

Liberty Utilities (Gas New Brunswick) LP
Cost of Capital

Background

This is the evidence of Dave Lavigne, Director Finance and Regulatory of Liberty Utilities (Gas New Brunswick) LP, as represented by its general partner Liberty Utilities (Gas New Brunswick) Corp. (Liberty) and Paul Volpé, Manager, Regulatory Affairs for Liberty.

The New Brunswick Energy and Utilities Board (Board) has regulated Liberty (formerly Enbridge Gas New Brunswick (EGNB)) since it commenced operations in New Brunswick in 2000. In its June 23, 2000 Decision, the Board approved a cost of debt equal to the borrowing rate of the parent company plus 1%, a return on equity (ROE) of 13% and an equity ratio of 50% which remained in place until 2010, for EGNB. In its November 30, 2010 Decision, the Board confirmed EGNB's cost of debt and approved an ROE of 10.9% and adjusted its equity ratio to 45%, which has been in place since that time.

In its January 13, 2021 Decision, the Board directed Liberty to file a cost of capital application by March 31, 2021 noting that "In Matter 453, the Board ordered Liberty to file an application in 2021 with all necessary documents for the Board to properly evaluate the appropriate capital structure, cost of debt, and ROE applicable to Liberty on an ongoing basis."

Along with this evidence from Liberty, Concentric Energy Advisors has also submitted its expert testimony in which it has made recommendations in relation to the cost of debt, ROE and debt equity ratio for Liberty, relying on analytical tools and market data sources commonly used for such purposes by regulators in Canada and the U.S.

Liberty's evidence focuses on business risks related to Liberty which were also considered in the 2010 Decision and how certain of these risks have changed or evolved since that time. In 2010, the Board considered five risk factors:

1. Market Risk
2. Competitive Risk
3. Supply Risk
4. Regulatory Risk
5. Deferral Account Risk

Liberty's evidence will focus on Market Risk, Competitive Risk and Supply Risk.

1. Market Risk

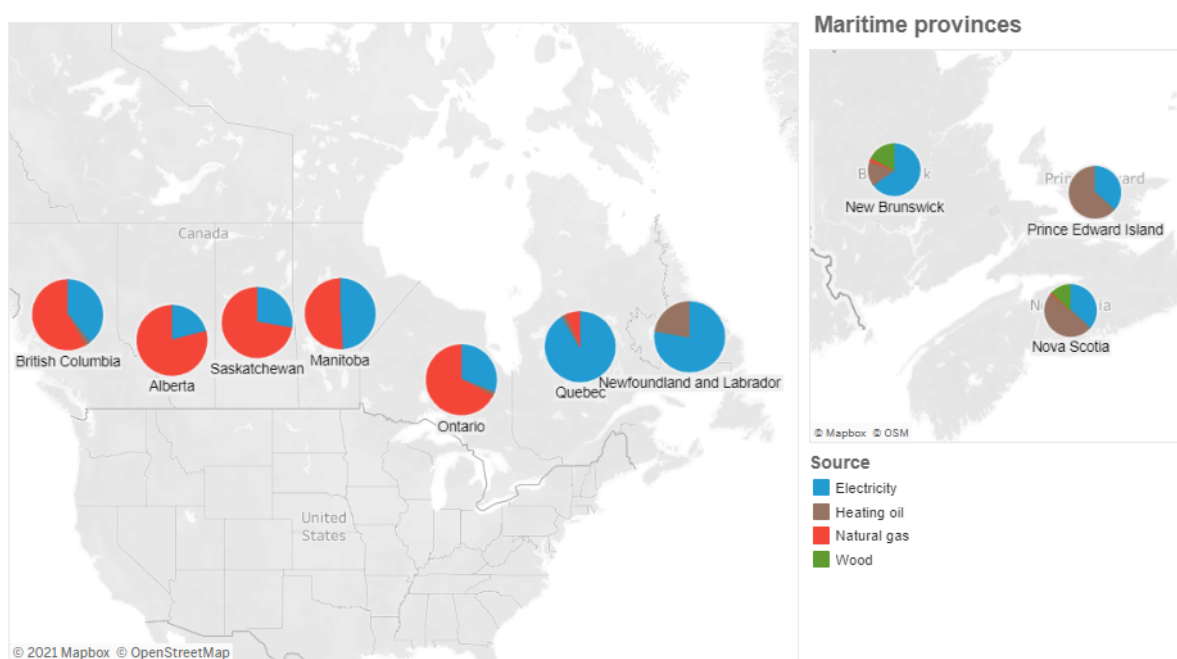
Since 2010, the market risks for Liberty have changed but remain significant. Although some have simply not improved, other new risks such as carbon taxes, natural gas bans and electrification, unimaginable 10 years ago, now exist.

1 Firstly, the New Brunswick marketplace is characterized by a relatively small population and industrial
 2 base that is spread over a broad area in comparison to what is seen in many other natural gas markets. The
 3 dispersion of New Brunswick's population and industrial base makes it uneconomic to serve significant
 4 portions of the franchise area and more expensive to interconnect the areas of the franchise area that can be
 5 economically served. These market characteristics limit the potential for growth into communities not
 6 already served by Liberty, leading to a greater reliance on growth coming from the communities currently
 7 served by Liberty. Where a community in Ontario may have dozens of homes and customers along a 100m
 8 distance, in New Brunswick, wider lots and more spread out communities result in fewer customers over a
 9 comparable distance.

10 Second, Liberty continues to be exposed to the risks associated with the granting of single end use franchises
 11 (SEUF). Although new SEUFs are limited and controlled by legislation and amendments provide for a
 12 \$.10 per GJ contribution for Liberty, even though they are to be included in Liberty's revenue requirement,
 13 the amounts to be received, timing and mechanics remain to be determined. Liberty continues to be exposed
 14 to higher market risk due to the fact that a number of the significant loads within the province that could be
 15 economically served were granted SEUFs prior to Liberty commencing operations. These SEUFs are
 16 estimated to represent as much as 80% of the natural gas consumed in the province today. Lack of access
 17 to these loads exposes Liberty to greater market risk than would otherwise be the case.

18 Third, New Brunswick is primarily an electric heating province, with baseboard heating systems that limit
 19 conversion opportunities from electric to natural gas or other energy sources. As per NRCAN, over 60%
 20 of heating in NB is electric, 3rd highest in the country behind Quebec and Newfoundland. Please see Figure
 21 1 below.

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Figure 1. Types of primary heating systems in Canada.

+ a b l e a u

Source: Statcan, [CANSIM 153-0161](https://www150.statcan.gc.ca/n1/pub/153-0161/2016001/article/14861-eng.htm)

Note: Data for the Northern Territories is not available

▼ Description:

On this map, each province has a pie graph depicting the four different types (in per cent) of energy used by primary heating systems reported by households in the province. "Electricity" is coloured blue; "Natural gas" is coloured red; "Heating oil" is coloured brown; and "Wood" is coloured green. The data is for the year 2015, except for NB and NS which have 2013 data.

<https://www.cer-rec.gc.ca/en/data-analysis/energy-commodities/natural-gas/report/canadian-residential-natural-gasbill/index.html>

- 2
- 3 The electric heating market was not always as saturated. The market was moved in the 70s and 80s as a
- 4 result of federal and provincial government off-oil initiatives to reduce oil dependency. Electric demand
- 5 grew at a faster rate than total energy consumption in the province as a result of these initiatives¹. As a
- 6 result, electricity demand growth significantly outpaced total energy demand growth in the province at that
- 7 time. The average annual electricity growth rate from 1974 to 1990 was 5.5% while total energy growth
- 8 rate for the same period averaged only 1.6%.
- 9 Not only did these initiatives make an immediate impact to energy consumption in New Brunswick and
- 10 moved the momentum to electric heating, it also created a new construction standard and trend that would

¹ 2010 White Paper New Brunswick Energy Policy, Department of Natural Resources and Energy

be in place for decades and continues today. This contrasts greatly with what is happening in other Canadian jurisdictions (except for Quebec and Atlantic Canada) where natural gas remains the standard energy choice for the vast majority of residential and commercial new construction energy choices and results in continued high penetration rates of natural gas.

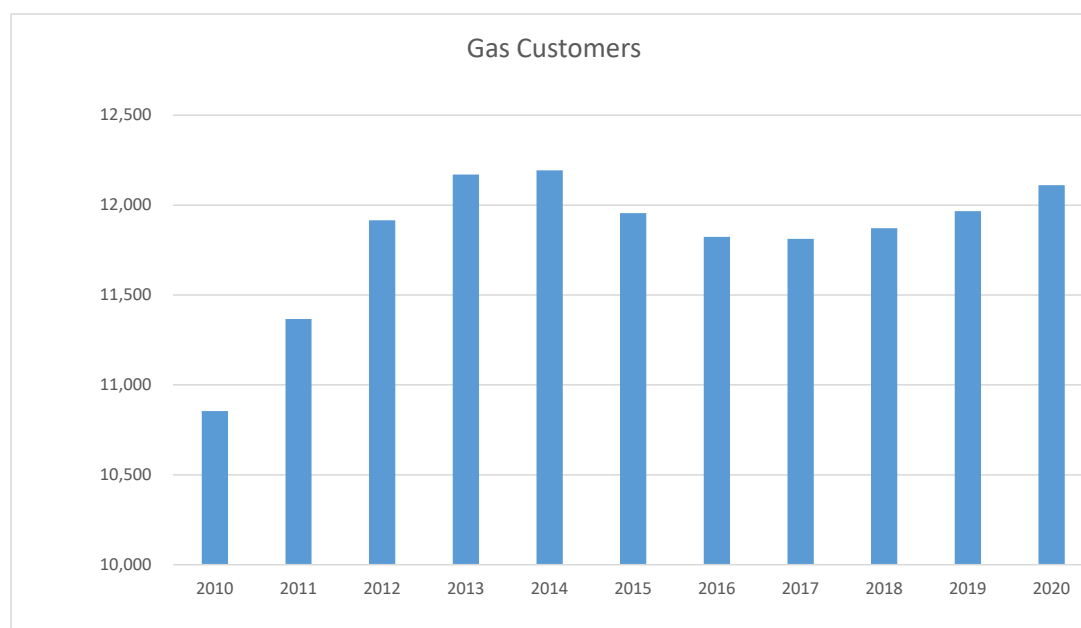
For some, the fact that 60+% of the energy market is not natural gas could be interpreted as a huge untapped market. The reality is otherwise for a number of reasons. Although some electric furnaces and boilers exist within the 60+% of electric heating, the vast majority of space heating appliances are electric baseboards that offer minimal potential of conversion to another fuel source. Where electric baseboards are the primary heating source, no central heating distribution systems exist in the homes or buildings (no ductwork or water piping to move the heat). Therefore, installing a central heating system in an existing finished space is destructive, invasive and expensive. As the price of delivered natural gas in New Brunswick is higher than other jurisdictions (Figure 5) and savings vs other energy sources are lower than in other provinces (Figure 4), converting a finished space from electric baseboard to a central heating system of any kind results in a long investment payback of many years which is typically not acceptable to most potential customers.

The remaining non-electric heat customers, less than 40% of potential customers, would use a fossil fuel or wood for primary heating. Over 20 years of Liberty existence, these non-electric customers were the target of many direct marketing ads, doorknockers and direct sales initiatives in an effort to switch them to natural gas and its various benefits. The vast majority of the 12,000 customers currently on the Liberty system were converted from these “other” energy sources. Of the potential customers that remain, many have now converted to electric, installed some form of heat pump or both. Of this limited group of potential customers remaining, the vast majority of oil and propane customers were converted to natural gas although some stragglers remain. What potential is left, will convert when the time is right or will install a heat pump (Ductless or central system) which is slowly becoming a standard or first choice with the assistance of incentive programs, popularity of electrification and the technological benefits they can provide in normal weather situations.

Although new construction continues to be a focus of Liberty’s sales and marketing efforts, this market is also seeing the impacts of electrification resulting from Federal and provincial initiatives to meet carbon reduction targets. Although carbon neutral electricity actually is dependent on the generation sources used, the trend and acceptance are increasing throughout Canada. In New Brunswick, NB Power is owned by the Province of New Brunswick and the provincial efficiency programs are managed by NB Power. These are both difficult influences to overcome when electrification, carbon taxation and fossil fuel banning are hot topics throughout the country.

New construction in the province is heavily dependent on the health of the economy. The economy in New Brunswick has not seen the huge growth seen in other provinces since the economic downturn of 2008. Therefore, for all of these reasons, customer additions have been slower than anticipated. The reality is that Liberty has only slightly more than 12,000 customers at the end of 2020, as shown in Figure 2 below.

Figure 2: Total Annual Gas Customers

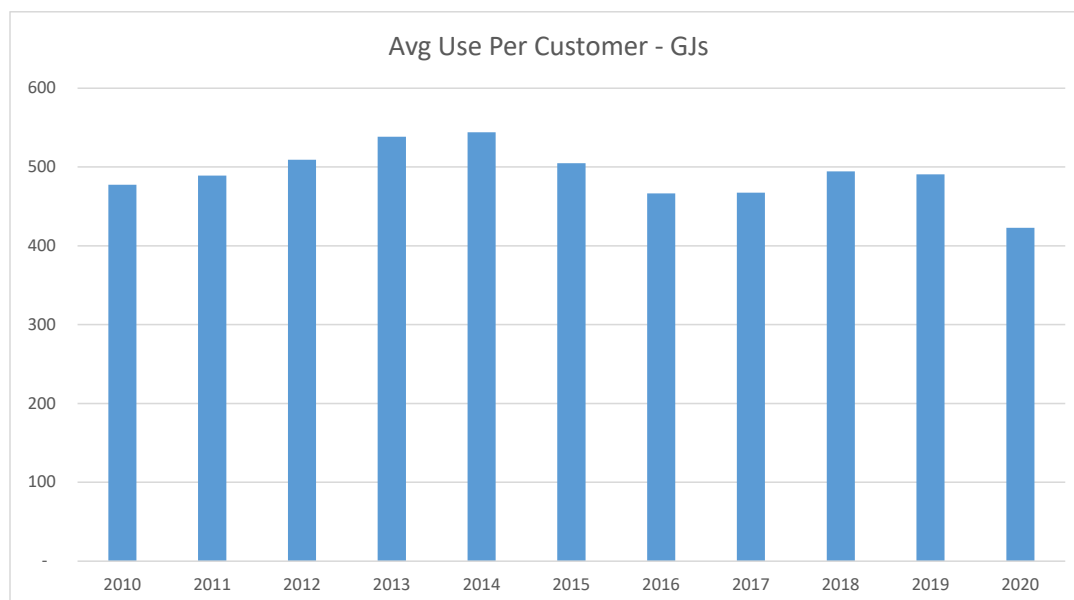


Fourth, heat pumps are very effective at providing heating in the shoulder seasons of spring and fall and provide cooling in the summer. Over the last few years, programs from Saint John Energy and NB Power to promote the installation and use of heat pump products have saturated the markets in which Liberty operates. These heat pumps have contributed to reducing consumption of all fossil fuels as customers use these as an alternative heating method. In many cases, electric backup for the coldest days is also being installed. New water heating heat pump units are now being commercialized and may adopt the same growth patterns in Atlantic Canada if the efficiency agencies start to promote this technology.

Lastly, and perhaps most importantly, factors affecting the market risk include the current political and environmental trends in Canada. Since 2016, numerous initiatives in relation to carbon taxes and banning fossil fuels in certain cities and provinces (and U.S. states) have negatively affected the perception of natural gas as a clean burning energy source. Coupled with the trending notion of electrification of all things including vehicles, space heating and water heating becoming increasingly popular to achieve carbon neutrality and meet carbon emission targets, all fossil fuels, including natural gas, are being targeted and it is affecting the market potential. This has resulted in more attention from credit rating agencies and equity investors on Environmental Social and Governance (“ESG”) risks and impacts.

Meanwhile, the increasing penetration of electric heat pumps and mini-split systems have made electricity a more effective competitor to gas, reducing the opportunity for customer savings. In some areas of the U.S., losses of gas customers to electric have been seen for this reason, reversing the decades long advantage for natural gas. The increasing prevalence of net-zero emissions goals is expected to further this trend. New Brunswick has established goals of carbon emissions reductions under its 2016 Climate Change Action Plan, which may be strengthened by the federal Greenhouse Gas Pollution Pricing Act of 2019. Furthermore, as shown in Figure 3, average usage per customer has declined for Liberty in recent years.

Figure 3. Average Use per Customer - GJs



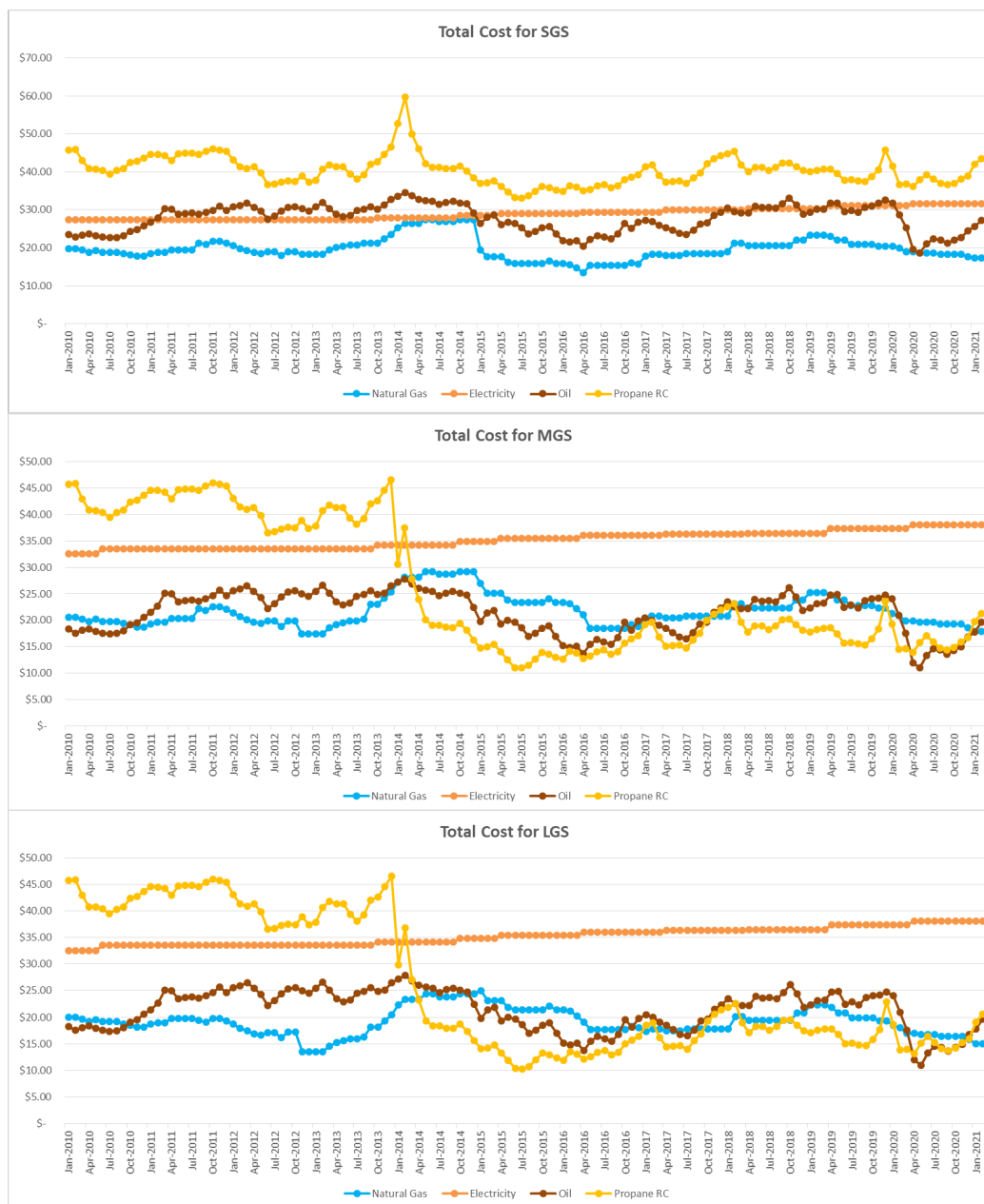
In summary, Liberty has greater market risk than in 2010. Some factors have not changed such as the relative low population and low urban saturation, low industrial load and electric space heating saturation. Market risks that have worsened include the proliferation of new technologies such as heat pumps as well as the political trend and landscape promoting electrification, carbon fuel bans and climate action initiatives.. Evidencing these trends, Liberty has not added as many customers as forecast.

2. Competitive Risk

In New Brunswick, the competitive landscape and risks are significantly different than other jurisdictions as well. In addition to the factors mentioned above in the section on Market Risk, the price of alternative energy options, has also limited the conversion opportunities for natural gas in New Brunswick. Figure 4 shows the average delivered price for natural gas, electricity, propane gas and heating oil in the province from 2010 to 2020 for Liberty's SGS, MGS and LGS classes. For propane, the prices are based on the Board's maximum regulated prices adjusted with propane pricing data obtained from customers by Liberty

in negotiations with customers for Retention and Winback contracts for MGS and LGS. For oil, they are based on the Board's maximum regulated prices for SGS and wholesale prices for MGS and LGS. As shown in Figure 4, the price of natural gas has not been significantly or sufficiently lower than other fuel sources to make the remaining potential conversions cost effective, especially for customers with electric baseboard heating that does not provide cost effective fuel switching options.

Figure 4: Comparison Of Alternative Energy Prices for SGS, MGS, LGS - \$/GJs

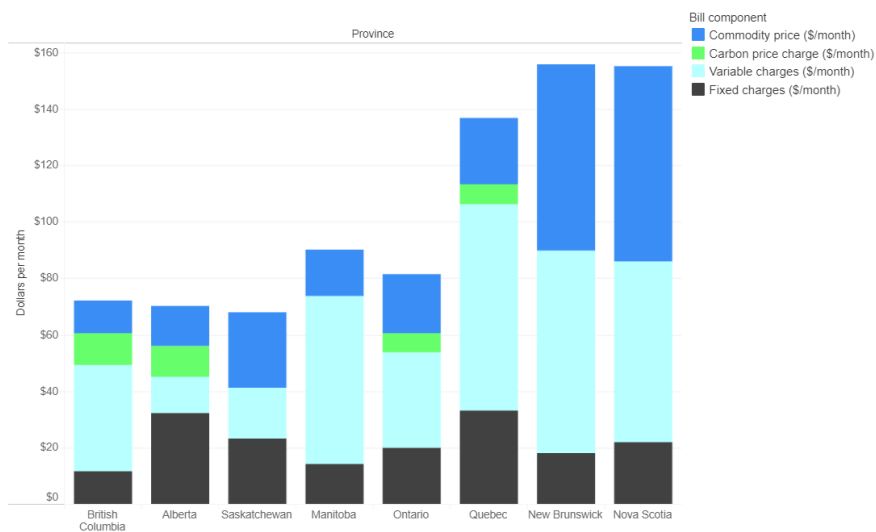


Source: Liberty Alternative Energy Sources Worksheet

Figure 5 from the Canadian Energy Regulator (formerly the National Energy Board) provides a contrasting view of delivered total natural gas pricing in Canada. The total delivered price is significantly higher in Nova Scotia and New Brunswick than elsewhere in Canada.

At first glance, against electricity, natural gas seems to compare favorably. However, converting from this energy source is typically the most cost prohibitive factor. Converting from electric baseboard heating to natural gas or another fossil fuel is more expensive than converting between fossil fuels where centralized distribution systems typically exist and a flue or exhaust system is in place. Additionally, what is not factored into the price chart is the effect of a heat pump appliance's efficiency. In non-peak winter months, heat pump equipment typically operates at 200% efficiency or greater. This brings the electricity price line downwards near the \$15/GJ mark, greatly reducing the pricing advantage of other options

Figure 5: Comparison Of Canadian Natural Gas Cost Breakdowns



Source: NEB

Description: This column chart displays the average bill in January 2018 for 7.37 GJ of consumption. The averages for each province are the following:

<https://www.cer-rec.gc.ca/en/data-analysis/energy-markets/market-snapshots/2018/market-snapshot-what-is-in-your-residential-natural-gas-bill.html>

Compared to other provinces, the electricity picture differs again in New Brunswick. The average electricity prices in New Brunswick are the 3rd lowest in Canada behind only Quebec and Newfoundland, creating additional competitive challenges. This again minimizes the savings potential vs electricity and minimizes the attractiveness of natural gas. Please refer to Figure 6.

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Figure 6: Comparison Of Average Canadian Residential Electricity Prices**Average Electricity Prices**

The average residential cost of electricity in Canada is \$0.179 per kWh. This includes both fixed and variable costs and is based on an average monthly consumption of 1,000 kWh.

The average electricity cost decreases to \$0.138 if you exclude the territories. Electricity costs in Canada have increased from \$0.174 per kWh in 2020, and \$0.135 if you exclude the territories.

Here is the average total cost of electricity by province, based on a monthly consumption of 1,000kWh:

Alberta	16.6¢/kWh
British Columbia	12.6¢/kWh
Manitoba	9.9¢/kWh
New Brunswick	12.7¢/kWh
Newfoundland & Labrador	13.8¢/kWh
Nova Scotia	17.1¢/kWh
Northwest Territories	38.2¢/kWh
Nunavut	37.5¢/kWh
Ontario	13.0¢/kWh
Prince Edward Island	17.4¢/kWh
Quebec	7.3¢/kWh
Saskatchewan	18.1¢/kWh
Yukon Territory	18.7¢/kWh
<i>Canada Average</i>	<i>17.9¢/kWh</i>

Québec has the cheapest electricity prices in all of Canada (\$0.073/kWh), while the Northwest Territories has the most expensive electricity prices (\$0.382/kWh).

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<https://www.energyhub.org/electricity-prices/>

4 Against propane, from 2000 to 2015, Liberty competed very favorably. Savings near 50% and conversion
 5 paybacks within two years were typically seen as conversion costs were low and savings were high. Starting
 6 in 2014, a shift started to occur as propane prices dropped quickly and very significantly. In Matter 306,
 7 Liberty provided redacted samples of propane offer letters that showed pricing offers, both fixed and
 8 floating, that rivaled delivered natural gas pricing. This aggressive pricing continues today, with some
 9 minimal increases in propane pricing since that time. One advantage for propane is the fixed pricing option
 10 that some suppliers continue to offer today which provides some customers with a perceived safer, more
 11 stable option. In addition, some national chains have obtained preferential national propane pricing offers.
 12 Liberty lost approximately 400-500 customers to propane in the 2015/2016 period. Liberty has won back

1 some customers resulting from negative propane pricing changes or negative servicing experience since
2 that time, but some continue to hold firm with propane and have not switched back.

3 Against oil, natural gas continues to compete well as many suppliers have exited the market or no longer
4 have the buying power required. Many suppliers have abandoned offering competing oil offers and have
5 converted to providing competitive propane offers instead. One significant exception remains related to
6 the use of Heavy Fuel Oil/“Bunker” (HFO) for certain CGS and ICGS customers. Some of these customers
7 have retained this option and participate in fuel switching. These larger customers (such as hospitals and
8 universities) can switch fuel sources between natural gas and HFO at the “flick of a switch”, meaning that
9 Liberty’s sales to those customers may suddenly and unexpectedly decline. As natural gas prices continue
10 to be high compared to other provinces, fuel switching remains a significant competitive threat as some
11 throttle the use of natural gas, use oil instead, in order to reduce the impacts of Contract Demand charges
12 and potential Contract Demand changes that could result from increased natural gas usage.

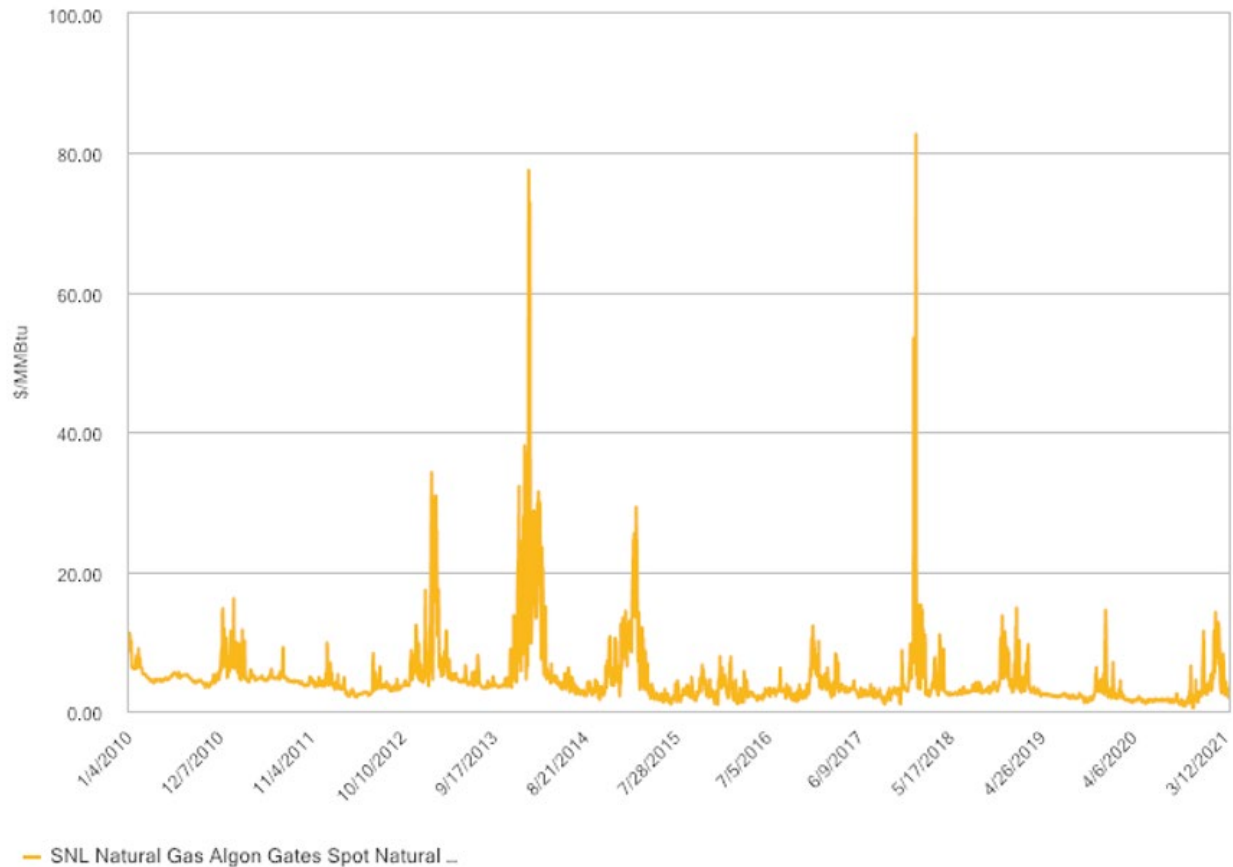
13 In summary, Liberty has greater competitive risk than in 2010. The relative differential between natural gas
14 and electricity prices has been lower than anticipated, continues to be lower than most other provinces and
15 has been significantly altered since 2010 due to the popularity and efficiencies of heat pump appliances.
16 Additionally, since 2015 the propane environment created by additional supply and storage facilities in
17 Atlantic Canada has resulted in a market shift from a marginalized energy option, to a relevant option and
18 competitor due to the significant changes in pricing.

19 3. Supply Risk

20 Liberty’s supply constraints are similar to those experienced in the northeastern U.S. With the closure of
21 Sable Island, Liberty now procures most of its gas supply from Ontario and Western Canada through long-
22 term contracts with receipt points at Dawn, Ontario and Empress. While natural gas prices have moderated
23 since 2010, the tolls on the pipelines are as much as the actual commodity itself because Liberty must bring
24 its gas supply from much farther away. Pipeline capacity and procurement is now a larger risk than in 2010
25 because of the additional suppliers and pipelines that are currently involved. Additional management is
26 now required in order to minimize the risk to ratepayers. Additionally, Liberty continues to maintain the

1 Algonquin pricing index risk as it continues buying peaking gas during the winter in New England, where
 2 natural gas prices are more volatile as noted in the chart below

3 **Figure 7: Historical Algonquin Price Index - \$/MMBtu**



5 In summary, Liberty's supply risk has moderated to some degree because natural gas supply is being
 6 provided from more stable markets resulting in more stable pricing and are lower overall than in 2010.