appropriate to the prospective area.

A.4.1.2 Supply Forecast Data for Canada

Data from Canada National Energy Board of Natural Gas in Canada[29]:

Table 17: Marketable Natural Gas in Canada:

Marketable Production ($10^3m^3/d$) / Production de gaz commercialisable ($10^3m^3/j$)								
2013	Nova Scotia Nouvelle-Écosse	New Brunswick Nouveau-Brunswick	Ontario	Saskatchewan	Alberta	British Columbia Colombie-Britannique	NWT & Yukon T.N.-O. et Yukon	Canada Total Total au Canada
January / Janvier	3,603	322	352	11,397	281,939	103,824	367	401,804
February / Février	3,579	320	368	11,405	284,434	104,310	275	404,692
March / Mars	3,629	328	326	11,280	275,098	103,507	351	394,518
April / Avril	2,721	319	353	11,333	278,853	106,472	349	400,401
May / Mai	2,441	316	342	11,155	275,109	101,478	359	391,200
June / Juin	3,747	308	347	11,566	269,496	96,480	350	382,294
July / Juillet	3,726	302	345	11,633	271,871	106,181	341	394,398
August / Août	4,979	301	368	11,789	272,162	107,937	366	397,903
September / Septembre	6,882	279	360	11,932	265,973	107,850	340	393,616
October / Octobre	8,766	297	348	12,149	272,714	110,559	353	405,186
November / Novembre	5,302	296	337	12,212	272,637	111,765	340	402,890
December / Décembre	8,883	288	332	11,471	272,958	110,581	322	404,835
							Updated	28-Jan-15

Source: Public information from reporting agencies and the NEB

[29] Canada NEB, https://www.neb-one.gc.ca/nrg/sttstc/ntrlgs/stt/mrktblntrlgsprdctn2014.xls, https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2013/ppndcs/xls/ntrlgs-eng.xls

Data from Canadian Association of Petroleum Producers (CAPP)30

Table 18: Canadian Marketable Gas Production

CANADIAN MARKETED GAS PRODUCTION

2010 - 2013

Million Cubic Metres at 101.325 kPa and 15°C

	Alberta	British Columbia	Saskatchewan	Territories	Eastcoast Offshore	Eastern Canada	Canada	Average Daily
2010	112,804	30,578	4,402	154	3,122	418	**151,478**	415.01
2011	104,975	36,392	3,630	140	2,678	388	**148,203**	406.04
2012	102,521	36,457	2,873	129	2,032	325	**144,338**	394.37
2013	100,141	40,242	2,814	89	1,818 r	270	**145,374**	398.29
Total	**4,444,733**	**824,275**	**194,148**	**19,874**	**51,256**	**25,942**	**5,560,227**	

A.4.1.3 Supply Forecast Assumptions and Yield Factors

Data from NEB, Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035 - Appendices:

Table 19: Canada Natural Gas Resources

Natural Gas Resources

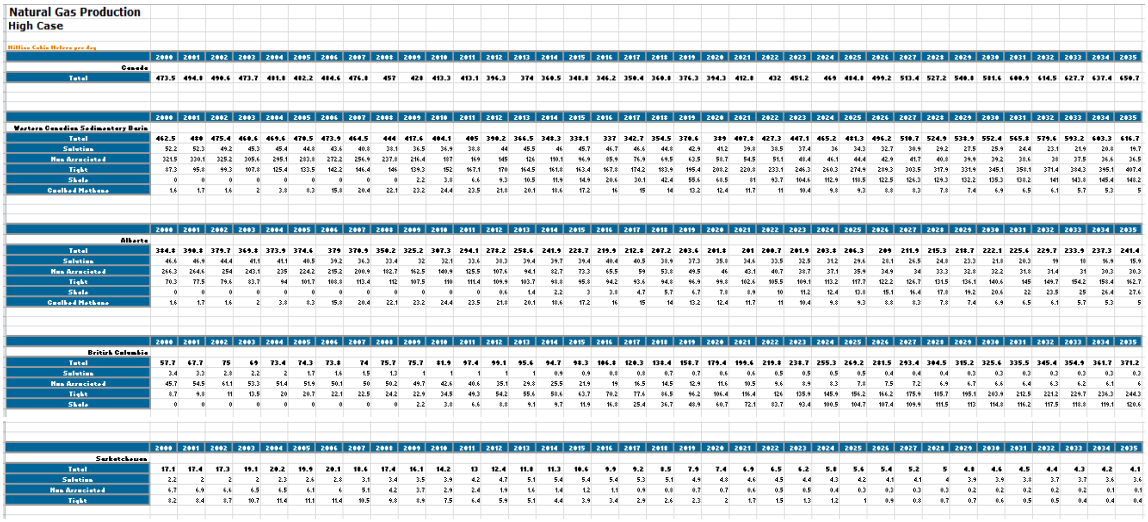
Estimates of technically and economically recoverable gas, as of Dec. 31, 2012.

Remaining Marketable Gas Resources by Case Billion cubic metres				Projected Cumulative Production 2013 to 2035 by Case		
	Reference	Low	High	Reference	Low	High
WCSB						
Conventional	17099	13565	26646	2201	1472	2730
Tight Gas Portion	15027	11478	24594	1764	1099	2248
Montney Tight Portion	12720	9926	20963	1095	619	1440
CBM	992	595	1501	86	79	90
Shale Gas	6300	4447	9557	659	473	777
Horn River Portion	2210	1728	2720	521	399	592
Sub Total	25698	18607	37704	4710	3124	5845
Ontario	28	28	28	2	2	2
Quebec	198	85	283	0	0	0
Maritimes Basin	28	28	28	0	0	0
Frontiers						
NS & NL	2550	2550	2550	34	34	34
Mackenzie-Beaufort	2153	2153	2153	2	2	74
Arctic Islands	1133	1133	1133	0	0	0
Other Frontiers	482	482	482	0	0	0
Sub Total	6317	6317	6317	37	37	109
Canada	30963	25066	44362	4749	3162	5955

Remaining Marketable Gas Resources by Case Trillions of cubic feet				Projected Cumulative Production 2013 to 2035 by Case		
	Reference	Low	High	Reference	Low	High
WCSB						
Conventional	604	479	941	78	52	96
Tight Gas Portion	530	405	868	62	39	79
Montney Tight Portion	449	350	740	39	22	51
CBM	35	21	53	3	3	3
Shale Gas	222	157	337	23	17	27
Horn River Portion	78	61	96	18	14	21
Sub Total	861	657	1331	166	110	206
Ontario	1	1	1	0	0	0
Quebec	7	3	10	0	0	0
Maritimes Basin	1	1	1	0	0	0
Frontiers						
NS & NL	90	90	90	1	1	1
Mackenzie-Beaufort	76	76	76	0	0	3
Arctic Islands	40	40	40	0	0	0
Other Frontiers	17	17	17	0	0	0
Sub Total	223	223	223	1	1	4
Canada	1093	885	1566	168	112	210

[30] Canadian Association of Petroleum Producers (CAPP), Calgary, Alberta, http://statshb.capp.ca/SHB/MakeSpreadsheet.asp?Docid=327

Table 20: Canada Natural Gas Production



Natural Gas Production
High Case

Billion Cubic Metres per day

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Canada																																				
Total	473.5	494.8	498.6	473.7	481.8	482.2	484.6	476.8	457	428	413.3	413.1	396.3	374	360.5	348.8	346.2	350.4	360.8	376.3	394.3	412.8	432	451.2	469	484.8	499.2	513.4	527.2	540.8	551.6	560.9	616.5	627.7	637.4	650.7

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Western Canadian Sedimentary Basin																																				
Total	462.5	488	475.4	460.6	469.6	470.5	473.9	464.5	444	417.6	404.1	405	390.2	366.5	349.3	338.1	337	342.7	354.5	370.6	389	407.8	427.3	447.1	465.2	481.3	496.2	510.7	524.9	538.9	552.4	565.8	579.6	593.2	603.3	616.7
Solution	52.2	52.3	49.2	45.3	45.4	44.8	42.6	40.8	39.1	34.9	34.9	35.8	44	45.8	46	45.7	46.7	46.6	44.8	42.9	41.2	39.9	38.8	37.4	36	34.3	32.7	30.9	29.2	27.5	25.9	24.4	23.1	21.9	20.8	19.7
Non Associated	321.9	339.1	325.2	309.6	298.1	283.8	272.2	264.9	237.8	216.4	197	169	148	126	109.1	96.9	85.9	76.9	69.5	63.8	58.7	54.8	51.1	48.4	46.1	44.4	42.9	41.7	40.8	39.9	39.2	38.6	38	37.5	36.6	36.6
Tight	87.3	95.8	99.3	107.8	125.4	133.5	142.2	146.4	146	136.3	152	167.1	170	164.5	161.8	163.4	167.8	174.2	183.9	195.4	208.2	229.9	233.1	246.3	260.3	274.9	289.2	303.5	317.9	331.9	345.1	358.1	371.4	384.3	395.1	407.4
Shale	0	0	0	0	0	0	0	0	0	2.2	3.8	6.6	9.3	10.5	11.9	14.9	20.6	30.1	42.4	55.6	68.5	91	92.7	104.6	112.9	118.5	122.5	126.3	129.3	132.2	135.3	138.2	141	143.8	148.4	148.2
Coalbed Methane	1.6	1.7	1.6	2	3.8	3.3	15.8	26.4	22.1	23.2	24.4	23.5	21.8	20.1	11.6	17.2	16	15	14	13.2	12.4	11.7	11	10.4	9.9	9.3	8.8	8.3	7.8	7.4	6.9	6.5	6.1	5.7	5.3	5

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Alberta																																				
Total	384.8	398.8	379.7	349.8	373.9	374.4	379	378.9	350.2	325.2	307.3	294.1	278.2	258.6	241.9	228.7	235.9	232.8	207.2	203.6	201.8	201	200.7	201.9	203.8	206.3	209	211.9	215.3	218.7	222.1	225.6	229.7	233.9	237.3	241.4
Solution	46.6	46.9	44.4	41.1	41.1	40.8	39.2	36.2	33.4	32	32.1	33.6	39.3	39.4	39.7	39.4	40.4	40.8	39.9	37.3	35.1	34.1	33.8	32.8	31.2	29.6	28.1	26.8	24.9	23.3	21.8	20.3	19	18	16.9	15.9
Non Associated	264.3	264.6	254	240.1	235	224.2	215.2	206.9	182.7	162.5	140.9	125.5	107.6	94.1	82.7	73.3	65.5	59	53.9	49.5	46	43.1	40.7	38.7	37.1	35.9	34.9	34	33.3	32.8	32.2	31.8	31.4	31	30.3	30.3
Tight	70.3	77.5	79.6	83.7	94	101.7	108.8	113.4	112	107.5	110	111.4	109.9	102.7	91.8	85.8	94.2	92.6	94.8	96.9	98.8	102.6	105.5	109.1	113.2	117.7	122.2	126.7	131.5	136.1	140.6	145	149.7	154.2	158.4	162.7
Shale	0	0	0	0	0	0	0	0	0	0	0	0	0.6	1.4	2.2	3	3.8	4.7	5.7	6.7	7.8	8.9	10	11.2	12.4	13.8	15.1	16.4	17.8	19.2	20.6	22	23.8	25	26.4	27.6
Coalbed Methane	1.6	1.7	1.6	2	3.8	3.3	15.8	26.4	22.1	23.2	24.4	23.5	21.8	20.1	11.6	17.2	16	15	14	13.2	12.4	11.7	11	10.4	9.9	9.3	8.8	8.3	7.8	7.4	6.9	6.5	6.1	5.7	5.3	5

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
British Columbia																																				
Total	57.7	67.7	75	69	73.4	74.3	73.8	74	75.7	75.7	81.9	97.4	99.1	95.6	94.7	90.3	106.8	126.3	138.4	158.7	179.4	199.6	219.8	238.7	255.3	269.2	281.9	293.4	304.5	315.2	325.4	335.5	345.4	354.9	361.7	371.2
Solution	3.4	3.3	2.8	2.2	2	1.7	1.4	1.5	1.3	1	1	1	1	1	0.9	0.9	0.8	0.8	0.7	0.7	0.6	0.6	0.5	0.5	0.5	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3	0.3	0.3	0.3
Non Associated	45.7	54.5	61.1	53.3	51.4	51.9	50.1	50	50.2	49.7	42.6	40.6	35.1	29.3	25.5	21.9	19	16.5	14.5	12.9	11.6	10.5	9.6	8.9	8.3	7.8	7.5	7.2	6.9	6.7	6.5	6.4	6.3	6.2	6.1	6
Tight	8.7	9.8	11	13.5	20	20.7	22.1	22.5	24.2	22.9	34.5	49.3	54.2	55.6	59.6	63.7	76.2	77.6	86.5	96.2	106.4	116.4	124	129.9	145.9	156.2	166.2	175.9	185.7	195.1	203.9	212.5	221.2	229.7	236.3	244.3
Shale	0	0	0	0	0	0	0	0	0	2.2	3.8	6.6	8.8	9.1	9.7	11.9	16.8	25.4	34.7	48.9	60.7	72.1	83.7	93.4	100.5	104.7	107.4	109.9	111.5	113	114.8	116.2	117.5	118.8	119.1	120.6

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Saskatchewan																																				
Total	17.1	17.4	17.3	19.1	20.2	19.9	20.1	18.6	17.4	16.1	14.2	13	12.4	11.8	11.3	10.6	9.9	9.2	8.5	7.9	7.4	6.9	6.5	6.2	5.8	5.6	5.4	5.2	5	4.8	4.6	4.5	4.4	4.3	4.2	4.1
Solution	2.2	2	2	2	2.3	2.6	2.8	3.1	3.4	3.5	3.9	4.2	4.7	5.1	5.4	5.4	5.4	5.3	5.1	4.9	4.8	4.6	4.5	4.4	4.3	4.2	4.1	4.1	4	3.9	3.9	3.8	3.7	3.7	3.6	3.6
Non Associated	6.7	6.9	6.6	6.9	6.9	6.1	6	5.1	4.2	3.7	2.9	2.4	1.9	1.6	1.4	1.2	1.1	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.3	0.3	0.3	0.3	0.2	0.2	0.2	0.2	0.2	0.1	0.1
Tight	8.2	8.4	8.7	10.2	10.4	11.1	11.4	10.5	9.8	8.9	7.5	6.4	5.9	5.1	4.4	3.9	3.4	2.9	2.6	2.3	2	1.7	1.5	1.3	1.2	1	0.9	0.8	0.7	0.7	0.6	0.5	0.5	0.4	0.4	0.4

Assumptions are made as follows:

1) GDP growth is at an increase but stable condition and health increase rate;
2) Oil price is increasing at a stable rate and health increase rate;
3) Based on the data above, historically, the average increase is significantly lower than the rate predicted toward 2035. Due to export historically only from Canada to U.S., and the LNG plan is going to export globally, it is very reasonable to assume an increase rate derived and extended from increase rate toward 2035 by NEB Canada's Energy Future 2013;
4) A new generation of energy might be discovered;
5) Increase of export might be flat due to unconventional might be discovered and produced economically as well such as country China, which has a large shale gas reserve, but unable to produce now.
6) Gas Price will affect producers to plan for production. The higher the gas price is, the more comfortable for producers to increase production. If gas price is no longer cost-effective, producers are more likely to reduce production.
7) Location will be a factor. The closer the consumers are away from the gas mine fields, the less impact would be in regards to the balance of supply and demand.
8) Midstream Infrastructure is another factor for gas to be balanced for supply and demand. With a highly efficient and capable gas pipeline network, with sufficient gas storage facilities, gas will arrive at the right place timely with low cost.
9) Government policies could be a major factor when they are regulated to play. An open and unregulated market might be healthier for gas supply to balance with demand.

Yield factors are made as follows:

1) Liquefied natural gas will not start to export until 2019, which is showing from the applications licences approved or to be approved;
2) Long-term gas supply contracts will be signed and executed after 2019 to produce natural gas for LNG plants with terms of 20 – 25 years, which will make natural gas supply increase significantly;
3) After the term of 20 – 25 years, export volume is going to be stabilized due the contract renew issue.

A.4.1.4 Canada Gas Supply Forecast Results

We model all the cases using raw data from NEB and EIA and analyze the model. The model results are, as the reference case which is the most accurate, safest and lowest risky outlook to our best knowledge at this time. Our model for the total natural gas production in Canada in 2053 will grow to 9.63 Tcf, using the following factors for High Resource case (1) higher estimates of onshore oil, tight gas, and shale gas resources than in the Reference case, as a result of higher estimated ultimate recovery (EUR) per well and closer well spacing; (2) tight oil development in WCSB, (3) higher estimates of offshore and (4) higher rates of long-term technology improvement. With the greater abundance of less-expensive shale gas resources, cumulative shale gas production grows. Our model for the total natural gas production in Canada in 2053 will grow to 9.63 Tcf.

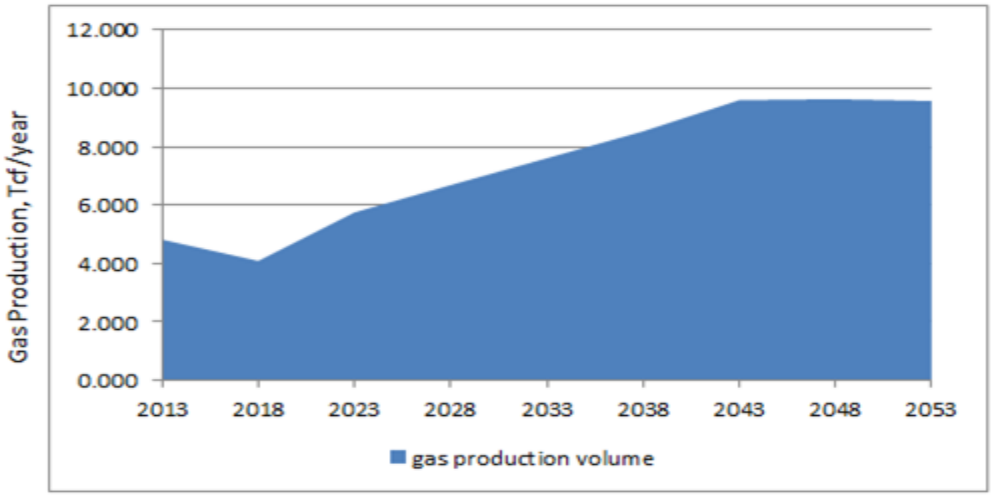
The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

Table 21: Gas Volume Increase Rates

	gas production volume	5 year rate hike
2013	4.818	N/A (before LNG export)
2018	4.088	0.848
2023	5.750	1.406
2028	6.684	1.163
2033	7.608	1.138
2038	8.529	1.121
2043	9.595	1.125
2048	9.633	1.004
2053	9.568	0.993

This table leads to the conclusion of forecast for Canadian Gas Production Forecast as shown in figure below “Gas Production Forecast (Conventional, CBM and Shale/tight) – GIT.

Figure 5: Canadian Gas Production Forecast

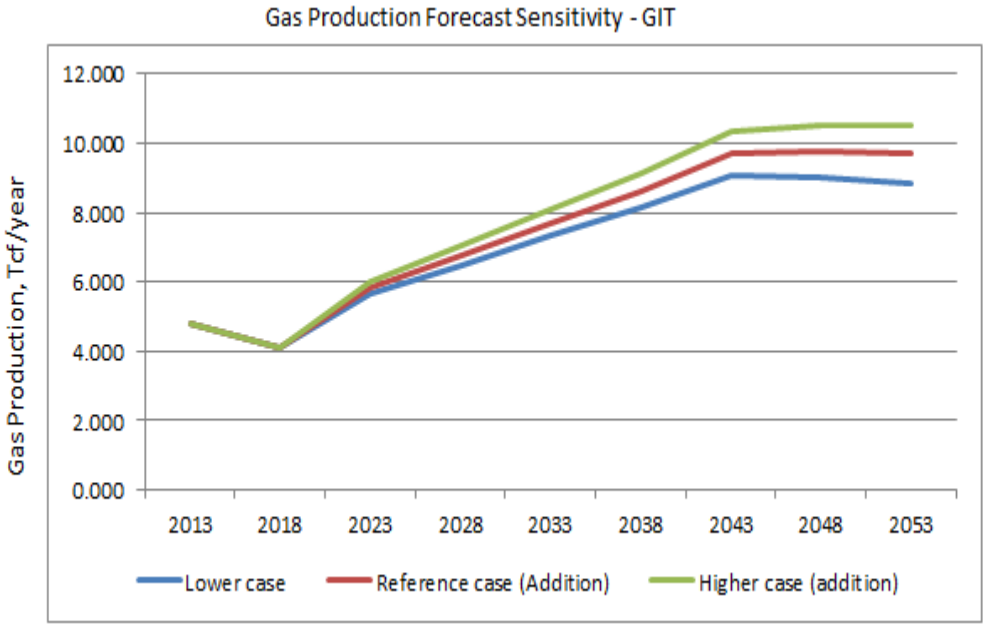


Further, a sensitivity 20% demand increase based on 2018 is illustrated after an assumption of 3.25% increase started at 2023, and then a 1% increase rate of LNG export volume every 5 years on average, The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

Table 22: Canada Gas Production Sensitivity

Year	Lower case	Reference case (Addition)	Higher case (addition)	Rate increase
2013	4.818	0.000	0.000	
2018	4.088	0.000	0.000	
2023	5.637	0.1832012	0.1832012	1.0325
2028	6.489	0.2757953	0.2757953	1.0425
2033	7.315	0.3840480	0.3840480	1.0525
2038	8.123	0.5076563	0.5076563	1.0625
2043	9.052	0.6562845	0.6562845	1.0725
2048	9.002	0.7426980	0.7426980	1.0825
2053	8.860	0.8195130	0.8195130	1.0925

Figure 6: Canada Gas Production Sensitivity



A.4.2 Expected Gas Supply in US

A.4.2.1 Supply Forecast Method for U.S.

In its simplest form, our assessment of potential gas forecast is derived by

1) Input historic data from trusted published sources such as NEB and EIA;
2) Estimate the volume of potential;
3) Multiply this volume by a yield factor;
4) Discount to allow for the probability.

A yield factor represents the amount of gas expected to be from a given unit. It is calculated using data from known gas accumulations considered analogous to the prospective ones being evaluated. Yield is the volume of discovered gas (i.e., cumulative production plus proved reserves) divided by the volume containing the gas. The yield factor applied to any prospective area may be adjusted to accommodate variations appropriate to the prospective area.

A.4.2.2 Supply Forecast Data for U.S.

Data below is from U.S. EIA's report, entitled "Annual Energy Outlook 2014 with projection to 2040" (AEO2014):

Table 23: U.S. Gas Production Outlook

ref2014.d102413a

Report: Annual Energy Outlook 2014
Scenario: ref2014 — Reference case
Datekey: d102413a
Release Date: April 2014

13. Natural Gas Supply, Disposition, and Prices
(trillion cubic feet, unless otherwise noted)

Supply, Disposition, and Prices	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	2040
Production																															
Dry Gas Production 1/	22.55	24.06	24.19	24.28	24.62	25.68	26.36	27.20	28.19	29.09	29.76	30.19	30.92	31.44	31.86	32.47	33.07	33.65	34.09	34.43	34.66	35.04	35.29	35.73	36.09	36.36	36.68	37.04	37.36	37.54	1.6%
Supplemental Natural Gas 2/	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.1%
Net Imports	1.96	1.51	1.24	1.25	1.00	0.76	0.03	-0.66	-1.40	-1.93	-2.30	-2.49	-2.88	-3.19	-3.41	-3.74	-4.11	-4.45	-4.76	-4.96	-5.04	-5.24	-5.34	-5.41	-5.53	-5.62	-5.68	-5.76	-5.85	-5.90	--
Pipeline 3/	1.68	1.37	1.22	1.21	1.05	0.92	0.64	0.45	0.22	0.00	-0.13	-0.32	-0.61	-0.82	-0.94	-0.97	-1.14	-1.29	-1.42	-1.57	-1.67	-1.87	-1.97	-2.04	-2.16	-2.25	-2.31	-2.39	-2.46	-2.43	--
Liquefied Natural Gas	0.28	0.15	0.02	0.04	0.04	-0.16	-0.61	-1.11	-1.62	-1.93	-2.17	-2.17	-2.27	-2.62	-2.47	-2.77	-2.97	-3.16	-3.35	-3.39	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.47	--
Total Supply	**24.57**	**25.64**	**25.59**	**25.69**	**25.78**	**26.50**	**26.47**	**26.61**	**26.85**	**27.23**	**27.47**	**27.77**	**28.11**	**28.31**	**28.52**	**28.79**	**29.02**	**29.27**	**29.39**	**29.56**	**29.69**	**29.86**	**30.12**	**30.38**	**30.63**	**30.80**	**31.06**	**31.34**	**31.57**	**31.81**	**0.8%**
Consumption by Sector																															
Residential	4.71	4.17	4.81	4.67	4.50	4.51	4.51	4.49	4.47	4.46	4.45	4.44	4.43	4.42	4.40	4.39	4.38	4.37	4.35	4.33	4.31	4.30	4.28	4.25	4.23	4.20	4.18	4.16	4.14	4.12	0.0%
Commercial	3.16	2.90	3.19	3.16	3.11	3.13	3.15	3.15	3.15	3.16	3.18	3.19	3.20	3.21	3.22	3.23	3.25	3.26	3.27	3.28	3.30	3.32	3.35	3.38	3.40	3.43	3.46	3.50	3.54	3.57	0.7%
Industrial 4/	6.90	7.14	7.35	7.40	7.70	7.83	7.91	7.93	7.99	8.09	8.16	8.25	8.31	8.36	8.41	8.45	8.50	8.53	8.52	8.52	8.54	8.56	8.57	8.59	8.59	8.60	8.63	8.66	8.68	8.68	0.7%
Natural Gas-to-Liquids Heat and Power 5/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural Gas to Liquids Production 6/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electric Power 7/	7.56	9.25	8.10	7.78	8.04	8.68	8.48	8.52	8.62	8.81	8.90	9.00	9.28	9.37	9.49	9.65	9.76	9.89	9.96	10.06	10.12	10.20	10.35	10.53	10.67	10.75	10.87	11.00	11.11	11.23	0.7%
Transportation 8/	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.21	0.24	0.28	0.31	0.35	0.39	0.43	0.48	0.55	0.62	0.69	0.76	0.85	11.2%
Pipeline Fuel	0.69	0.72	0.71	0.71	0.69	0.68	0.69	0.70	0.71	0.72	0.72	0.74	0.74	0.74	0.75	0.76	0.77	0.79	0.79	0.80	0.81	0.81	0.81	0.81	0.82	0.81	0.82	0.82	0.82	0.83	0.5%
Lease and Plant Fuel 9/	1.12	1.42	1.49	1.41	1.49	1.44	1.50	1.59	1.67	1.74	1.79	1.81	1.87	1.92	1.95	1.99	2.02	2.05	2.08	2.11	2.13	2.16	2.19	2.22	2.24	2.27	2.30	2.32	2.34	2.35	1.8%
Total	**24.38**	**25.64**	**25.65**	**25.20**	**25.51**	**26.33**	**26.31**	**26.44**	**26.68**	**27.06**	**27.30**	**27.68**	**27.94**	**28.14**	**28.35**	**28.63**	**28.86**	**29.10**	**29.22**	**29.39**	**29.52**	**29.69**	**29.94**	**30.29**	**30.44**	**30.62**	**30.88**	**31.15**	**31.38**	**31.63**	**0.8%**
Discrepancy 10/	0.19	0.00	-0.07	0.49	0.27	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.18	--
Natural Gas Prices																															
Henry Hub Spot Price																															
(2012 dollars per million Btu)	4.07	2.75	3.63	3.74	3.74	4.14	4.40	4.60	4.66	4.28	4.67	4.82	4.96	5.12	5.23	5.36	5.49	5.59	5.70	6.03	6.17	6.26	6.59	6.74	6.92	7.18	7.23	7.26	7.42	7.65	3.7%
(nominal dollars per million Btu)	4.00	2.75	3.66	3.86	3.93	4.41	4.76	5.27	5.19	4.96	5.37	5.64	5.90	6.20	6.45	6.72	7.00	7.26	7.53	8.12	8.47	8.91	9.41	9.63	10.31	10.93	11.23	11.53	12.04	12.69	5.6%
Delivered Prices																															
(2012 dollars per thousand cubic feet)																															
Residential	11.22	10.69	10.62	11.44	11.24	10.92	11.25	11.71	11.89	11.85	12.06	12.16	12.32	12.50	12.75	12.86	13.00	13.10	13.47	13.80	13.95	14.01	14.25	14.65	14.93	15.32	15.49	15.62	15.96	16.33	1.5%
Commercial	9.16	8.29	8.49	9.29	9.11	8.91	9.21	9.62	9.76	9.70	9.90	9.97	10.12	10.25	10.51	10.61	10.73	10.89	11.15	11.44	11.54	11.54	11.73	12.01	12.22	12.53	12.64	12.73	13.04	13.37	1.7%
Industrial 4/	5.23	3.85	4.79	4.91	5.05	5.26	5.55	5.97	6.08	5.92	6.07	6.09	6.19	6.26	6.46	6.50	6.57	6.60	6.69	7.16	7.25	7.26	7.59	7.74	7.93	8.22	8.27	8.31	8.52	8.79	3.0%
Electric Power 7/	4.98	3.51	4.42	4.57	4.53	4.57	4.79	5.07	5.29	5.19	5.36	5.41	5.54	5.75	5.80	5.94	6.04	6.16	6.30	6.64	6.76	6.87	7.09	7.25	7.45	7.74	7.80	7.95	8.07	8.24	3.1%
Transportation 8/	16.25	14.56	15.79	15.84	15.56	16.07	16.15	16.24	16.25	15.96	15.97	15.95	15.77	15.67	15.91	15.89	15.94	16.26	16.60	16.99	17.20	17.35	17.67	18.14	18.49	18.99	19.21	19.36	19.68	20.10	1.1%
Average 12/	6.98	5.59	6.35	6.74	6.63	6.57	6.86	7.26	7.38	7.25	7.41	7.45	7.56	7.76	7.89	7.94	8.03	8.16	8.40	8.69	8.80	8.90	9.11	9.23	9.54	9.87	9.96	10.04	10.30	10.61	2.4%
(nominal dollars per thousand cubic feet)																															
Residential	11.02	10.69	10.77	11.63	11.68	11.64	12.17	12.65	13.25	13.42	13.89	14.23	14.67	15.23	15.70	16.11	16.57	17.11	17.80	18.58	19.15	19.63	20.37	21.38	22.23	23.31	24.07	24.79	25.69	27.07	3.4%
Commercial	9.00	8.29	8.62	9.49	9.57	9.50	9.95	10.56	10.88	10.99	11.29	11.67	12.04	12.53	12.95	13.29	13.68	14.13	14.73	15.40	15.85	16.16	16.77	17.52	18.20	19.07	19.64	20.21	21.15	22.16	3.6%
Industrial 4/	5.13	3.85	4.77	5.07	5.30	5.61	6.00	6.56	6.79	6.70	6.98	7.12	7.36	7.71	7.96	8.14	8.38	8.66	9.10	9.62	9.97	10.34	10.84	11.29	11.81	12.53	12.86	13.19	13.82	14.56	4.3%
Electric Power 7/	4.90	3.51	4.44	4.72	4.75	4.87	5.18	5.68	5.90	5.87	6.17	6.33	6.59	6.96	7.25	7.45	7.69	7.99	8.43	8.93	9.28	9.63	10.12	10.57	11.09	11.77	12.12	12.46	13.09	13.82	5.0%
Transportation 8/	15.97	14.56	16.02	16.37	16.27	17.10	17.47	17.94	18.13	18.08	18.39	18.85	19.27	19.82	19.60	19.92	20.32	21.00	21.94	22.87	23.61	24.30	25.25	26.47	27.54	28.96	29.85	30.73	31.92	33.33	2.9%
Average 12/	6.86	5.59	6.44	6.97	6.96	7.09	7.41	7.97	8.22	8.21	8.54	8.72	9.00	9.40	9.71	9.95	10.24	10.60	11.10	11.68	12.09	12.47	13.02	13.61	14.21	15.01	15.48	15.94	16.71	17.59	4.2%

A.4.2.3 Supply Forecast Assumptions and Yield Factors for U.S.

Assumptions are made as follows:

1) GDP growth is at an increase but stable and health increase rate;
2) Oil price is increasing at a stable rate and health increase rate;
3) Based on the data above, historically, the average increase is significantly lower than the rate predicted from AEO2014 towards 2040. Due to export historically only from Canada to U.S., and the new plan is going to export reversely and globally, it is very reasonable to assume an increase rate derived and extended from increase rate toward 2040 by U.S. EIA's AEO2014;
4) A new generation of energy might be discovered;
5) Increase of export might be flat due to unconventional might be discovered and produced economically as well such as country China, which has a large shale gas reserve, but unable to produce now.

Yield factors are made as follows:

1) Liquefied natural gas will not start to export until 2019, which is showing from the applications licences approved or to be approved;
2) Long-term gas supply contracts will be signed and executed after 2019 to produce natural gas for LNG plants with terms of 20 – 25 years, which will make natural gas supply increase significantly;
3) After the term of 20 – 25 years, export volume is going to be stabilized due the contract renew issue.

4) Domestic natural gas prices driven primarily by supply
5) Severe weather can disrupt production
6) Economic growth can affect natural gas demand and prices
7) Winter weather strongly influences residential and commercial demand
8) Hot summer weather can increase power plant demand for gas
9) Natural gas supplies held in storage play a key role in meeting peak demand
10) Competition with other fuels can influence natural gas prices

A.4.2.4 Gas Forecast for U.S.

We model all the cases using raw data from EIA and analyze the model results. A summary result is presented as below, which is the most accurate, safest and lowest risky outlook from the model. Our model for the total natural gas production in the United States in 2053 will grow to 40.23 Tcf, using the following factors for High Resource case (1) higher estimates of onshore lower 48 tight oil, tight gas, and shale gas resources than in the Reference case, as a result of higher estimated ultimate recovery (EUR) per well and closer well spacing; (2) tight oil development in Alaska; (3) higher estimates of offshore resources in Alaska and the lower 48 states; and (4) higher rates of long-term technology improvement. With the greater abundance of less-expensive shale gas resources, cumulative shale gas production grows. NewTimes model all the cases and analyze the model results. A summary result is presented as below, which is the most accurate, safest and lowest risky outlook from the model. Our model for the total natural gas production in the United States in 2053 will grow to 40.23 Tcf.

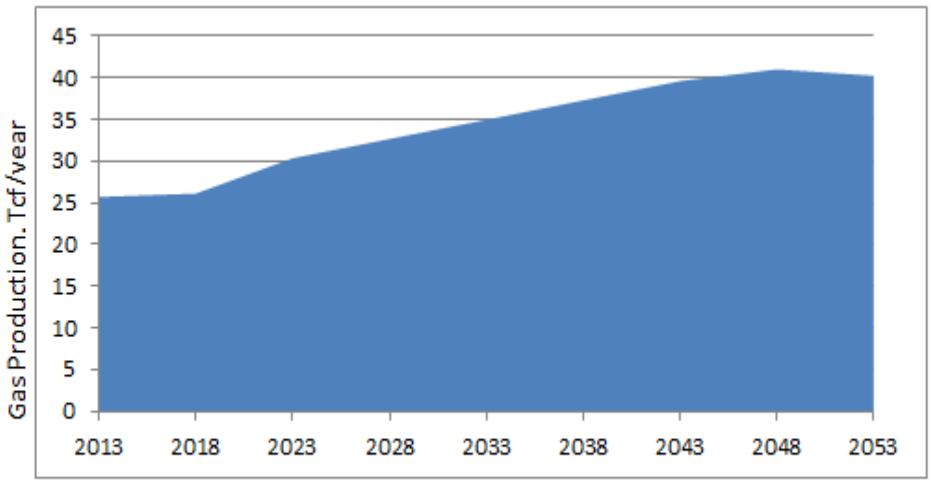
The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

Table 24: U.S. Gas Volume Increase Rates

year	gas production volume	5 year rate hike
2013	25.7	N/A (before LNG export)
2018	26.1	1.016
2023	30.33	1.162
2028	32.64	1.076
2033	34.95	1.071
2038	37.27	1.066
2043	39.58	1.062
2048	41	1.036
2053	40.23	0.981

This table leads to figure below:

Figure 7: U.S. Gas Production Forecast



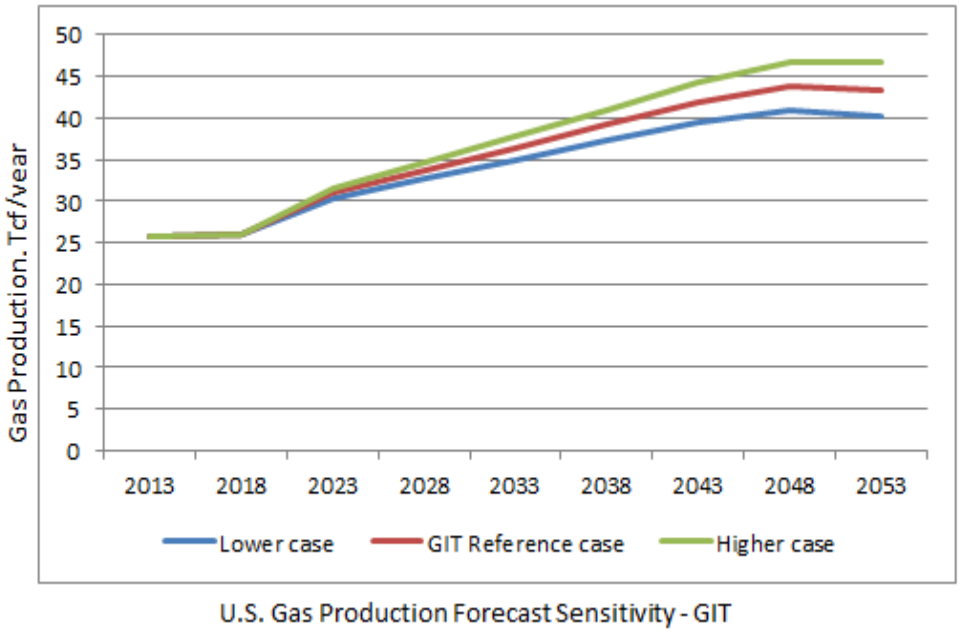
U.S. Gas Production Forecast (Conventional, CBM and Shale/tgiht) - GIT

Further for U.S. case, a sensitivity 15% demand increase based on 2018 is illustrated after an assumption of 3.25% increase started at 2023, and then a 1% increase rate of LNG export volume every 5 years on average, The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

Table 25: Gas Production Sensitivity

	Lower case	GIT Reference case	Higher case
2013	25.70	0.0000	0.0000
2018	26.10	0.0000	0.0000
2023	30.33	0.9857	0.9857
2028	32.64	1.3872	1.3872
2033	34.95	1.8349	1.8349
2038	37.27	2.3294	2.3294
2043	39.58	2.8696	2.8696
2048	41.00	3.3825	3.3825
2053	40.23	3.7213	3.7213

Figure 8: Gas Production Sensitivity



U.S. Gas Production Forecast Sensitivity - GIT

Part A Conclusion:

1. The gas resource base in Canada as well as North America is large;
2. Canadian natural gas requirements are met within a North American integrated market (see Implications Report Section 4);
3. Canadian gas requirements will be met largely from continental resources;
4. Incremental cost of adding new supply expected to continue to be low as a result of constant technical improvement;
5. Gas supplies for particular uses such as LNG exports can be met from a variety of sources: own production, joint ventures, long term arrangements, market purchases, exchanges;
6. Future trends in the discovery of gas in Canada are likely to continue to be favorable.

Part B: Demand - A Description of expected gas requirements (demand) for Canada (including underlying assumptions) over the requested licence term (responds to Filing Requirement #3)

The demand domestically in Canada and North America is very steady or in a slow pace to increase overall; while the demand globally, which is what LNG exports depend on, has the potential which is not only limited but also facing a strong competitions from North American country U.S., from other LNG export countries such as South East Asia, Australia, Russia, East Africa, not to mention the currently largest supply Middle East country Qatar. In addition, LNG will face competitions from pipe gas from Russia and West Asian countries. Pipe gas has low cost as it does not need to liquefy, shipping to overseas and gasify for use.

For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargo will start to export in 2015.

The largest potential market is in China, where a fast pace economic growth and relatively lack of energy resource drive the demand to import LNG. The demand from Japan and Korea is fairly steady or in a slow pace.

B.1 Natural Gas Demand in Canada

Gas demand in Canada consists of two sources: domestic demand and global demand

B.1.1 Domestic Gas Demand - Canada

Canadian Residential and Commercial Sector Demand Forecast

GIT forecasts residential and commercial demand to decline slightly in 2053, due to energy efficiency improvements and renewable energy use such as solar energy. Natural gas vehicles within Canada's commercial demand segment in this long-term outlook will increase. However, the total amount of transportation fuel is relatively very small.

Canadian Industrial Sector Demand Forecast

Industrial gas demand, which includes both core industrial and oil sands demand, is forecast to increase by 2053, driven mostly by continued oil sands development.

Canadian Power Sector Demand Forecast

GIT forecasts natural gas' share of total Canadian power generation to increase due to the mandated Ontario coal plant retirements. Ontario's mandate for the retirement of all four of its coal generations are the driving force behind the forecast growth in Canadian gas demand for power. In addition, a significant share of power generation in Alberta is expected to remain relatively flat through the long term in the western province. Canada's gas demand for power is expected to increase in 2053. Growth is expected to be greatest post-2015, given Ontario's mandated coal retirements and the associated transition toward gas-fired generation.

B.1.2 International Gas Demand - Canada

Canadian LNG Export Demand Forecast

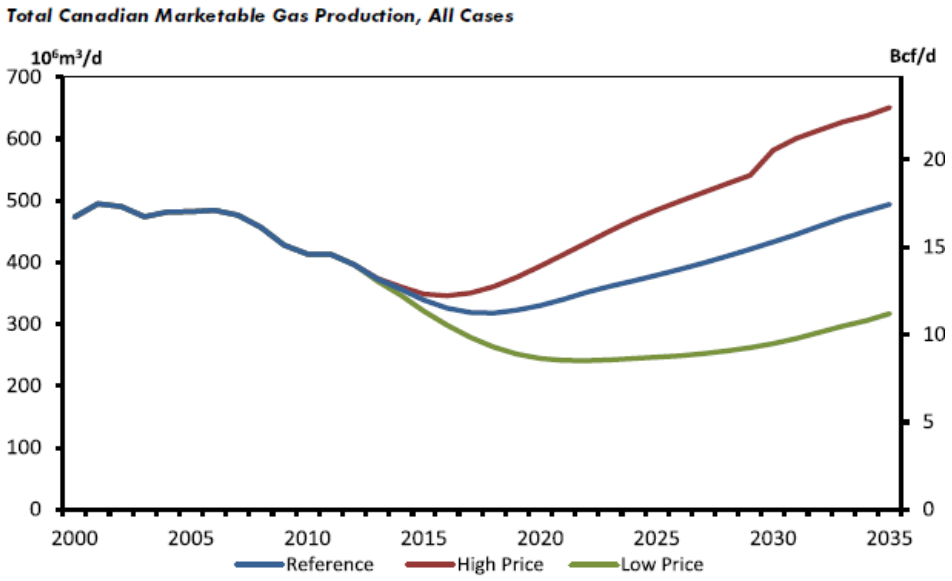
GIT forecasts that liquefied natural gas exports will be the major force for Canadian gas demand increase, although it is bring a new era of economics to local growth.

LNG Export Assumptions Canada Government

1. Projection from NEB

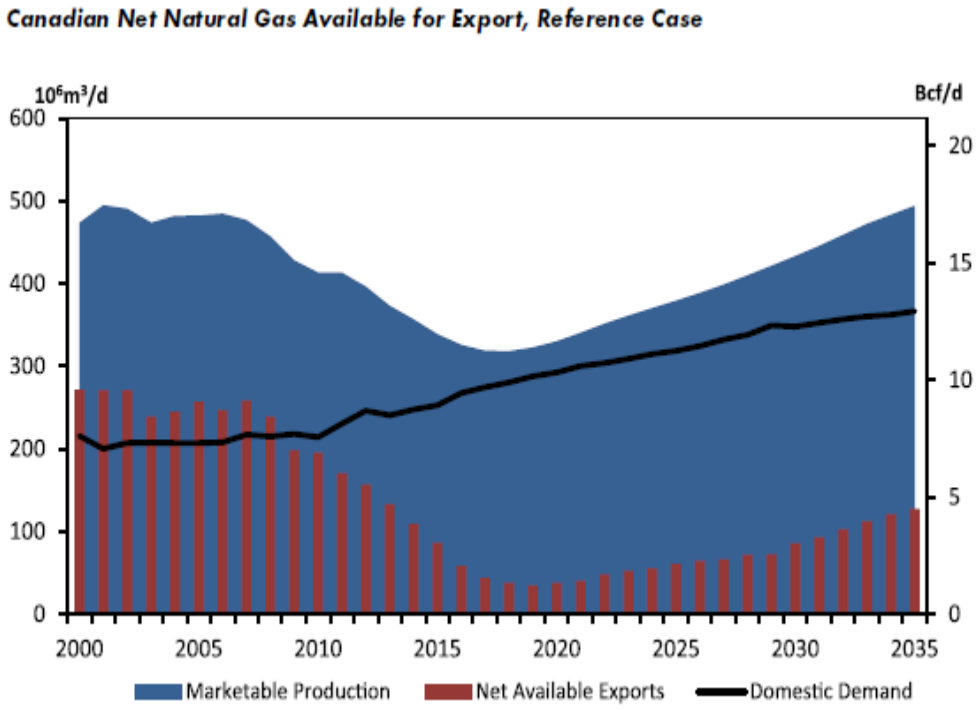
Projection from National Energy Board for net gas available for export in 2035[31] is 127.6 106m3/d (4.5 Bcf/d):

Figure 9: Canadian Marketable Gas Production, All Cases



[31] NEB, https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2013/2013nrgftr-eng.pdf

Figure 10: Canadian Net Natural Gas Available for Export, Reference Case



2. *Projection BC Government*

Canada BC Government's vision is three LNG plants by 2020[32]: "Vision: Three LNG plants in operation by 2020".

To BC Government's goal:

- Keep B.C. competitive in the global LNG market
- Maintain B.C.'s leadership on climate change and clean energy
- Keep energy rates affordable for families, communities and industry

3. *Currently authorized export amount in Canada*

The total approved export amount in Canada is 18 Bcf/d. According to the "LETTER DECISION" of File OF-EI-Gas-GL-W160-2014-01 01[33], we assume that not all licences will be used or used to the full allowance and the Board evaluates each application by itself.

[32] The BC Government vision is for 3 LNG plants by 2020, http://www.gov.bc.ca/ener/popt/down/liquefied_natural_gas_strategy.pdf
[33] NEB, https://docs.neb-one.gc.ca/ll-eng/llisapi.dll/fetch/2000/90466/94153/552726/2487999/2487318/2671566/2671565/Letter_Decision_to_Woodside_Energy_Holdings_Pty_Ltd._-_A4G9A0.pdf?nodeid=2671234&vernum=-2

B.1.3 Demand Forecast Method for Canada

In its simplest form, our assessment of potential gas forecast is derived by

1) Input historic data from trusted published sources such as NEB and EIA;
2) Estimate the volume of potential;
3) Multiply this volume by a yield factor;
4) Discount to allow for the probability.

A yield factor represents the amount of gas expected to be from a given unit. It is calculated using data from known gas accumulations considered analogous to the prospective ones being evaluated. Yield is the volume of discovered gas (i.e., cumulative production plus proved reserves) divided by the volume containing the gas. The yield factor applied to any prospective area may be adjusted to accommodate variations appropriate to the prospective area.

B.1.4 Demand Forecast Model Assumptions

Assumptions are made as follows:

1. GDP growth is at an increase but stable condition and health increase rate;
2. Oil price is increasing at a stable rate and health increase rate;
3. Based on the data above, historically, the average increase is significantly lower than the rate predicted toward 2035. Due to export historically only from Canada to U.S., and the LNG plan is going to export globally, it is very reasonable to assume an increase rate derived and extended from increase rate toward 2035 by NEB Canada's Energy Future 2013;
4. Increase of export might be flat due to unconventional might be discovered and produced economically as well such as country China, which has a large shale gas reserve, but unable to produce now.
5. Gas Price will affect producers to plan for production. The higher the gas price is, the more comfortable for producers to increase production. If gas price is no longer cost-effective, producers are more likely to reduce production.
6. Location will be a factor. The closer the consumers are away from the gas mine fields, the less impact would be in regards to the balance of supply and demand.
7. Midstream Infrastructure is another factor for gas to be balanced for supply and demand. With a highly efficient and capable gas pipeline network, with sufficient gas storage facilities, gas will arrive at the right place timely with low cost.
8. Government policies could be a major factor when they are regulated to play. If government enforces carbon emission standards, more gas demand will be on gas power generation.
9. Oil Sands will be assumed to continue to produce in a normal way, so that so additional demand will be generated in gas section.

10. Electrical Power will be assumed to continue to produce in a normal way, so that so additional demand will be generated in gas section.
11. Weather will be a factor for demand, cold weather will have more demand on gas; warmer weather will be less.
12. Catastrophic events will be a big factor; it could cause regional demand and supply difficult to balance.

Yield factors are made as follows:

1) Liquefied natural gas will not start to export until 2019, which is showing from the applications licences approved or to be approved;
2) Long-term gas supply contracts will be signed and executed after 2019 to produce natural gas for LNG plants with terms of 20 – 25 years, which will make natural gas supply increase significantly;
3) After the term of 20 – 25 years, export volume is going to be stabilized due the contract renew issue.

B.1.5 Canada Gas Demand Forecast Results

Based on data from Canadian National Energy Board's report of Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035 - An Energy Market Assessment and Appendix[34], NewTimes model all the cases and analyze the model results. A summary result is presented as below, which is the most accurate, safest and lowest risky outlook from the model. Our model for the total natural gas demand in Canada in 2053 will grow to 9.6 Tcf,

The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

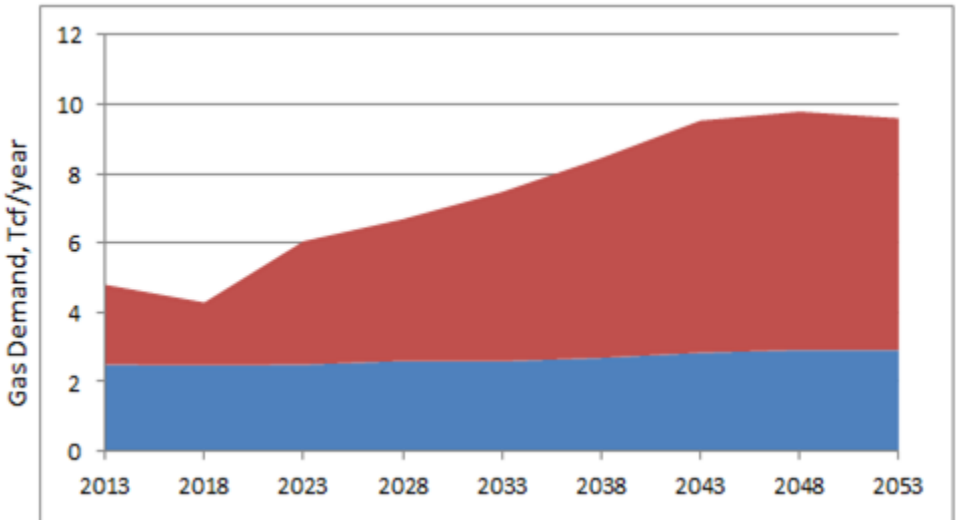
Table 26: Canada Gas Demand Increase Rates

year	Gas Demand	Export (US, LNG)	total	5 year rate hike
2013	2.492	2.308	4.800	N/A (before LNG export)
2018	2.470	1.610	4.080	0.850
2023	2.492	3.560	6.052	1.483
2028	2.596	4.094	6.690	1.105
2033	2.592	4.808	7.472	1.117
2038	2.688	5.762	8.450	1.131
2043	2.834	6.696	9.530	1.128
2048	2.916	6.874	9.790	1.027
2053	2.906	6.694	9.600	0.981

This table leads to figure below:

[34] Canada's Energy Future 2013 - Energy Supply and Demand Projections to 2035, https://www.neb-one.gc.ca/nrg/ntgrtd/ftr/2013/ppndcs/pxgsprdctn-eng.html and - Appendices, https://www.neb-one.gc.ca/nrg/sttstc/ntrlgs/stt/mrktblntrlgsprdctn2014.xls

Figure 11: Canada Gas Demand Increase Forecast

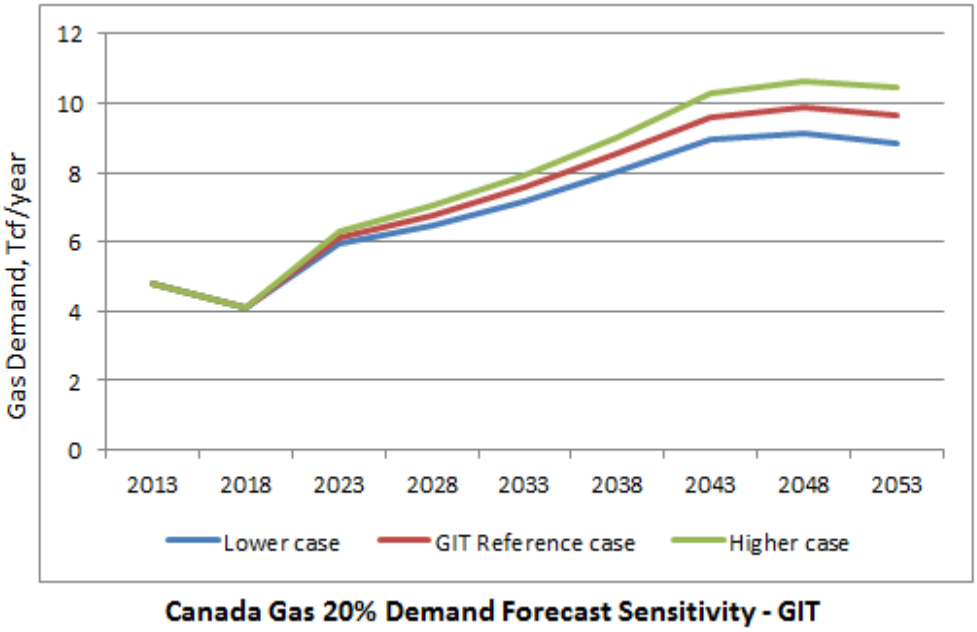


Further, a sensitivity 20% demand increase based on 2018 is illustrated after an assumption of 3.25% increase started at 2023, and then a 1% increase rate of LNG export volume every 5 years on average, The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

Table 27: Canada Gas Demand sensitivity

year	Lower case	GIT Reference case	Higher case
2013	4.80000	0.000	0
2018	4.08500	0.000	0
2023	5.93096	0.1927562	0.1927562
2028	6.48930	0.2757953	0.2757953
2033	7.17312	0.3765888	0.3765888
2038	8.02750	0.5017188	0.5017188
2043	8.95820	0.6494695	0.6494695
2048	9.10470	0.7511378	0.7511378
2053	8.83200	0.8169600	0.8169600

Figure 12: Canada Gas Demand sensitivity



B.1.6 Canadian Exports & WCSB Supply-Demand Balance

Canada's net natural gas exports to the US are expected to decline to support export needs. WCSB gas will target eastern Canada, primarily Ontario, but the Western and Midwestern US will continue to be a key outlet for most exported Canadian gas. WCSB production will continue to meet demand in the basin, exporting gas to the east and west after meeting local needs.

The demand domestically in Canada and North America is very steady or in a slow pace to increase overall; while the demand globally, which is what LNG exports depend on, has the potential which is not only limited but also facing a strong competitions from North American country U.S., from other LNG export countries such as South East Asia, Australia, Russia, East Africa, not to mention the currently largest supply Middle East country Qatar. In addition, LNG will face competitions from pipe gas from Russia and West Asian countries. Pipe gas has low cost as it does not need to liquefy, shipping to overseas and gasify for use.

For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargo will start to export in 2015.

The largest potential market is in China, where a fast pace economic growth and relatively lack of energy resource drive the demand to import LNG. The demand from Japan and Korea is fairly steady or in a slow pace.

Nevertheless, the current LNG price structure is not only oil based for Asian market, but also detonation based. LNG produced from the same origin will cost significantly more when it ships to Asia than to Europe. The irrational price structure can be easily break when North America LNG export enter the Asian market. At the end of the day, price is all what matters for buyers. North American does not have a dominant advantage geographically or in production cost. Our view here is that the demand for LNG exports will be limited, and so will the price of natural gas in North American. Global balance is the key how LNG export will play in today's world.

So far, there are no big buyers who have committed to purchase LNG from Canada yet. We are sure that they will come eventually if price is right but will not flood in. This will be favorable to satisfy the Board's Surplus Criterion on one hand; on the other hand, Canada can leverage the situation and promote to attract buyers from the world according and as needed.

GIT believes, in light of all the above discussion, that exports from the proposed NewTimes Project of up to 12 MMt/y would not materially impact WCSB natural gas market dynamics due to the small scale of the project. If there is any measurable impact, the project may be slightly supportive to gas prices in the region. Otherwise, export demand will drop to be balanced globally.

B.2 Expected Gas Demand in U.S.

Gas demand in U.S. consists of two sources: domestic demand and global demand

B.2.1 Domestic Gas Demand – U.S.

U.S. Residential and Commercial Sector Demand Forecast

GIT forecasts residential and commercial demand to decline slightly in 2053, due to energy efficiency improvements and renewable energy use such as solar energy, as well as residential space heating declines as a result of population shifts to warmer regions of the country.

U.S. Power Sector Demand Forecast

GIT forecasts natural gas' share of total U.S. power generation to increase due to the coal plant retirements and switch to gas power generation. Per OPEC, U.S. and China has promised to keep emission from increase from 2030. Consumption of natural gas for electric power generation grows the most out of all sectors.

U.S. Industrial Sector Demand Forecast

From 2012 to 2040, natural gas consumption in the industrial sector increases by 2.5 Tcf, an average of 0.9%/year, representing about 26% of the total increase in natural gas consumption. As industrial output grows, the energy-intensive industries take advantage of relatively low natural gas prices, particularly

through 2028. After 2028, industrial sector consumption of natural gas continues to grow but at a somewhat slower rate, in response to rising prices.

U.S. Transportation Sector Demand Forecast

Although transportation use currently accounts for only a small portion of total U.S. natural gas consumption, natural gas use by heavy-duty vehicles (HDVs), trains, and ships shows the largest percentage growth of any fuel in the projection. Consumption in the transportation sector, excluding natural gas use at compressor stations, grows from about 40 billion cubic feet (Bcf) in 2012.

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B.2.2 International Gas Demand – U.S.

U.S. LNG Export Demand Forecast

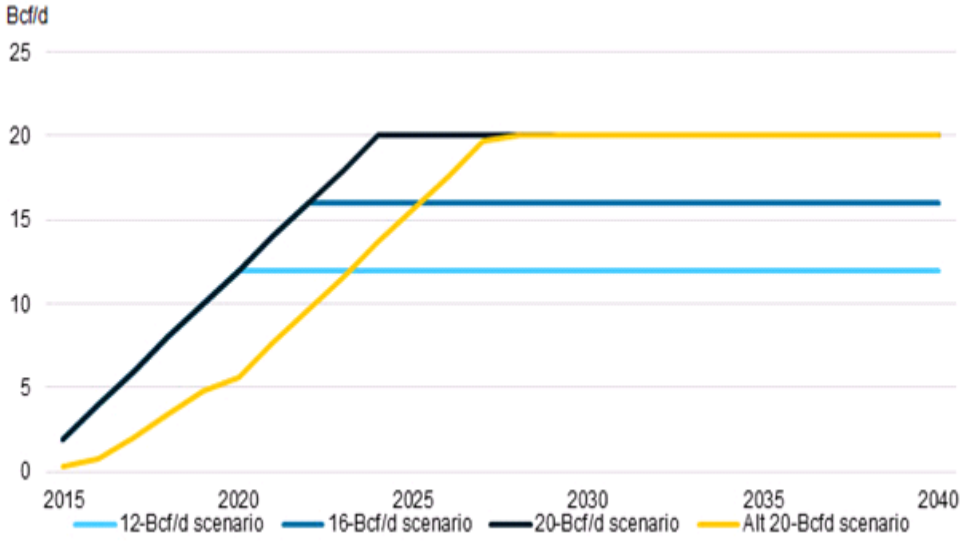
GIT forecasts that liquefied natural gas exports will be the major force for U.S. gas demand increase, although it is bring a new era of economics to local growth. However, U.S. export will have competition with Canada and rest of the world for North East Asia market.

LNG Export Assumptions

1. U.S. EIA estimated that LNG export

EIA estimated that LNG export in U.S. will like ramp from 6 Bcf/d up to 20 Bcf/d, see 4 cases of 12, 16, and 20 Bcf/d below:

Figure 13: LNG Export in U.S. Ramp Up



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2. Demand in Mexico state assumption regarding remaining net draw by Mexico on U.S. supplies

Since Mexico has natural gas resource and proved reserves, this can be changed in the future, which will be favorable to the surplus requirements.

B.2.3 Demand Forecast Method for U.S.

In its simplest form, our assessment of potential gas forecast is derived by

1) Input historic data from trusted published sources such as NEB and EIA;
2) Estimate the volume of potential;
3) Multiply this volume by a yield factor;
4) Discount to allow for the probability.

A yield factor represents the amount of gas expected to be from a given unit. It is calculated using data from known gas accumulations considered analogous to the prospective ones being evaluated. Yield is the volume of discovered gas (i.e., cumulative production plus proved reserves) divided by the volume containing the gas. The yield factor applied to any prospective area may be adjusted to accommodate variations appropriate to the prospective area.

B.2.4 Demand Forecast Model Assumptions

Assumptions are made as follows:

GDP growth is at an increase but stable and health increase rate;

1. Oil price is increasing at a stable rate and health increase rate;
2. Based on the data above, historically, the average increase is significantly lower than the rate predicted from AEO2014 towards 2040. Due to export historically only from Canada to U.S., and the new plan is going to export reversely and globally, it is very reasonable to assume an increase rate derived and extended from increase rate toward 2040 by U.S. EIA's AEO2014;
3. Increase of export might be flat due to unconventional might be discovered and produced economically as well such as country China, which has a large shale gas reserve, but unable to produce now.
4. Gas Price will affect producers to plan for production. The higher the gas price is, the more comfortable for producers to increase production. If gas price is no longer cost-effective, producers are more likely to reduce production.
5. Other factors such as location, midstream Infrastructure, Government policies, oil, electrical power, weather and Catastrophic events.

Data from EIA:

Table 23: U.S. Gas Production Outlook

ref2014.d102413a	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035	2036	2037	2038	2039	2040	
Report: Annual Energy Outlook 2014 Scenario: ref2014 Reference case Datakey: d102413a Release Date: April 2014																															
13. Natural Gas Supply, Disposition, and Prices (trillion cubic feet, unless otherwise noted)																															
Supply, Disposition, and Prices	**2011**	**2012**	**2013**	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**	**2023**	**2024**	**2025**	**2026**	**2027**	**2028**	**2029**	**2030**	**2031**	**2032**	**2033**	**2034**	**2035**	**2036**	**2037**	**2038**	**2039**	**2040**	**2040**
Production																															
Dry Gas Production 1/	22.55	24.06	24.19	24.20	24.63	25.68	26.38	27.20	28.19	29.09	29.70	30.19	30.92	31.44	31.86	32.47	33.07	33.65	34.09	34.43	34.66	35.04	35.28	35.73	36.09	36.36	36.68	37.04	37.36	37.54	1.6%
Supplemental Natural Gas 2/	0.06	0.06	0.06	0.07	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.1%
Net Imports	1.96	1.51	1.24	1.35	1.00	0.76	0.03	-0.66	-1.40	-1.93	-2.30	-2.49	-2.88	-3.19	-3.41	-3.74	-4.11	-4.45	-4.76	-4.94	-5.04	-5.24	-5.34	-5.41	-5.53	-5.62	-5.68	-5.76	-5.85	-5.80	--
Pipeline 3/	1.68	1.37	1.22	1.21	1.05	0.92	0.64	0.45	0.22	0.09	-0.13	-0.32	-0.55	-0.62	-0.84	-0.97	-1.14	-1.29	-1.42	-1.57	-1.67	-1.67	-1.67	-2.04	-2.16	-2.25	-2.31	-2.39	-2.46	-2.43	--
Liquefied Natural Gas	0.28	0.15	0.02	0.14	0.04	-0.16	-0.61	-1.11	-1.62	-1.93	-2.17	-2.17	-2.32	-2.57	-2.57	-2.77	-2.97	-3.17	-3.35	-3.37	-3.37	-3.57	-3.67	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	-3.37	--
Total Supply	**24.57**	**25.64**	**25.59**	**25.69**	**25.70**	**26.50**	**26.47**	**26.61**	**26.85**	**27.23**	**27.47**	**27.77**	**28.11**	**28.31**	**28.52**	**28.79**	**29.02**	**29.27**	**29.39**	**29.56**	**29.69**	**29.86**	**30.12**	**30.38**	**30.63**	**30.80**	**31.06**	**31.34**	**31.57**	**31.81**	**0.8%**
Consumption by Sector																															
Residential	4.71	4.17	4.61	4.67	4.50	4.51	4.51	4.49	4.47	4.46	4.45	4.44	4.43	4.42	4.40	4.39	4.38	4.37	4.35	4.33	4.31	4.30	4.28	4.25	4.23	4.20	4.18	4.16	4.14	4.12	0.0%
Commercial	3.16	2.90	3.19	3.16	3.11	3.13	3.15	3.15	3.15	3.16	3.18	3.19	3.20	3.21	3.22	3.23	3.25	3.26	3.27	3.28	3.30	3.32	3.35	3.38	3.40	3.43	3.46	3.50	3.54	3.57	0.7%
Industrial 4/	6.90	7.14	7.35	7.49	7.70	7.83	7.91	7.93	7.99	8.09	8.16	8.25	8.33	8.36	8.40	8.45	8.50	8.53	8.52	8.52	8.54	8.56	8.57	8.58	8.59	8.60	8.63	8.66	8.68	8.68	0.2%
Natural Gas-to-Liquids Heat and Power 5/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Natural Gas to Liquids Production 6/	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	--
Electric Power 7/	7.56	9.25	8.13	7.79	8.04	8.68	8.49	8.52	8.62	8.81	8.90	9.08	9.28	9.37	9.49	9.65	9.75	9.89	9.96	10.06	10.12	10.20	10.25	10.50	10.67	10.75	10.87	11.00	11.11	11.23	0.7%
Transportation 8/	0.04	0.04	0.05	0.06	0.06	0.07	0.07	0.07	0.08	0.08	0.09	0.10	0.11	0.12	0.14	0.16	0.18	0.21	0.24	0.28	0.31	0.35	0.39	0.43	0.48	0.55	0.62	0.69	0.76	0.85	11.2%
Pipeline Fuel	0.68	0.72	0.71	0.71	0.69	0.68	0.69	0.70	0.71	0.73	0.73	0.74	0.74	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.81	0.81	0.81	0.82	0.81	0.82	0.82	0.82	0.83	0.5%
Lease and Plant Fuel 9/	1.32	1.42	1.40	1.41	1.40	1.44	1.50	1.59	1.67	1.74	1.78	1.81	1.87	1.92	1.95	1.98	2.02	2.05	2.08	2.11	2.13	2.16	2.19	2.22	2.24	2.27	2.30	2.32	2.34	2.35	1.0%
Total	**24.38**	**25.64**	**25.65**	**25.29**	**25.51**	**26.33**	**26.31**	**26.44**	**26.68**	**27.06**	**27.30**	**27.68**	**27.94**	**28.14**	**28.35**	**28.63**	**28.86**	**29.10**	**29.22**	**29.39**	**29.52**	**29.69**	**29.94**	**30.20**	**30.44**	**30.62**	**30.88**	**31.15**	**31.38**	**31.63**	**0.8%**
Discrepancy 10/	0.19	0.00	-0.07	0.40	0.27	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.17	0.18	0.18	0.19	0.19	0.19	0.19	0.19	0.18	--
Natural Gas Prices																															
Henry Hub Spot Price																															
(2012 dollars per million Btu)	4.07	2.75	3.60	3.74	3.74	4.16	4.40	4.60	4.66	4.38	4.67	4.82	4.96	5.12	5.23	5.36	5.49	5.59	5.78	6.03	6.17	6.36	6.59	6.74	6.92	7.18	7.23	7.26	7.42	7.65	3.7%
(nominal dollars per million Btu)	4.00	2.75	3.66	3.86	3.93	4.41	4.76	5.27	5.59	4.96	5.37	5.64	5.90	6.20	6.45	6.72	7.00	7.26	7.63	8.12	8.47	8.91	9.41	9.83	10.31	10.80	11.23	11.53	12.04	12.69	5.6%
Delivered Prices																															
(2012 dollars per thousand cubic feet)																															
Residential	11.22	10.69	10.62	11.44	11.24	10.92	11.25	11.71	11.88	11.85	12.06	12.16	12.32	12.50	12.75	12.86	13.00	13.16	13.47	13.66	13.95	14.01	14.25	14.65	14.93	15.32	15.49	15.62	15.86	16.33	1.5%
Commercial	9.16	8.29	8.49	9.29	9.11	8.91	9.21	9.62	9.76	9.70	9.90	9.97	10.12	10.25	10.51	10.61	10.73	10.89	11.15	11.44	11.54	11.54	11.73	12.01	12.22	12.53	12.64	12.73	13.04	13.37	1.7%
Industrial 4/	5.23	3.85	4.70	4.91	5.05	5.26	5.55	5.87	6.08	5.92	6.07	6.09	6.19	6.26	6.46	6.50	6.57	6.68	6.88	7.16	7.25	7.28	7.56	7.74	7.93	8.22	8.27	8.31	8.52	8.78	3.0%
Electric Power 7/	4.96	3.51	4.42	4.57	4.53	4.57	4.79	5.17	5.29	5.19	5.36	5.41	5.54	5.75	5.88	5.94	6.04	6.16	6.38	6.64	6.76	6.87	7.06	7.25	7.45	7.74	7.80	7.95	8.07	8.24	3.3%
Transportation 11/	16.25	14.96	15.79	15.64	15.98	16.07	16.15	16.34	16.26	15.96	15.97	15.95	15.77	15.87	15.91	15.89	15.94	16.26	16.60	16.99	17.20	17.25	17.67	18.14	18.49	18.99	19.21	19.36	19.68	20.10	1.0%
Average 12/	6.39	5.50	6.25	6.74	6.63	6.57	6.86	7.26	7.38	7.25	7.41	7.45	7.56	7.76	7.89	7.94	8.03	8.16	8.40	8.68	8.86	8.90	9.11	9.33	9.54	9.87	9.96	10.04	10.30	10.61	2.4%
(nominal dollars per thousand cubic feet)																															
Residential	11.02	10.69	10.77	11.63	11.60	11.64	12.17	12.85	13.25	13.42	13.89	14.23	14.67	15.23	15.78	16.11	16.57	17.11	17.80	18.58	19.15	19.63	20.37	21.38	22.23	23.31	24.07	24.79	25.69	27.07	3.4%
Commercial	9.00	8.29	8.62	9.60	9.57	9.50	9.95	10.56	10.88	10.99	11.39	11.67	12.04	12.53	12.95	13.29	13.68	14.13	14.73	15.40	15.85	16.16	16.77	17.52	18.20	19.07	19.64	20.21	21.15	22.16	3.6%
Industrial 4/	5.13	3.85	4.77	5.07	5.30	5.61	6.00	6.56	6.79	6.70	6.96	7.12	7.36	7.71	7.96	8.14	8.38	8.66	9.09	9.62	9.97	10.34	10.84	11.29	11.81	12.51	12.86	13.19	13.82	14.56	4.9%
Electric Power 7/	4.86	3.51	4.48	4.72	4.75	4.87	5.18	5.69	5.99	5.87	6.17	6.33	6.59	6.96	7.25	7.45	7.69	7.99	8.43	8.93	9.29	9.63	10.12	10.67	11.09	11.77	12.12	12.46	13.09	13.82	5.0%
Transportation 11/	15.97	14.96	16.02	16.37	16.77	17.13	17.47	17.94	18.13	18.08	18.38	18.55	18.77	19.22	19.60	19.92	20.32	21.10	21.94	22.87	23.61	24.36	25.25	26.47	27.54	28.90	29.85	30.73	31.92	33.33	2.9%
Average 12/	6.28	5.50	6.44	6.97	6.96	7.09	7.41	7.87	8.22	8.21	8.54	8.72	9.00	9.40	9.71	9.95	10.24	10.60	11.10	11.68	12.09	12.47	13.02	13.61	14.21	15.01	15.40	15.84	16.71	17.59	4.2%

Yield factors are made as follows:

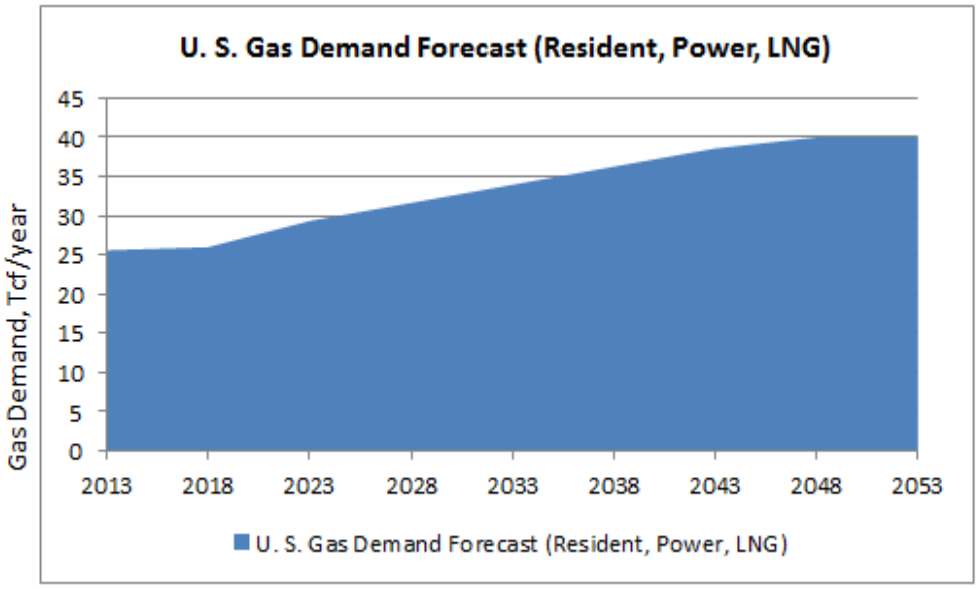
1) Liquefied natural gas will not start to export until 2019, which is showing from the applications licences approved or to be approved;
2) Long-term gas supply contracts will be signed and executed after 2019 to produce natural gas for LNG plants with terms of 20 – 25 years, which will make natural gas supply increase significantly;
3) After the term of 20 – 25 years, export volume is going to be stabilized due the contract renew issue.

B.2.5 Gas Demand Forecast Results for U.S.

Taking all above into account, based on data in section B.1.2, GIT models all the cases and analyze the model results. A summary result is presented as below, which is the most accurate, safest and lowest risky outlook from the model. Our model for the total natural gas production in the United States in 2053 will grow to 40.01 Tcf,

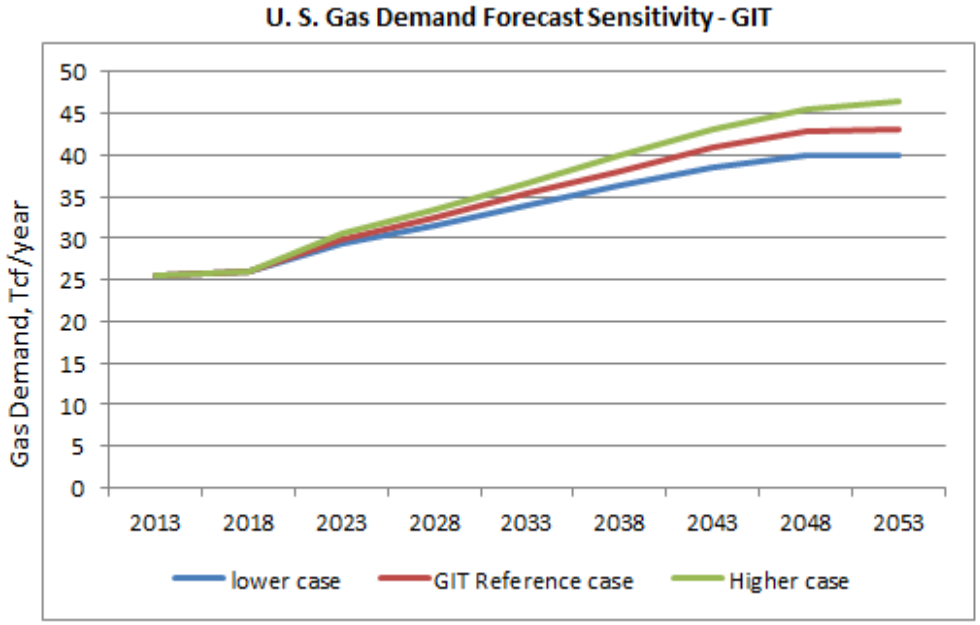
Similar model results are illustrated as figure below for U.S. gas demand forecast including LNG export.

Figure 14: U.S. Gas Demand Forecast



Also similarly, a sensitivity 15% demand increase based on 2018 is illustrated after an assumption of 3.25% increase started at 2023, and then a 1% increase rate of LNG export volume every 5 years on average, The increase rates (5-year accumulated incremental) table after calculation based on data and our assumption is listed as follows:

Figure 15: U.S. Gas Demand Forecast sensitivity



Part B Conclusion

1. Internal demand growth projected to be slow. Demand growth will be mainly from electricity generation and oil sands production.
2. External demand growth in the form of LNG has potential but limited;
3. External demand growth will face competition globally, Canada and North American does not have superior advantage if the current destination-based LNG price structure breaks down;
4. For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargoes will likely be shipped in 2015;
5. The largest potential market is in China, where a fast pace economic growth and relatively lack of energy resource drive the demand to import LNG. The demand from Japan and Korea is fairly steady or in a slow pace;
6. The current LNG price structure is not only oil based for Asian market, but also destination based. LNG produced from the same origin will cost significantly more when it ships Asia to than to Europe. The irrational price structure can be easily break when North America LNG export enter the Asian market;
7. Price is all that matters to buyers. North American does not have an advantage geographically or production cost. Our view here is that the demand for LNG exports will be limited, and so will the price of natural gas in North American. Global balance is the key how LNG export will play in today's world.
8. Lack of big buyers who have committed to purchase LNG from Canada is sign that the external demand will not flood in, which be favorable to satisfy the Board's Surplus Criterion, on one hand, that the quantity of gas NewTimes seeks to export does not exceed the surplus; on the other hand, Canada can leverage the situation and promote to attract buyers from the world according and as needed;
9. GIT believes, in light of all the above discussion, that exports from the proposed NewTimes Project of up to 12 MMt/y would not materially impact WCSB natural gas market dynamics due to the small scale of the project. If there is any measurable impact, the project may be slightly supportive to gas prices in the region. Otherwise, export demand will drop to be balanced globally; thus, the requirements for Canadian's use of natural will not be affected.

Part C: Gas Supply and Demand Balance –Integration of the gas supply and requirements (demand) of Guide Q Filing Requirements #2 and #3

C. 1 Natural Gas Supply and Demand Balance

Increased natural gas production would meet most demand from added LNG exports[35]. With abundant natural gas reserve in North America, increased natural gas production would meet most demand from added LNG exports. From above forecast to 2053, natural gas supply and demand is closely balanced. This balance has reflected the increase of gas power generation and liquefied natural gas exports.

Historically, natural gas produced in Texas, Louisiana, Oklahoma, and the offshore Gulf of Mexico has been transported to markets east of the Mississippi River. In addition, significant volumes of natural gas have been transported from Canada and the Rocky Mountains to serve the same markets. However, the advent of large-scale natural gas production in the Marcellus shale formation, located in Appalachia, will alter natural gas transportation patterns east of the Mississippi River.

Over the past several years, North America has been enjoying relatively low natural gas prices due to the availability of abundant domestic resources and the application of improved production technologies. To meet growth in natural gas consumption and a rise in exports as forecast from this report, producers has to increase production level by moving into some gas fields where natural gas is more difficult and expensive to explore, which leads to an increase in spot prices such as Henry Hub to 2053. GIT's forecast of Henry Hub spot prices for natural gas increases from $4.48/million Btu (MMBtu) in 2013 to increase to an even point but settled down globally in 2053.

Growth in demand for natural gas, largely from the electric power and industrial sectors and for liquefied natural gas (LNG) exports, results in upward pressure on prices, particularly in the 2015-23 period. Delivered prices to residential, commercial, industrial, and electric power consumers generally rise with Henry Hub prices in the forecast, but the lower 48 average spot price increases at a slightly slower rate than the Henry Hub spot price, because regional production growth in areas that do not serve the Henry Hub is somewhat faster than growth in areas that supply the Henry Hub.

U.S. total natural gas consumption grows. Natural gas use increases in all of the end-use sectors except for residential. Natural gas use for residential space heating declines as a result of population shifts to warmer regions of the country and improvements in appliance efficiency. The development of shale gas resources spurs growth in natural gas production, with producers seeing higher prices as a result of growing demand, especially from both the industrial and electricity generation sectors. Growing LNG exports also support higher natural gas prices but not as high. The United States transitions from being a net importer to a net exporter, around 2028, followed by slower growth through 2053.

[35] Energy Information Administration, http://www.eia.gov/todayinenergy/detail.cfm?id=18771

Net LNG exports, primarily to Asia, increase from 2012 to 2028, and then remain flat through 2053. Prospects for future LNG exports are uncertain, depending on many factors that are difficult to anticipate. The increase in net LNG exports to Asia through 2028 including the rise in total net natural gas exports, as well as the part coming from decreased net pipeline imports from Canada and increased net pipeline exports to Mexico. Net pipeline imports from Canada drop mainly as a result of lower imports to the western United States.

U.S. natural gas production is affected by crude oil prices primarily through changes in natural gas consumption and exports. Across the oil price cases, the largest changes in consumption are seen for natural gas consumed in transportation and natural gas exported as LNG. The profitability of natural gas as a transportation fuel or as LNG for export depends primarily on the price differential between crude oil and natural gas. For example, in the Low Oil Price case, virtually no natural gas is consumed in the transportation sector, and little LNG is exported. In the High Oil Price case, it provides substantial incentive for direct use of natural gas in transportation and for conversion to LNG for export.

From 2017 to 2022, U.S. offshore natural gas production as offshore exploration and development activities are directed primarily toward oil resources in the Gulf of Mexico. Offshore natural gas production increases after 2022 as natural gas prices rise. Alaska's natural gas production also increases because of Alaska LNG exports to overseas customers, beginning in 2026..

Although the increases in natural gas prices at the producer level translate to similar absolute increases in delivered prices to customers, the percentage change in prices that industrial and electric customers pay tends to be somewhat lower than the change in the producer price. And the percentage change in prices that residential and commercial customers pay is significantly lower. These lower values are because delivered prices include transportation charges (for most customers) and distribution charges (especially for residential and commercial customers) that do not vary significantly across export scenarios. On average, from 2015 to 2053, natural gas bills paid by end-use consumers in the residential, commercial, and industrial sectors combined increase less than 5%. Increases in electricity bills paid by end-use customers less than 3%.

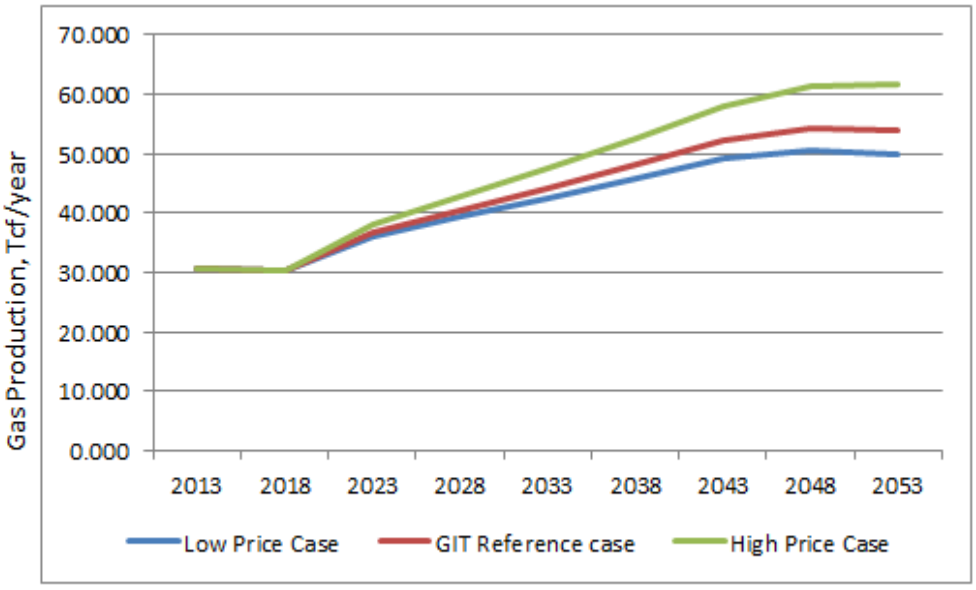
Canadian exports, all to the U.S., have been declining the last few years. Gas imports into Canada from the U.S. have been increasing because of Marcellus shale gas entering the Ontario market. Declining exports and increasing imports have resulted in decreasing net exports out of Canada since 2007. In the projections, the difference between Canadian production and demand is the net amount of gas that is available for export each year. In the forecast, net gas available for export has been included.

In the High Price Case, a result of higher production levels and slightly lower demand due to the dampening effect of higher prices on consumption.

Production in the Low Price Case is lower but demand is higher, leading to net imports. Canada continues to be a net gas importer.

US natural gas production influenced by oil price from the model of GIT:

Figure 16: Gas Production Price Impact Forecast



Gas Production Price Impact Forecast (Conventional, CBM and Shale/tgiht) - GIT

C.1.1 Supply/Demand Balance By Integration in North America

It is important to note that while Canada becomes a net importer in the Low Price Case, this does not imply that Canadian consumers' gas requirements will not be met. The North American natural gas market is highly integrated and market forces will ensure sufficient supplies will exist to meet Canadian gas demand at a market-driven natural gas price. In a low price environment where Canadian production falls below demand, sufficient low-cost supplies from the U.S. would be imported to meet Canadian gas demand. As noted earlier, Canada has large natural gas resources. Canadian production could be significantly higher if natural gas prices were higher.

U.S. natural gas production reached record levels in 2013, with production ramping up over the last few years as the large growth of shale gas and associated gas (from tight oil wells) have outpaced production declines from other gas resources. This has had a dampening effect on prices since 2009. Future growth of U.S. shale gas production will affect North American gas prices. If the U.S. starts to export significant amounts of gas as LNG, prices could increase due to additional demand from liquefaction facilities.

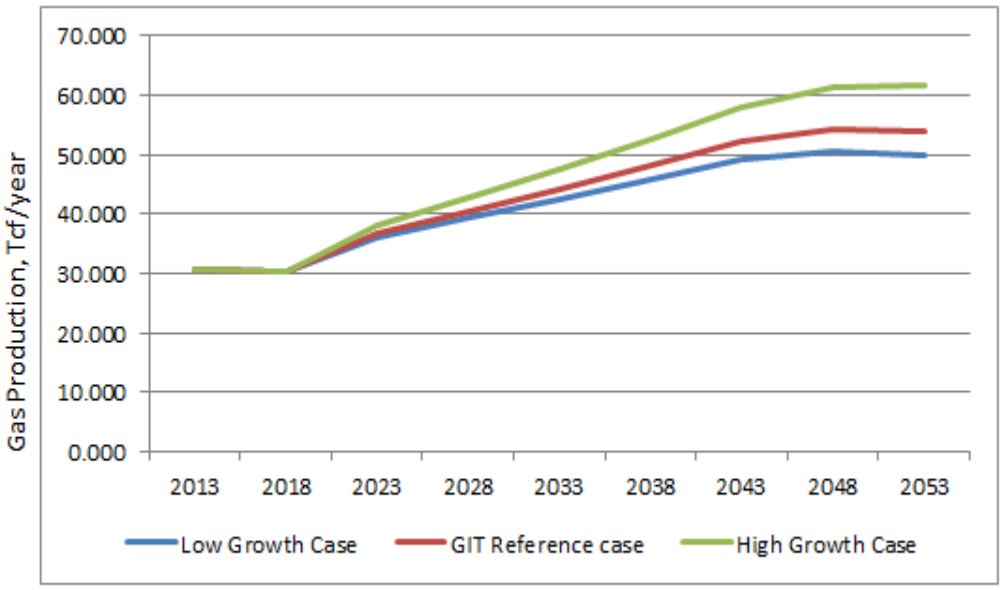
C.1.2 Supply/Demand Balance By Uncertainty

Future natural gas prices are a key uncertainty in the projections. This analysis represents a reasonable range of potential outcomes, but may not capture future price volatility in the market. Since 2000, annual average gas prices in North America have had large swings, with prices peaking in 2003 to 2005

and current prices less than half of 2008 prices. Price swings impact producer revenues and the amount of capital reinvested into the industry.

GIT would like to make an assumption that uncertainty does not include catastrophe events. Under this assumption, GIT model the influence trend as follows:

Figure 17: Gas Production Uncertainty Impact Forecast



Gas Production Uncertainty Impact Forecast (Conventional, CBM and Shale/tgiht) - GIT

C.1.3 Supply/Demand Balance By Other Factors

The timing and volume of LNG exports are key uncertainties given the impact that this could have on exploration, production, prices and infrastructure development.

Potential labor, service or equipment shortages could impact the pace of gas drilling, especially over the next decade with the possible ramp-up of activity to increase production for LNG exports and the increase in tight oil activity and production.

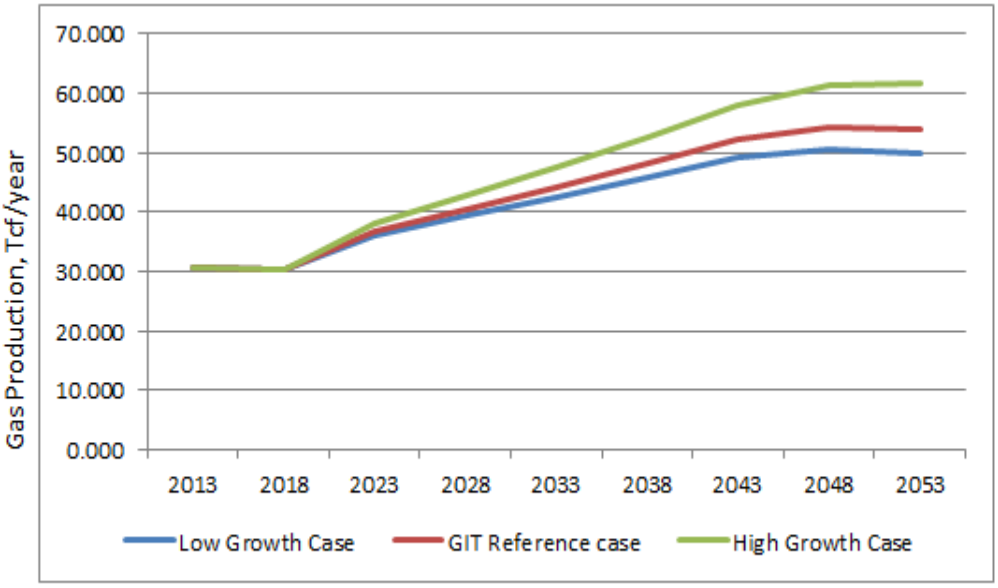
Industry, government, and various groups in many jurisdictions continue to monitor aspects of multi-stage hydraulic fracturing. These include the amount of fresh water used in the fracturing process, the risks to ground water, and the chemical composition and safe disposal of fracturing fluids. Changing requirements in these areas could affect the pace and level of drilling activity. Average well production rates could be higher or lower than assumed in this analysis. Another uncertainty is the development of additional natural gas resources, such as Canadian shale gas plays outside of the WCSB.

Increased natural gas production is projected to satisfy 60% to 80% of a potential increase in demand for added liquefied natural gas (LNG) exports from the Lower 48 states, according to recently released EIA

analysis. The report, Effect of Increased Levels of Liquefied Natural Gas Exports on U.S. Energy Market, considered the long-term effects of several LNG export scenarios specified by the Department of Energy's Office of Fossil Energy (FE). The study also considered implications for natural gas prices, consumption, primary energy use, and energy-related emissions. Effects on overall economic growth were positive but modest. A discussion of caveats and limitations of the analysis is also included. [36]

US natural gas production influenced by economic growth from the model of GIT:

Figure 18: Gas Production GDP Impact Forecast



Gas Production GDP Impact Forecast (Conventional, CBM and Shale/tgiht) - GIT

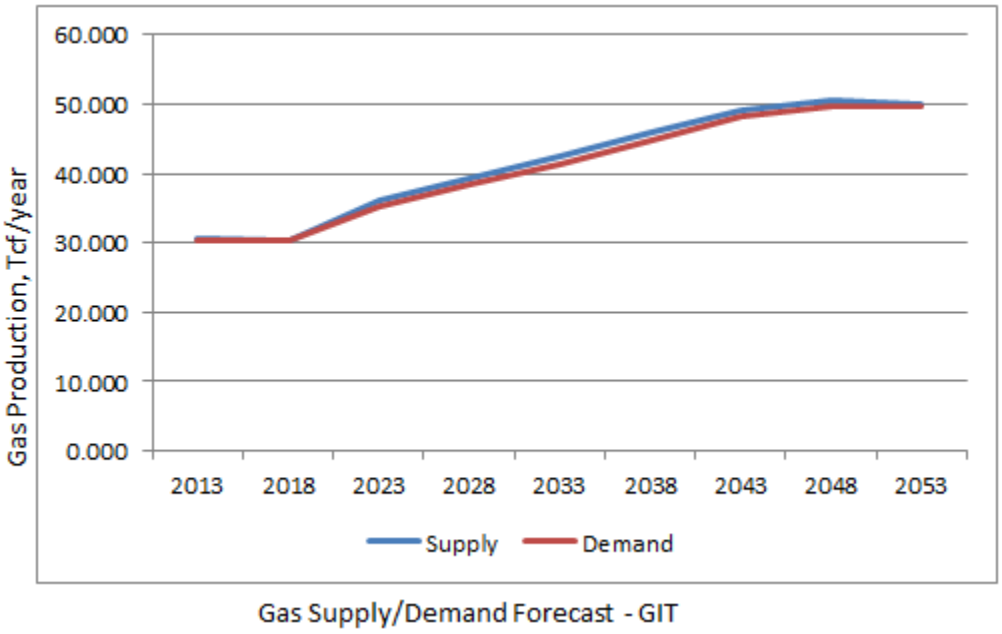
C.1.4 Supply/Demand Balance by Forecast in This Report

North America gas supply and demand is balanced from the forecast models made by GIT for Supply and Demand separately. A combined model is displayed as below:

- Domestic natural gas prices driven primarily by supply
- Severe weather can disrupt production
- Economic growth can affect natural gas demand and prices
- Winter weather strongly influences residential and commercial demand
- Hot summer weather can increase power plant demand for gas
- Natural gas supplies held in storage play a key role in meeting peak demand
- Competition with other fuels can influence natural gas prices

[36] US Energy Information Administration, http://www.eia.gov/forecasts/aeo/pdf/0383(2014).pdf

Figure 19: Gas Supply/Demand Forecast Meet



C.1.5 Supply/Demand Balance by Price

Over the past several years, North America has been enjoying relatively low natural gas prices due to the availability of abundant domestic resources and the application of improved production technologies. To meet growth in natural gas consumption and a rise in exports as forecast from this report, producers has to increase production level by moving into some gas fields where natural gas is more difficult and expensive to explore, which leads to an increase in spot prices such as Henry Hub to 2053. NewTimes' forecast of Henry Hub spot prices for natural gas increases from $4.48/million Btu (MMBtu) in 2013 to increase to an even point but settled down globally in 2053.

There are three supply side factors that may affect prices:

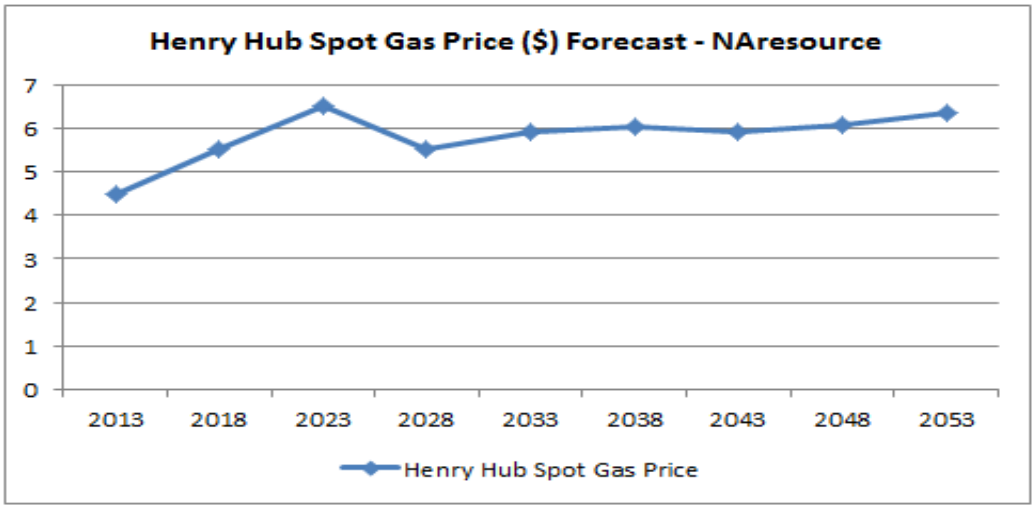
- Variations in the amount of natural gas being produced
- The unexpected volume of gas being imported and/or exported
- The amount of gas in storage facilities (referred to as storage levels)

Increases in supply tend to result in lower prices, and decreases in supply tend to increase prices.

There are three demand side factors that may affect prices:

- The level of economic growth
- Variations in winter and summer weather
- Oil prices (the effects of oil prices on natural gas prices varies by global region)

Figure 20: Henry Hub Spot Price Forecast



C.1.6 Supply/Demand Balance Globally

Global demand for natural gas is the key to supply/demand balance with a forecast of LNG demand increase significantly over the forecast period. Most of the global demand is from North East Asia with China the fastest growing country. With environmental policy made in OPEC for emissions regulations, China's demand for LNG will increase dramatically by the need to switch fuel from coal to clean natural gas, plus China's GDP growing. Other North East countries and regions such as Japan, Korea, Taiwan and Hong Kong have limited access to domestic natural gas supply and will require more LNG compared to countries in other parts of the world

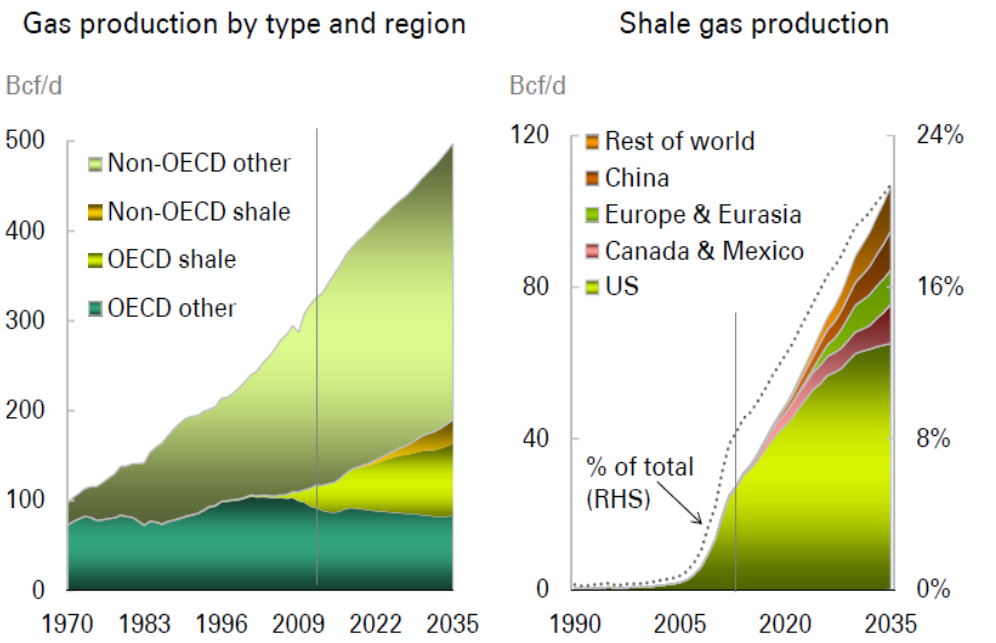
On the east side of the North America, LNG demand will not increase as much except for mainly fuel switching needs, unless a more restrict emissions regulations will be made. Historically, natural gas prices in Europe have been indexed to Brent Crude using a formula to create a natural gas price per mmbtu. The result is that the price is higher per mmbtu than Europe, and significantly higher than North America. North East Asia countries have been willing to pay that price due to the lack of resources.

With global oil prices significantly higher than North American gas prices on a btu basis, a widening spread is developing, providing potential price "head room" and therefore opportunities for LNG exports from North America.

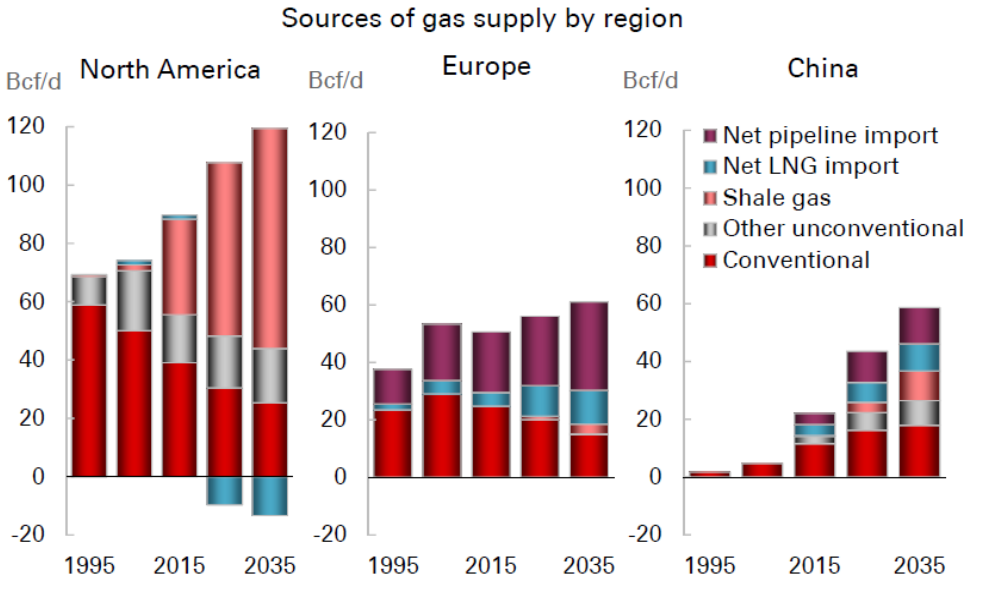
This should lead to an attractive cost/price difference between North America LNG and markets in Asia and thus provide a unique opportunity for participants and beneficiaries the North America economy. LNG exports will contribute Canada's natural gas industry to obtain added value with the significant potential for otherwise unfilled demand in Pacific Rim markets.

GIT would like to make additional evidence by third party for global supply and demand balance. BP Data from BP's Energy Outlook 2035 is used by GIT to add additional look for this report here from a global point of view only[37]:

Figure 21: Sources of Gas Supply by Region and Type - BP



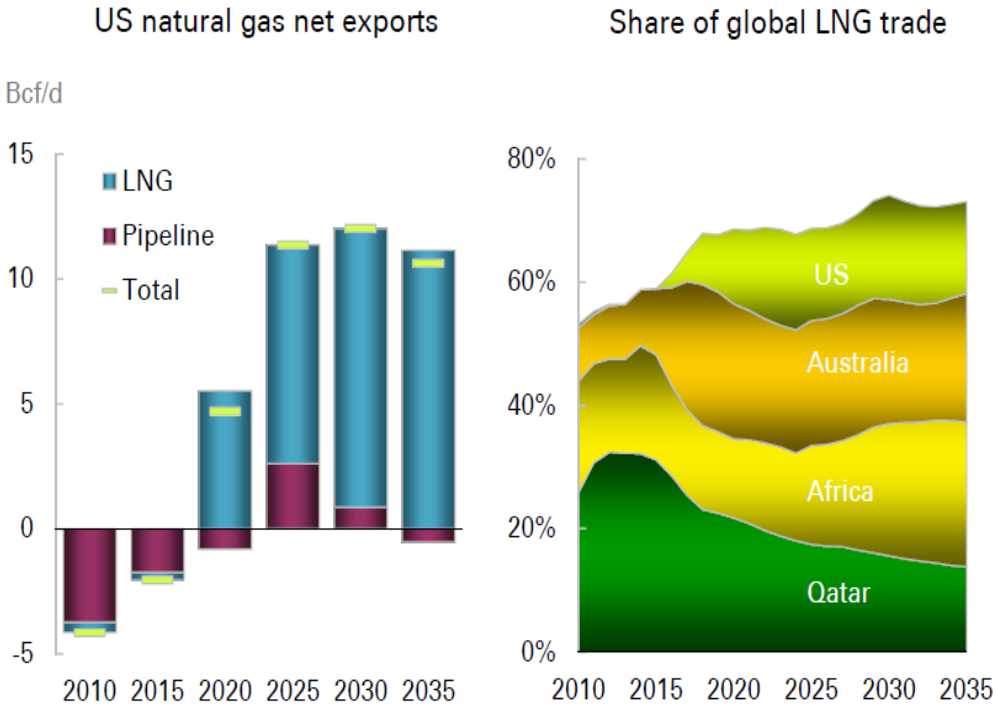
Source: BP



Source: BP

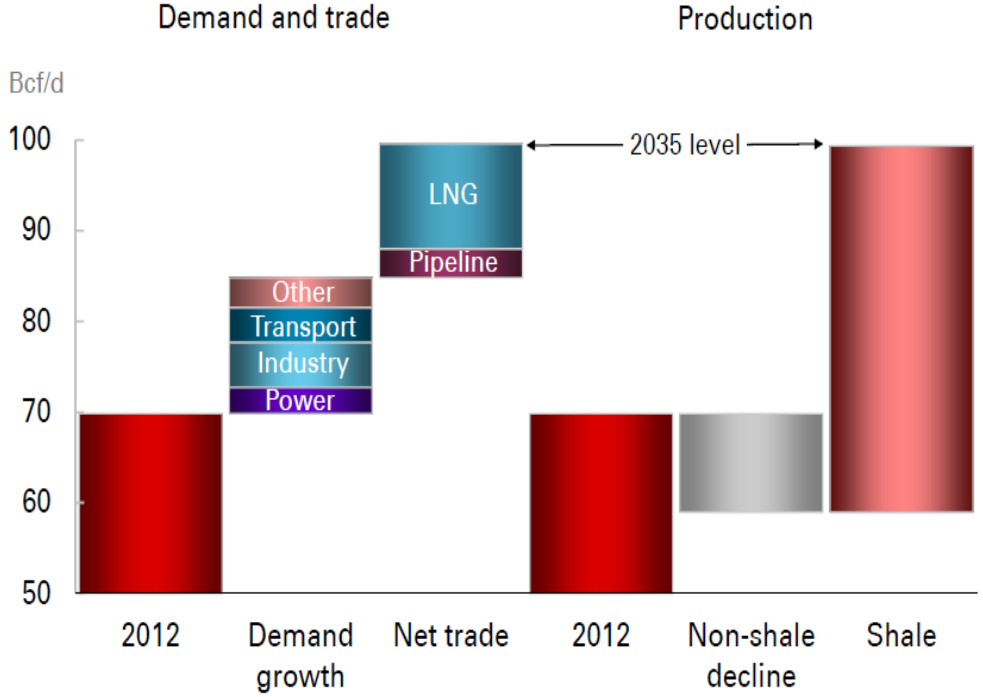
[37] BP Energy Outlook 2035, http://www.bp.com/content/dam/bp/pdf/Energy-economics/Energy-Outlook/Energy_Outlook_2035_booklet.pdf

Figure 22: Shale Gas Sources of Production - BP



Source: BP

Figure 23: Production, Demand and Trade Balance

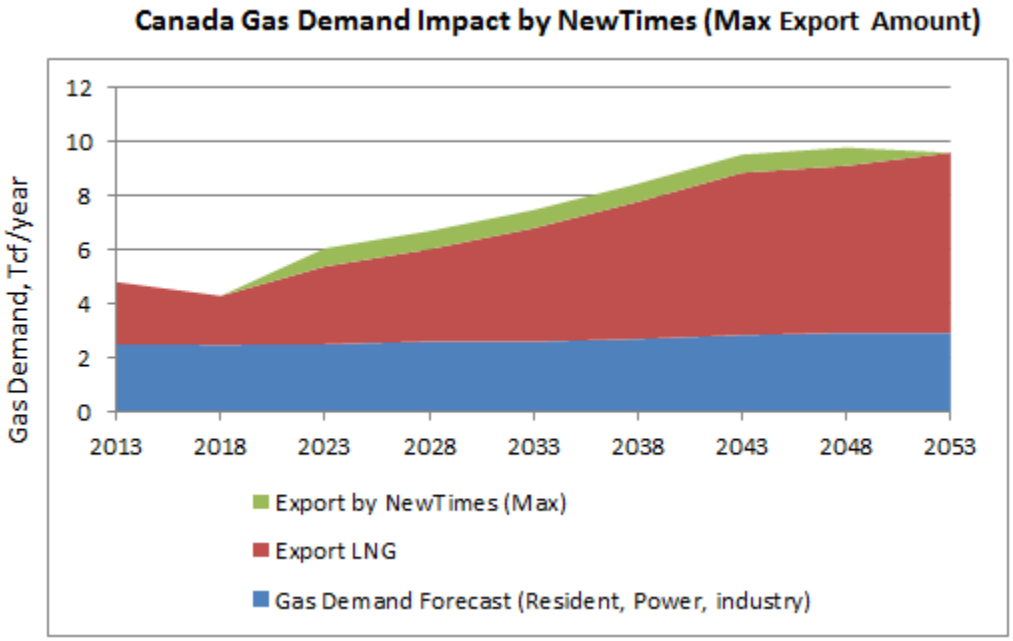


Source: BP

C.1.7 Supply/Demand Balance by – NewTimes LNG Project

NewTimes LNG project at BC will have an annual export amount of 12 MMT per year, which is less than 1% of the total supply in the North America, which certainly "does not exceed the surplus remaining after due allowance has been made for the reasonably foreseeable requirements for use in Canada, having regard to the trends in the discovery of oil or gas in Canada". It will certainly not impact gas price to rise in a noticeable way to Canadian customers by this export project alone.

Figure 24: Canada Gas Demand Impact by NewTimes Project



As show above, how the NewTimes Project will impact to the total Canadian gas demand under the condition that the export amount of liquefied natural gas proposed by NewTimes would extend to its maximum amount allowed from the export licence applied.

By export LNG, NewTimes LNG project at BC will create more local jobs and contribute to BC GDP and economy growth significantly.

C.2 Canada LNG Export Market Competition

C.2.1 Gas pipelines in North America

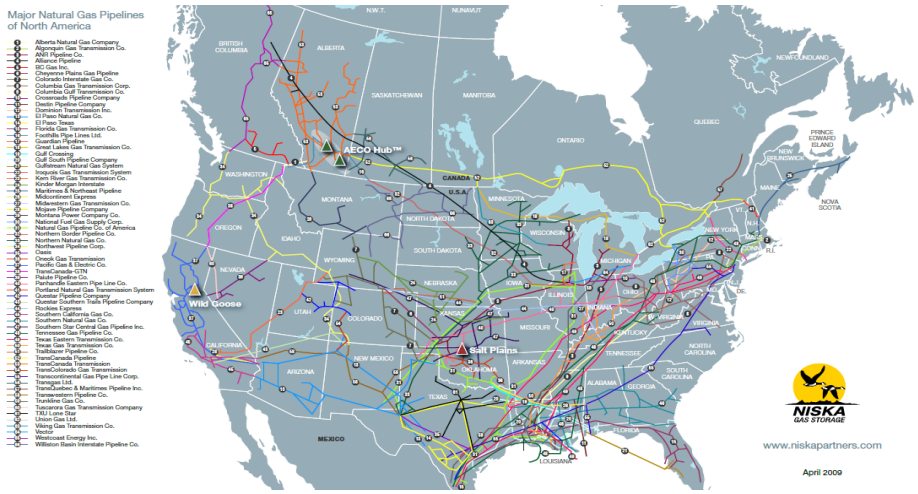
The North American natural gas pipeline network is a highly integrated system that can transport natural gas to and from nearly any location in the lower 48 States and extending to Canada. The natural gas pipeline grid comprises: 5 major routes extend from the producing areas of the Southwest; 4 routes

enter the United States from Canada; 2 originate in the Rocky Mountain area. Pipelines exiting the region have the capacity to accommodate as much as 45.2 Bcf per day.

There are more than 2.5 million miles of energy pipelines in the United States. That's enough to circle the earth 100 times. This includes 324,000 miles of gas transmission and gathering pipelines; and more than 2 million miles of natural gas distribution mains and service pipelines.

Major North America pipelines can be shown from the image below[38]:

Figure 25: North American Natural Gas Pipeline Network



The North American natural gas pipeline network is still growing and extending with storage network everywhere.

C.2.2 Gas Market in North America

The North American gas suppliers are diversified geographically coupled with robust pipeline infrastructure development, has not only improved the ability to quickly move natural gas where it is needed, but has also mitigated regional price disparities and offers end-users a more transparent and competitive gas supply market. Ongoing development will further these positive supply trends. Most markets can access natural gas from multiple sources. North American and Canadian consumers have the choice to purchase the lowest cost delivered gas, and producers can choose the highest paying markets to transport gas to.

Further, the North American gas market consists of a large number of buyers and sellers, which makes it an efficient, open, sophisticated and fairly free. Since 1985 when deregulation of Canadian gas market

[38] Niska Gas Storage, http://www.niskapartners.com/wp-content/uploads/2010/05/GasStorageNA_mapAPR2010-PITCH.pdf

started, gas markets in North American are very health and efficient and there is no evidence that the markets will not sustain its healthy condition in the future.

C.2.3 LNG Export Facing Competition in Global Market

While Canada is still the largest gas and oil exporter to U.S., U.S. begins its pace to transform from an importer country to an exporter country for gas and oil since it became the largest gas producer, and will soon be the largest oil producer in the world. The impacts of these advances, and other shifting trends in the energy system, have important implications for Canadians to seek exporting its abundant gas reserve to other areas of world, with the demand domestically is very steady or in a slow pace to increase overall..

Both Canada and the U.S have approved a number of LNG export terminals, which indicates that the North American market is not only very well-supplied currently, but also has a great potential. A noticeable volume of LNG exports have been submitted in both Canada and U.S. with approved and to be approved. With the abundance of supply in Canada and North America, all LNG exporters will compete and share the same limited global market while the decision to start initial investment to construct facility is depending on the demand. The global market demand will determine how many exports will actually be needed.

For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargo will start to export in 2015.

The largest potential market is in China, where a fast pace economic growth and relatively lack of energy resource drive the demand to import LNG. The demand from Japan and Korea is fairly steady or in a slow pace.

However, the demand globally, which is what LNG exports depend on, is not only limited but also facing a strong competitions from North American country U.S.; from other LNG export countries such as South East Asia, Australia, Russia, East Africa; not to mention the currently largest supply Middle East country Qatar. In addition, LNG will face competitions from pipeline gas from Russia and West Asian countries. Pipeline gas has low cost as it does not need to liquefy ship overseas and gasify.

For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargo will start to export in 2015.

Over the history, LNG market is dominated by long-term contracts which are to ensure a low-cost stable supply and a warranty of Return of Investment (ROI). Once the long-term contracts are signed, only short-term and SPOT deals will be available for a relatively small amount.

Nevertheless, the current LNG price structure is not only oil based for Asian market, but also detonation based. LNG produced from the same origin will cost significantly more when it ships to Asia than to Europe. The irrational price structure can be easily break when North America LNG export enter the Asian market. At the end of the day, price is all what matters for buyers. North American does not have a dominant advantage geographically or production cost. Our view here is that the demand for LNG exports will be limited, and so will the price of natural gas in North American. Global balance is the key how LNG export will play in today's world.

So far, there are no big buyers who have committed to purchase LNG from Canada yet. We are sure that they will come eventually but there is no evidence that LNG buyers will flood in to stress the Canadian and North American market. This will be favorable to satisfy the Surplus Criterion on one hand; on the other hand, Canada can leverage the situation and promote to attract buyers from the world according and as needed.

C.2.4 LNG Export Responding to Catastrophic Events

Full Load of All NEB Approved LNG Exports with NewTimes and Other N.A. LNG Exports (Full Load)

Although there is no evidence that LNG buyers will flood in to stress the Canadian and North American market, catastrophic events can be triggered around the world such as what happened to Japan in 2011 that Tsunami destroyed nuclear power plants. LNG price was as high as $20/mmbtu in North East Asia. Bad weather or extremely cold weather will increase natural demand during the winter. To date right before this report submitted to the Board, there are total 12 LNG exporters approved with a total of 21.92 Bcf/day. For easier calculation, we round it to 22 Bcf/day.

Table 28: List of NEB Approved BC West Coast Exports

Approved Export License	Bcf/d
KM LNG Operating General Partnership	1.30
BC LNG Export Co-operative LLC	0.20
LNG Canada Development Inc.	3.20
Woodfibre LNG Export Pte. Ltd.	0.30
WCC LNG Ltd.	4.00
Prince Rupert LNG Exports Limited	2.90
Pacific NorthWest LNG Ltd.	2.70
Triton LNG LP	0.32
Aurora Liquefied Natural Gas Ltd.	3.11
Oregon LNG	1.22
Woodside Energy Holdings Pty Ltd.	2.67
Total	21.92

Table 29. Full Approved Export Volume, NewTimes and other N.A. Exports

	NEB Approved	NewTimes	Others N.A.
2015	0	0	1
2016	0	0	2
2017	0	0	3
2018	0	0	4
2119	1	0.53	5
2120	2	1.06	6
2121	3	1.6	7
2122	4	1.6	8
2123	5	1.6	9
2124	6	1.6	10
2125	7	1.6	11
2126	8	1.6	12
2127	9	1.6	12
2128	10	1.6	12
2129	11	1.6	12
2130	12	1.6	12
2131	13	1.6	12
2132	14	1.6	12
2133	15	1.6	12
2134	16	1.6	12
2135	17	1.6	12
2136	18	1.6	12
2137	19	1.6	12
2138	20	1.6	12
2139	21	1.6	12
2140	22	1.6	12
2141	22	1.6	12
2142	22	1.6	12
2143	22	1.6	12
2144	22	1.6	12
2145	22	1.6	12
2146	22	1.6	12
2147	22	1.6	12
2148	22	1.6	12
2149	22	1.6	12
2150	22	1.6	12
2151	22	1.6	12
2152	22	1.6	12
2153	22	1.6	12

Above is a list of NEB approved BC West Coast exports as of this date. It does not mean to show evidence that all projects and expansions will be developed fully due to the competition of global market.

However, the potential of these projects exists to be built, especially when catastrophic events happens to trigger the global market to be stressed. It is very possible that a lot of more demand globally will come to Canada and North American market under the catastrophic event circumstance. This modelling of the fully approved volume will assist a better understanding of the situation.

Here we assume that the potential full volume of approved exports beginning in 2019 at 1 Bcf/d and growing at 1 Bcf/d per year until the full 22.0 Bcf/d (assumed) of NEB-approved exports is reached. This modelling of the fully approved volume is used as reference when Canada and North American gas market is folly loaded and under stress, although we understand that global market will ultimately determine if increased investment on gas liquefaction by buyers and sellers is worth of Return of Investment (ROI) and a fully loaded of EB-approved LNG export volumes is unlikely.

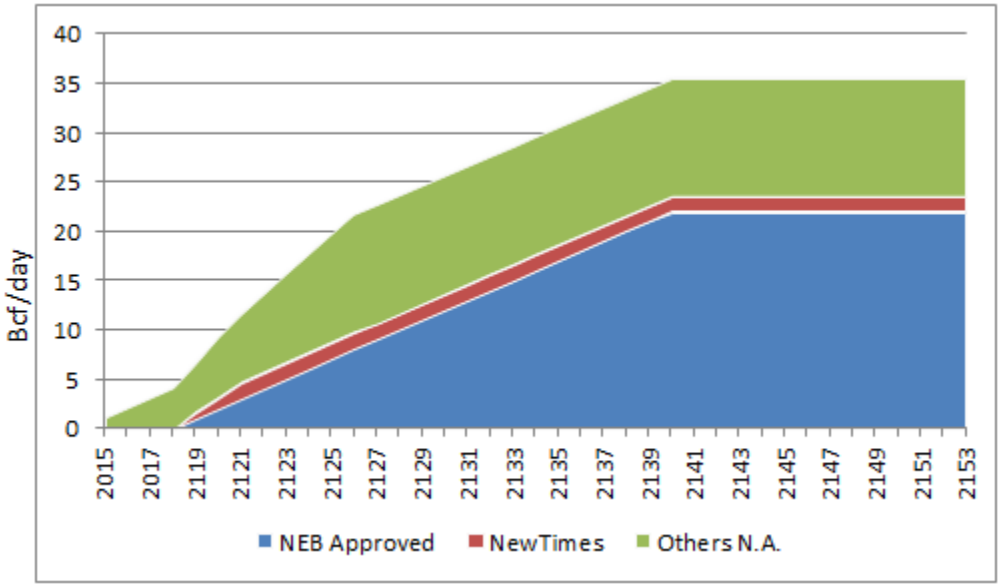
Left Table 29 is the data of ramp up schedule. NEB Approved LNG exports will reach full load in 2040, NewTimes in 2021, and other N.A. in 2026.

Figure 26 below illustrates the potential full volume of approved exports, plus NewTimes applied and plus other North American export volume from U.S..

LNG projects usually won't start to build until the long term sales contracts are signed. These long term contracts are usually accompanied by contracts between the LNG plants and natural gas providers to secure the supply sources. The former is balanced by the global market, and the latter is balance in Henry Hub in North America. In a LNG tolling model, all cost to prepare and plan this volume is covered by tolling fees; In a LNG non-tolling model, sale agreements should cover all that for seller to protect

themselves as well. With this assumption, we would like to conclude that the industry is prepared for volume and planned for this production. Based, in North American, on the abundance of natural gas resources and natural gas production capability, the market efficiency and well pipeline network, the natural gas supply will be very responsive to this demand as planned and resolved at the planning and LNG plant building stage.

Figure 26: Full Approved Export Volume, NewTimes and other N.A. Exports



The long term LNG contract price for LNG export (global price) is determined by the global market at the time of agreement is reached, while the long term gas contract price for natural gas supply (domestic price) is determined by the market such as Henry Hub at the time of the agreement is reached. The more the contracts signed, the higher future domestic price will be; a higher future domestic price will raise the global price and then slow down the contracts signing for LNG export as global buyer will turn to other area with lower LNG price; the higher future domestic price will promote more gas production; it then makes the henry Hub price lower. The price will be balanced domestically and globally at the point where the global market limit is. LNG price is domestic price plus liquefy tolling fee and transportation fee, which is about 2-3 times as much as domestic price. This is very easy to be substituted by other types of energy on the other hand. Full load LNG export will slightly affect domestic gas price very much at one but balanced quickly.

Long term LNG and gas fixed price will not likely affect or likely be affected by the domestic market. But long term floating price will. However, gas energy demand is a type of rigid demand, when resource is abundant and production is not restricted like OPEC used to do with oil production, price should be normally steady. Full load LNG export will not likely to affect domestic gas price very much.

Add on Full Load with15% Tolerance Allowed in Canada (Maximum Load)

Further, when the market is stressed, LNG exporters will be more likely to use their maximum quantity allowed which is 15% tolerance allowed to exceed their annual term. To model this will be further prepared for catastrophically situations. Below, we assume that the potential maximum volume of approved exports beginning in 2019 at 1.15 Bcf/d and growing at 1.15 Bcf/d per year until the maximum 25.3 Bcf/d of NEB-approved exports is reached. This modelling of the maximum approved volume is used as reference when Canada and North American gas market is loaded and under stress at its capacity maximum, although we understand that it is an extreme case for catastrophic events to happen.

Table 30: Maximum Approved Export Volume, NewTimes and other N.A. Exports

	NEB Approved	NewTimes	Others N.A.
2015		0	1
2016	0	0	2
2017	0	0	3
2018	0	0	4
2119	1.15	0.6095	5
2120	2.30	1.219	6
2121	3.45	1.84	7
2122	4.60	1.84	8
2123	5.75	1.84	9
2124	6.90	1.84	10
2125	8.05	1.84	11
2126	9.20	1.84	12
2127	10.35	1.84	12
2128	11.50	1.84	12
2129	12.65	1.84	12
2130	13.80	1.84	12
2131	14.95	1.84	12
2132	16.10	1.84	12
2133	17.25	1.84	12
2134	18.40	1.84	12
2135	19.55	1.84	12
2136	20.70	1.84	12
2137	21.85	1.84	12
2138	23.00	1.84	12
2139	24.15	1.84	12
2140	25.3	1.84	12
2141	25.3	1.84	12
2142	25.3	1.84	12
2143	25.3	1.84	12
2144	25.3	1.84	12
2145	25.3	1.84	12
2146	25.3	1.84	12
2147	25.3	1.84	12
2148	25.3	1.84	12
2149	25.3	1.84	12
2150	25.3	1.84	12
2151	25.3	1.84	12
2152	25.3	1.84	12
2153	25.3	1.84	12

From the Table 30, NEB approved LBG exports will reach to full load in 2040, NewTimes will reach to full load in 2021, other N. A. LNG exports will reach full load in 2026.

Using the data above, we draw a picture as Figure 27 shown to illustrate how full load of LNG exports will play out till 2053.

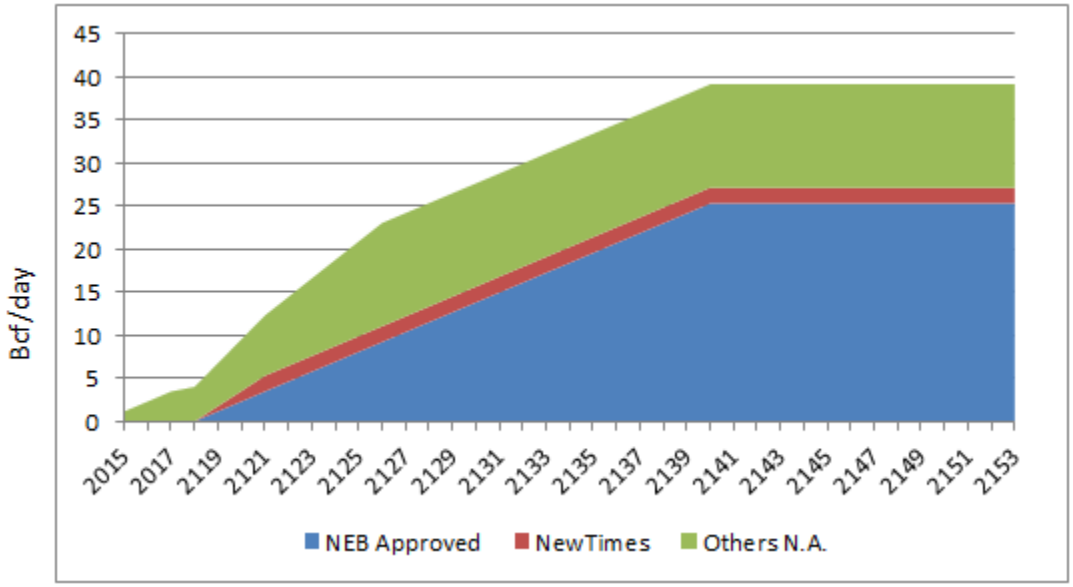
From the model, the total maximum quantity of LNG exports reach to 27.14 Bcf/day in Canada; a total maximum quantity for North American LNG exports will be 39.14 Bcf/day.

When LNG export is using 15% over annual term quantity under some circumstance, a planned production and fixed contracted price will make the market more stable than non-planned production. As exports can be planed, gas producers, pipeline players, and consumers can work on to mitigate the price impact. Producers will make more supplies available, pipeline flows will be adjusted, and consumers will react to price change resulting from LNG exports.

Catastrophic event is defined as short term event and will not last long or situation will not sustain. With a more efficient global market, the impact to North American gas price is not likely, as we predict.

The cycle to build a LNG plant is much longer and much more challenge than to increase gas production, adjust pipeline flow and trigger consumer reaction, therefore, LNG export to affect is always a few steps behind.

Figure 27: Maximum Approved Export Volume, NewTimes and other N.A. Exports



A planned and sufficient production can create a situation where LNG price is higher but domestic price remains flat. The market is always seeking a balance for all components of the same supply chain to have a fair share of the profit. However, since the quantity to exceed the term amount is only 15% to the export quantity, which is about 8.26% of the total production; while the price is depending on the whole domestic market including domestic use and global market as well as other energy products, such as coal, electric power, oil and nuclear power, a much less than 15% percent of the domestic price hike is the most can be reached from the calculation, our prediction is 1.5%, and its impact to Henry Hub price would be $0.09/MMBTU if an assumption of gas price at the time is $6/mmbtu.

Historical catastrophic event such as Tsunami in 2011 did not cause gas supply difficulty to LNG export countries, but to the LNG import counties, due to limitation of LNG production facility and the limitation of LNG transportation.

C.2.5 Effects of LNG Export on Gas Supply and Demand Balance

1. The demand domestically is very steady or in a slow pace to increase overall; while the demand globally, which is what LNG exports depend on, is not only limited but also facing a strong competitions from North American country U.S., from other LNG export countries such as South East Asia, Australia, Russia, East Africa, not to mention the currently largest supply Middle East country Qatar. In addition, LNG will face competitions from pipeline gas from Russia and West Asian countries. Pipeline gas has lower cost as it does not need to liquefy for transportation, ships to overseas and gasify for use. For Canada, the main global market is East Asia, where

exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargo will start to export in 2015.

2. Over the history, LNG market is dominated by long-term contracts which are to ensure a low-cost stable supply and a warranty of Return of Investment (ROI). Once the long-term contracts are signed, only short-term and SPOT deals will be available for a relatively small amount.

3. The current LNG price structure is not only oil based for Asian market, but also destination based. LNG produced from the same origin will cost significantly more when it ships Asia to than to Europe. The irrational price structure can be easily broken when North America LNG exports enter the Asian market. At the end of the day, price is all what matters for buyers. North American does not have a dominant advantage geographically or production cost over other areas in the world. Our view here is that the demand for LNG exports will be limited and very competitive, and so will the price of natural gas in North American. Global balance is the key how LNG exports will play in today's world.

4. As far as we know, there have not been big buyers who have committed to purchase long-term LNG from Canada yet. We are sure that they will come eventually if the price is right but we predict that it will not flood in unless some catastrophic events. This will be favorable to satisfy the Surplus Criterion on one hand as demand is not in back orders; on the other hand, Canada can leverage the situation and promote to attract buyers from the world according to Canadian's needs after surplus determination.

5. Our prediction of gas export impact is $0.09 per MMBTU, which representing a 1.5% increase over the case without LNG exports with an assumption of gas price is $6.00. The projected impact is greatest near the export terminals but dissipates with distance away from Canadian customers. Given the projected price impact, it is highly unlikely that it would cause Canadian industry to be uncompetitive in global markets and lead to a loss of jobs. The N.A. has lower gas prices than most industrialized countries and is projected to continue to have lower gas prices, in part due to continued growth in shale gas production. An increase in gas price of less than 2% is unlikely to change the Canadian's competitiveness in global markets and is unlikely to cause Canadian difficulty to use natural gas. Gas price will be affected rather slightly due to the well-balanced supply-demand and low cost production of unconventional gas and rapid response capability to the market demand, including export.

6. Furthermore, even with exports, Canadian gas prices will be lower than those in the importing countries. Otherwise, export would be unprofitable. The high cost to construct a liquefaction plant plus the high transportation cost of a LNG tanker is estimated to require a spread of around more $4-6 to Asia in order to make LNG export profitable to those regions. Exporting LNG from Canada is being considered now because the price spreads from N.A. to the import regions are well above those levels. However, the key point is that even with LNG exports, the

domestic customers have a built-in cost advantage for natural gas because of the cost differential, called tolling plus transportation cost.

7. Regional price differential exists due to the limited transportation capacity. Export cost would prevent prices from coupling. Even domestically, the same phenomena occur in N.A. during peak winter days when there are often big price differences between Henry Hub and New York City. Henry Hub price can be much cheaper than New York due to the transportation cost between the regions. Transportation bottlenecks prevent Henry Hub's prices from rising along with New York City prices and cause these regions to surge. Exporting limited LNG would not mean that Henry Hub price would rise to the level of the import prices minus the tolling and transportation costs differential. So there is no unified world gas price, in contrast to the oil market in which there is a world oil price. Natural gas, unlike oil, is highly unlikely to ever have a world price. The cost of tolling and transportation is much higher for gas than it is for oil. Therefore, global gas markets will remain partially interconnected regional markets with prices within each region determined by regional supply and demand balances.

8. Historically, Henry Hub Natural Gas Spot prices are volatile, although there has been no LNG export. Comparing to other countries who have LNG exports, it shows they have less volatile than N.A. , so LNG export will not cause domestic gas price to be more volatile. Long term contracts are the key to keep gas price steady. As a matter of fact, LNG export industry is dominated by long term supply agreement. LNG exports will be anticipated by producers and supplies will be made available when they are needed. Prospective LNG exporters are usually lining up potential gas suppliers to provide gas for liquefaction before they invest to build LNG facilities and LNG carriers.

9. The capability and capacity of Canadian and North American gas production is strong and robust enough to meet the demand quickly and dynamically, thus the supply and demand will be well balanced based on the market.

10. As exports can be planed, gas producers, pipeline players, and consumers can work on to mitigate the price impact. Producers will make more supplies available, pipeline flows will be adjusted, and consumers will react to price change resulting from LNG exports.

11. The cycle to build a LNG plant is much longer and much more challenge than to increase gas production, adjust pipeline flow and trigger consumer reaction, therefore, LNG export to affect domestic price is always a few steps behind.

12. Historical catastrophic event such as Tsunami in 2011 did not cause gas supply difficulty to LNG export countries, but to the LNG import counties, due to limitation of LNG production facility and the limitation of LNG transportation.

C. 3 Consideration of the Effect of Possible Variables on the Conclusion of the Supply/Demand Analysis

The most important conclusion of the work presented in Appendix A is that the gas supplies available to the Canadian market, which include large volume supplies from western Canada as well as proximate sources in the U.S. such as the Marcellus formation, can easily accommodate reasonably foreseeable Canadian demand as well as the LNG exports proposed by NewTimes and any plausible potential increase in demand (see Conclusion 9, below).

In reaching this conclusion, careful consideration has been given to three potential variables:

1. Demand sensitivity: a 20% increase in demand for gas in Canada over the forecast period. GIT considers that the gas resources and gas supply available to the Canadian gas market over the forecast period, from Canadian and North American sources, will be adequate to meet Canadians' gas needs in circumstances where those needs are 20% higher than anticipated in GIT's base case.
2. Timing of exports: GIT considers that its conclusion regarding adequacy of gas supply to meet Canadian requirements in full in the presence of NewTimes Energy Ltd's exports is robust regardless when in the period 2020-2050 those exports take place under the requested 25-year term.
3. Total quantity of LNG exports: GIT does not have a technically informed view as to the export quantities of LNG from the west coast of Canada that might find a market overseas during the next four decades or more. GIT notes, among other things:
    a. The Views expressed by the Board on page 5 of its 29 January 2015 Letter Decision in regard to Woodside Energy's application for a licence to export liquefied natural gas;
    b. The assumption in the Board's November 2013 Canada's Energy Future report of exports from the early 2020s at the rate of some 3 Bcf/d;
    c. The commitment of the Government of BC to having three LNG facilities in operation by 2020 which might amount to 6 Bcf/d; and
    d. The aggregate quantity which has so far been licensed by the Board of some 22 Bcf/d .

GIT considers that the gas resources and gas supply available to Canada for potential export from the west coast are sufficient to meet even the total quantity so far licensed by the Board, which it has used in its technical analysis of supply and demand in Appendix A as a maximum case. However, like the Board in its Views in Woodside, GIT believes on the basis of technical reports from reputable authorities such as Poten and Partners , that not all LNG export licences issued by the Board will be used or used to the full allowance.

Part C Conclusions

1. Internal demand mainly from electricity generation and oil sands production will be balanced by the low cost abundant gas production.
2. External demand or LNG export will be balanced due to the competition globally and continentally with U.S..
3. The current LNG price advantage in Asia than in North America is irrational, which cannot be sustained when North America LNG export enter the Asian market.
4. Price is the key for LNG export in global balance.
5. The amount NewTimes seeks to export LNG does not exceed the surplus requirement due to its size alone, which can be easily balanced in the robust, open, integrated, free and efficient North American gas market.
6. GIT believes, in light of all the above discussion, that exports from the proposed NewTimes Project of up to 16 600 000 10^3 m^3 would not materially impact WCSB natural gas market dynamics due to the small scale of the project. If there is any measurable impact, the project may be slightly supportive to gas prices in the region. Otherwise, export demand will drop to be balanced globally; thus, the requirements for Canadian's use of natural will not be affected.
7. The demand domestically is very steady or in a slow pace to increase overall; while the demand globally, which is what LNG exports depend on, is not only limited but also facing a strong competitions from North American country U.S., from other LNG export countries such as South East Asia, Australia, Russia, East Africa, not to mention the currently largest supply Middle East country Qatar. In addition, LNG will face competitions from pipeline gas from Russia and West Asian countries. Pipeline gas has lower cost as it does not need to liquefy for transportation, ships to overseas and gasify for use. For Canada, the main global market is East Asia, where exports from Western Canada have a geographic advantage than other North American country U.S., but U.S. has an earlier start as first cargo will start to export in 2015.
8. Over the history, LNG market is dominated by long-term contracts which are to ensure a low-cost stable supply and a warranty of Return of Investment (ROI). Once the long-term contracts are signed, only short-term and SPOT deals will be available for a relatively small amount.
9. The current LNG price structure is not only oil based for Asian market, but also destination based. LNG produced from the same origin will cost significantly more when it ships Asia to than to Europe. The irrational price structure can be easily broken when North America LNG exports enter the Asian market. At the end of the day, price is all what matters for buyers. North American does not have a dominant advantage geographically or production cost over other areas in the world. Our view here is that the demand for LNG exports will be limited and very competitive, and so will the price of natural gas in North American. Global balance is the key how LNG exports will play in today's world.
10. As far as we know, there have not been big buyers who have committed to purchase long-term LNG from Canada yet. We are sure that they will come eventually if the price is right but we predict that it will not flood in unless some catastrophic events. This will be favorable to satisfy

the Surplus Criterion on one hand as demand is not in back orders; on the other hand, Canada can leverage the situation and promote to attract buyers from the world according to Canadian's needs after surplus determination.

11. Our prediction of gas export impact is $0.09 per MMBTU, which representing a 1.5% increase over the case without LNG exports with an assumption of gas price is $6.00. The projected impact is greatest near the export terminals but dissipates with distance away from Canadian customers. Given the projected price impact, it is highly unlikely that it would cause Canadian industry to be uncompetitive in global markets and lead to a loss of jobs. The N.A. has lower gas prices than most industrialized countries and is projected to continue to have lower gas prices, in part due to continued growth in shale gas production. An increase in gas price of less than 2% is unlikely to change the Canadian's competitiveness in global markets and is unlikely to cause Canadian difficulty to use natural gas. Gas price will be affected rather slightly due to the well-balanced supply-demand and low cost production of unconventional gas and rapid response capability to the market demand, including export.
12. Furthermore, even with exports, Canadian gas prices will be lower than those in the importing countries. Otherwise, export would be unprofitable. The high cost to construct a liquefaction plant plus the high transportation cost of a LNG tanker is estimated to require a spread of around more $4-6 to Asia in order to make LNG export profitable to those regions. Exporting LNG from Canada is being considered now because the price spreads from N.A. to the import regions are well above those levels. However, the key point is that even with LNG exports, the domestic customers have a built-in cost advantage for natural gas because of the cost differential, called tolling plus transportation cost.
13. Regional price differential exists due to the limited transportation capacity. Export cost would prevent prices from coupling. Even domestically, the same phenomena occur in N.A. during peak winter days when there are often big price differences between Henry Hub and New York City. Henry Hub price can be much cheaper than New York due to the transportation cost between the regions. Transportation bottlenecks prevent Henry Hub's prices from rising along with New York City prices and cause these regions to surge. Exporting limited LNG would not mean that Henry Hub price would rise to the level of the import prices minus the tolling and transportation costs differential. So there is no unified world gas price, in contrast to the oil market in which there is a world oil price. Natural gas, unlike oil, is highly unlikely to ever have a world price. The cost of tolling and transportation is much higher for gas than it is for oil. Therefore, global gas markets will remain partially interconnected regional markets with prices within each region determined by regional supply and demand balances.
14. Historically, Henry Hub Natural Gas Spot prices are volatile, although there has been no LNG export. Comparing to other countries who have LNG exports, it shows they have less volatile than N.A. , so LNG export will not cause domestic gas price to be more volatile. Long term contracts are the key to keep gas price steady. As a matter of fact, LNG export industry is dominated by long term supply agreement. LNG exports will be anticipated by producers and supplies will be made available when they are needed. Prospective LNG exporters are usually lining up potential gas suppliers to provide gas for liquefaction before they invest to build LNG facilities and LNG carriers.

15. The capability and capacity of Canadian and North American gas production is strong and robust enough to meet the demand quickly and dynamically, thus the supply and demand will be well balanced based on the market.
16. As exports can be planed, gas producers, pipeline players, and consumers can work on to mitigate the price impact. Producers will make more supplies available, pipeline flows will be adjusted, and consumers will react to price change resulting from LNG exports.
17. The cycle to build a LNG plant is much longer and much more challenge than to increase gas production, adjust pipeline flow and trigger consumer reaction, therefore, LNG export to affect domestic price is always a few steps behind.
18. Historical catastrophic event such as Tsunami in 2011 did not cause gas supply difficulty to LNG export countries, but to the LNG import counties, due to limitation of LNG production facility and the limitation of LNG transportation.

Overall Conclusions

This report is prepared for NewTimes to support its application to the National Energy Board for a long-term licence to export liquefied natural gas by providing a forecast of North American and Canadian natural gas supply, demand and their balance to 2053. After reviewing and analyzing the historic, current and future outlooks, including the requested export licence of up to 12 million tonnes per annum (MTA) equivalent to 1.6 billion cubic feet per day (Bcf/d) or 16.6 billion cubic meters (Bcm) or 584.5 billion cubic feet (Bcf)) for a 25-year term submitted by NewTimes Energy Ltd, GIT reached the following conclusions:

1. The gas resource base in Canada and North America is large in relation foreseeable demands on it, including the gas exports proposed by NewTimes.
2. Past trends in the discovery of gas in Canada and North America have been favorable and, based on published information about the geological resource and the expectation of continuing technical improvement, there is every reason to believe that future trends will continue to be so.
3. Technological advancements in natural gas drilling and well completion methods have made it possible for producers to recover natural gas from shale and tight gas in North America and Canada resulting in potential supply being higher than demand.
4. The gas supply outlook from Canadian and North American sources is robust and NewTimes should be able to acquire adequate quantities of gas regardless what are the commercial mechanisms (for example: equity gas, market purchases, long-term supply arrangements with others) used to obtain those quantities.
5. Production forecasts are necessarily based on assumptions which carry some uncertainties. However, the supply outlook presented here is a global one relating to very large and varied Canadian and North American gas resources rather than on specific local reserves and resources, which increases GIT's confidence in them.
6. Given this favorable Canadian and North American resource situation and supply outlook, it is not expected that gas supply for Canada will be required from other global sources. Canada has the capability to import about 1 Bcf/d from overseas by way of LNG. Seasonal-peak imports to serve local needs are a possibility but given the large price differentials between North American and global gas markets, differentials which are encouraging the development of Canadian LNG export potential, it is unlikely that there will be large-volume continuing base-load imports of LNG to meet Canadian gas requirements during the forecast period.
7. The industry has demonstrated remarkable technical progress, particularly in developing unconventional sources of gas which are going to be the predominant source of new supply as far ahead as one cares to look.
8. This technical progress can be expected to continue and the incremental cost of new production to replace LNG exported by NewTimes is likely to be low.
9. The gas supplies available to the Canadian market, which include large volume supplies from western Canada as well as proximate sources in the U.S. such as the Marcellus formation, can

easily accommodate reasonably foreseeable Canadian demand as well as the LNG exports proposed by NewTimes and any plausible potential increase in demand.

10. The North American gas market is highly integrated, liquid, open and efficient.
11. North American gas demand growth will be driven primarily by gas-fired electrical generation, Canadian Oil Sands gas demand, and LNG export liquefaction.
12. Canadian gas demand is expected to increase at a modest rate due to energy efficiency, other sources of energy such as renewables and nuclear power. Canada's gas production will increase with a faster pace in the near future due to the demand of increased exports but Canadians' gas and energy consumption will grow only moderately due to improved efficiency.
13. Any market impact from the proposed NewTimes Project will be limited by the abundance of low cost gas resource available in North America and Western Canada and the relatively modest amount of exports proposed.
14. The incremental price impact of the NewTimes Project on natural gas prices over the forecast period will be very limited.
15. Natural gas markets will continue to function over the forecast period with natural gas buyers and sellers establishing fair market prices based on supply and demand fundamentals;
16. GIT's assessment indicates that the export of gas proposed by NewTimes will not cause Canadians any difficulty in meeting their natural gas requirements at fair market prices over the forecast period
17. There is necessarily uncertainty regarding LNG exports from Canada over the term of the exports proposed by NewTimes. GIT's demand projections are based on the assumption that the total quantity of gas so far licensed by the Board will be exported. The Board has received evidence in other licence applications which states that this is not likely. The Board in its Energy Future Report November 2013 assumes 3 Bcf/d by 2022. The Government of BC states that it is committed to having three LNG facilities in operation by 2020. The average size of the 10 projects licensed for export by the NEB is equivalent to about 2 Bcf/d which would mean a total of 6 Bcf/d during the 2020s. Clearly the gas resource base and the supply of gas available to Canada are sufficient to meet the needs of the Canadian internal market and to supply gas for LNG across this range of potential exports. It is noted for perspective that the US Department of Energy, Fossil Energy, has been using advice from the EIA to "test" the effects of cumulative LNG exports of 6 and 12 Bcf/d on domestic energy markets.
18. Since international gas prices, especially North East Asia, are higher than those in North America, there are increased business opportunities for producers and market participants to develop LNG export projects.

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4. See National Energy Board Act Part VI (Oil and Gas) Regulations, Part II, Division I, Section 12 (g).

5. Section 118 of the NEB Act, as quoted by the Board in its Letter Decision issuing a LNG export licence to LNG Canada Development Inc. on February 4, 2013 (File OF-EI-Gas-GL-L384-2012-01 01), at 3. The Board stated that the quoted material is what the Board is "legally mandated and authorized to consider" when assessing a gas export licence application.

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