

**Énergir, s.e.c**  
**Gazifère Inc.**  
**Intragaz, s.e.c.**

***Demande conjointe relative à la fixation de taux de rendement  
et de structures de capital, R-4156-2021***

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**PIÈCE EGI-3**

**STUDY ON BUSINESS RISKS FOR QUEBEC GAS COMPANIES  
2021-2030 HORIZON  
PREPARED BY AVISEO  
DATED OCTOBER 6, 2021  
[TRADUCTION]**

energir

Gazifère  
Une société ENBRIDGE

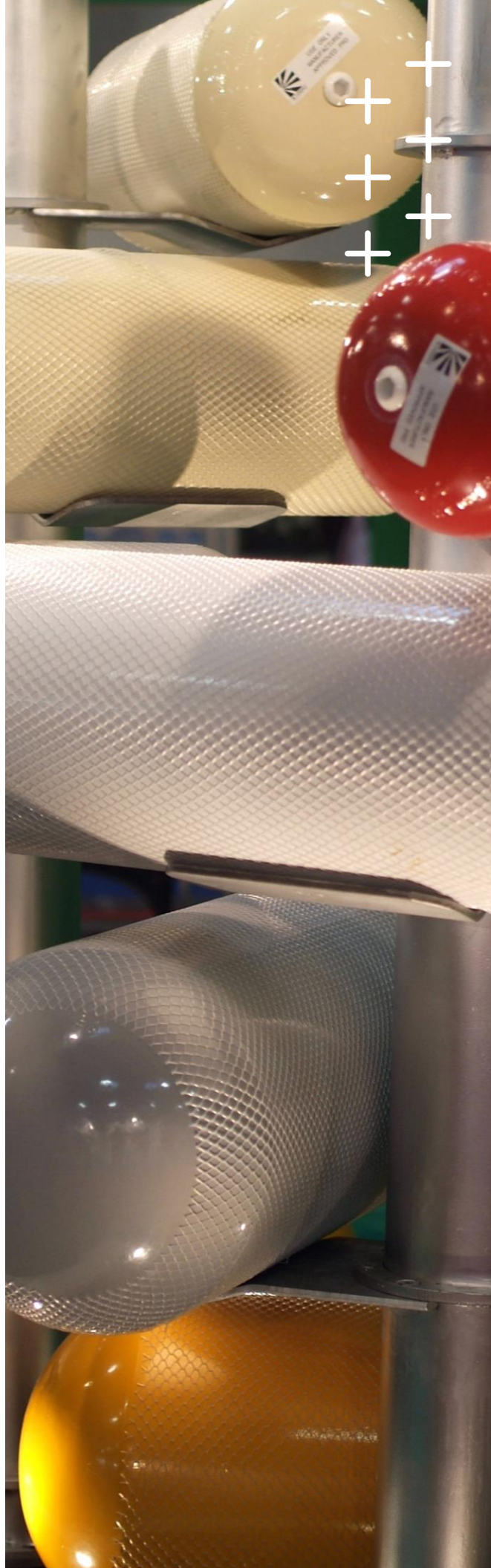
Intragaz

# Study on Business Risks for Quebec Gas Companies

2021–2030 HORIZON

October 6<sup>th</sup>, 2021 – Final report

**AVISEO**  
stratégie + économie



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# 1 Introduction

2 Énergir, Gazifère and Intragaz are subject to the *Act respecting the Régie de l'Énergie*<sup>1</sup> under which the Régie de  
3 l'énergie du Québec (hereinafter “the Régie”) must determine the rate of return of natural gas distributors (Énergir  
4 and Gazifère) and natural gas storage facility operators (Intragaz) to enable them to achieve a “reasonable return.”  
5 The latest rate-of-return proceedings date back to the early 2010s and the business risks faced by these companies  
6 have evolved over the last decade, so these developments should be taken into account for the next decade, 2021  
7 to 2030. To this end, Énergir, Gazifère and Intragaz commissioned Aviseo Consulting to analyze the potential  
8 development of various business risks leading up to 2030 and compare them to the trends encountered in the  
9 previous decade.

10 To carry out this study, Aviseo Consulting first conducted interviews with various Énergir, Gazifère and Intragaz  
11 employees. These interviews provided an opportunity to gather information and data and to further our  
12 understanding of their activities. In addition, Aviseo Consulting used a wide variety of sources, including public  
13 reports and documents, published and peer-reviewed scientific articles, and data available at the time of writing.  
14 Aviseo Consulting also contacted the Ministère de l'Éducation et de l'Enseignement supérieur du Québec for  
15 specific data.

16 The content of this report is the culmination of the information and data gathered, research and the subsequent  
17 analyses. The report adheres to best practices in economics and public policy analysis. The analyses and findings  
18 presented in this report are the result of a fully independent process, from beginning to end. As such, the author  
19 presents the results of their analyses and assumes responsibility for the scope of this report.

20 Aviseo Consulting has identified five business risks that are of particular relevance to the three gas companies:

- 21 1. Public and environmental policies
- 22 2. Composition of customer base
- 23 3. Quebec's energy context
- 24 4. Business size
- 25 5. Business partners

26 While it can be useful to compare the same risk for one company against another, the five business risks identified  
27 here are analyzed from a perspective that is unique to each company.

28 This report is structured as follows: The five business risks are first presented separately in their own sections. Next,  
29 an analysis of the various findings is provided for Énergir, Gazifère and Intragaz, along with a Risk Assessment  
30 Matrix that summarizes the development of the various business risks in a simplified form.

31 While each business risk is addressed separately, they are interconnected, and one dimension typically affects  
32 another. Apart from the occasional overlap, which is unfortunately unavoidable in this type of exercise, this  
33 interdependence between business risks is not fully apparent in the Risk Assessment Matrix, which is intended as  
34 a simplified representation. As such, it is important to consider the various observations presented throughout this  
35 report when interpreting the Risk Assessment Matrix.

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<sup>1</sup> RLRQ, c. R-6.01

# 1 About the Quebec Gas Companies

2 Gazifère is a natural gas distribution company and a subsidiary of Enbridge Inc., serving Gatineau and the  
3 municipality of Chelsea in the Outaouais region. Serving some 43,500 residential, commercial, institutional and  
4 industrial customers, the company operates a 1,000 km gas supply system.<sup>2</sup>

5 Énergir is a natural gas distribution company owned by Noverco. As a result of a \$1.14B purchase deal, Trencap—  
6 of which Caisse de dépôt et placement du Québec (CDPQ) is the majority shareholder—will hold 100% of Noverco's  
7 shares once the transaction has closed.<sup>3</sup> With its customer base distributed across Quebec, Énergir serves  
8 approximately 210,000 residential, commercial, institutional and industrial customers. Covering an area of nearly  
9 11,000 km, the company is active in most of Quebec's administrative regions.<sup>4</sup>

10 Intragaz is a limited partnership that operates two underground natural gas storage facilities in Quebec, at Saint-  
11 Flavien and Pointe-du-Lac. The company has operated these two natural gas storage sites for Énergir for 23 years  
12 at the Saint-Flavien site and 30 years at the Pointe-du-Lac site.<sup>5</sup> Intragaz's shareholders are Énergir and Engie  
13 Québec Inc. Intragaz and Énergir are therefore closely connected, as is evidenced by the fact that Énergir is an  
14 Intragaz shareholder and has always been its sole customer.

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<sup>2</sup> *Gazifère, À propos*

<sup>3</sup> *Énergir, Structure corporative; CDPQ, La CDPQ accroît sa participation dans Énergir*

<sup>4</sup> *Énergir, À propos*

<sup>5</sup> *Intragaz, L'entreprise*

# Public and Environmental Policies

This section covers the main issues related to public and environmental policies. In our discussion of environmental policies, we adopted a broader outlook and also addressed issues arising from climate change. A single topic may be addressed in several sections. Please bear this in mind when reviewing the business risks for Quebec's gas companies.

## Government initiatives

Over the past few decades, the Quebec government has implemented various initiatives to reduce greenhouse gas (GHG) emissions throughout its territory. In the R-3809-2012 rate case, Énergir (formerly Gaz Métro) raised the potential financial impact of the creation of the Green Fund (2006) and Quebec's membership in the Western Climate Initiative<sup>6</sup>. The cap-and-trade system (CATS), which came into effect in 2013, covers approximately 85% of Quebec's total emissions.<sup>7</sup>

An analysis undertaken by Quebec's Department of Finance suggests that the CATS would result in cumulative costs of \$3.0–\$3.3 billion over the 2013–2023 period and \$9.7–\$16.9 billion over the 2013–2030 period.<sup>8</sup> However, this is an underestimate of the actual costs since allocations to the Electrification and Climate Change Fund have reached almost \$5.0 billion.<sup>9</sup> Although distribution activities only account for a tiny portion (1%) of GHGs emitted in the natural gas life cycle,<sup>10</sup> the CATS affects the companies that use it, as well as the competitiveness of natural gas companies in general, whether they are directly subject to the CATS as a distributor, or indirectly through their natural gas distributor. Since 2015, the CATS has also applied to fuel distributors, who are now required to cover their emissions by buying Emissions Allowances. The potential evolution of the minimum annual joint price could go from US\$17.71 in 2021 to US\$32.57 in 2030, an increase of around 84%.<sup>11</sup>

More recently, in addition to the CATS, the Quebec government created the Plan pour une économie verte 2030 (hereinafter "PEV 2030"), which aims to reduce GHG emissions by 37.5% by 2030 compared with 1990 levels. Achieving this goal requires electrifying transportation, reducing free allocations of emissions allowances to the industrial sector, and increasing building electrification as well as the use of other renewable energies.

Although the industrial sector generates 30% of Quebec's GHG emissions, the sector's emissions have decreased by 24.4% between 1990 and 2018.<sup>12</sup> The reduction of free emissions allowances as early as 2024, outlined in the PEV 2030, is likely to affect the short-term competitiveness of Quebec's industrial sector. This constitutes an increased risk for Énergir, since it primarily operates in that sector.

Moreover, the industrial sector's price elasticity of demand is considerably higher than for the residential and commercial sectors,<sup>13</sup> which could increase the impact of environmental legislation and regulations on major Quebec industries and, consequently, on Énergir's rates and competitive position. In fact, the financial impact of reducing free allocations to large industrial companies would be between \$180 million and \$264 million.<sup>14</sup> With regard to switching from natural gas to electricity, considering that 93% of Gazifère's revenues come from the

<sup>6</sup> Rate case 2013, R-3809-2012, *Taux de rendement preuve en chef de Gaz Métro* p. 24

<sup>7</sup> Gouvernement du Québec (2017)

<sup>8</sup> Ibid.

<sup>9</sup> Ministère de l'environnement et de la lutte contre les changements climatiques, *Revenus des ventes aux enchères*

<sup>10</sup> Énergir (2021)

<sup>11</sup> Ministère de l'environnement et de la lutte contre les changements climatiques, *Ventes aux enchères*

<sup>12</sup> Ministère de l'environnement et de la lutte contre les changements climatiques, *Inventaire 1990–2018*

<sup>13</sup> Ryan and Abdel Razek (2012)

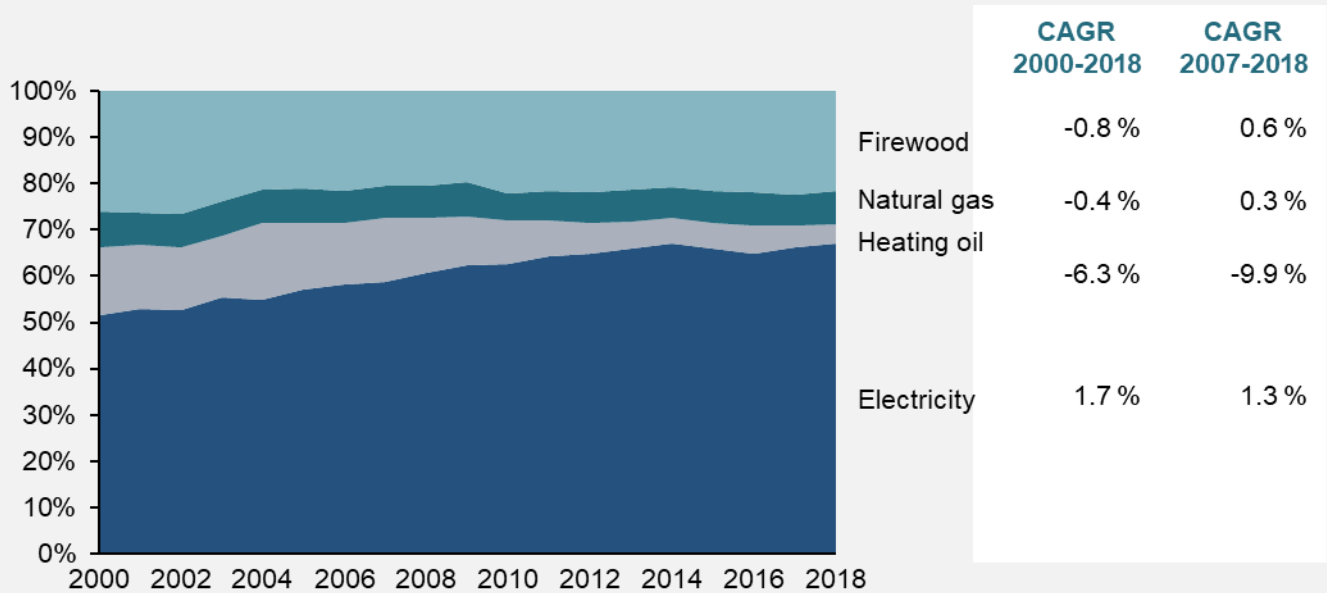
<sup>14</sup> Gouvernement du Québec (2017)

1 residential and commercial sectors, it is not particularly exposed to industrial risk but rather to an exodus of its  
 2 residential customers as buildings heated by natural gas are converted to electricity.

3 The government also wants to reduce GHG emissions from building heating by 50% by 2030. This strategy is part  
 4 of the effort to gradually replace buildings heated by fuel oil, but also the partial changeover from natural gas energy  
 5 to electricity.<sup>15</sup> In April 2021, the Quebec government introduced a draft regulation to eliminate fuel oil from  
 6 residential heating by prohibiting the installation of new fuel oil heaters, first in new residential buildings as of  
 7 December 31, 2021, and then in existing residential buildings as of December 31, 2023.<sup>16</sup>

8 The percentage of residential fuel oil consumption has fallen drastically since 2004,<sup>17</sup> primarily replaced by  
 9 electricity. While natural gas is less polluting than fuel oil, it is still a fossil fuel. Restrictive measures for natural gas,  
 10 like those imposed on fuel oil, would hamper Gazifère and Énergir’s business development by reducing  
 11 opportunities to expand the existing network and increasing the risk of losing existing customers.

12 **Figure 1: Percentage of secondary residential energy consumption**  
 13 *Quebec, 2000–2018, in %*



14  
 15 Sources<sup>18</sup>: Natural Resources Canada; Aviseo 2021 analysis

16 Moreover, initiatives announced by the Quebec government limit the potential for both Énergir and Gazifère to retain  
 17 and expand their institutional customer base. The Quebec government states that it will prioritize renewable energy,  
 18 such as electricity, for building construction and renovation to ensure that renewable energy is the primary source  
 19 of energy used for heating.<sup>19</sup> The Quebec government also intends to promote public disclosure of energy  
 20 consumption data for commercial and institutional buildings, at first on a voluntary, then mandatory basis (2023–  
 21 2028).<sup>20</sup> Similarly, it has also been proposed that Quebec implement a mandatory energy rating system for new  
 22 buildings and for the resale of single-family homes (2023–2028), so that buyers can take energy performance into  
 23 account.<sup>21</sup> This energy rating system could become a new risk for natural gas distributors during the 2021–2030

<sup>15</sup> PEV 2030, pp. 53-56

<sup>16</sup> Gazette officielle, 21 avril 2021, 153<sup>e</sup> année, n<sup>o</sup> 16

<sup>17</sup> Natural Resources Canada; in 2004, fuel oil accounted for 16.5% of residential heating compared to 4.3% in 2018.

<sup>18</sup> For the sake of presentation and brevity, full references for the data used in the creation of the tables and graphs are presented in Appendix 2.

<sup>19</sup> PEV 2030, p. 56

<sup>20</sup> TEQ 2018–2023, pp.97-98

<sup>21</sup> TEQ 2018-2023, pp. 88-90.



1 period. Moreover, with the Canadian government setting an example in building heating, Gazifère's prospects for  
2 expanding and retaining its institutional customer base are reduced.<sup>22</sup>

3 Similarly, the City of Montreal's 2020–2030 Climate Plan states that the City will take the necessary measures to  
4 reduce greenhouse gas emissions resulting, in part, from its building stock<sup>23</sup>. Specifically, by 2030, the City intends  
5 to ban the use of fossil fuels, including natural gas, in all municipal buildings by replacing them with renewable  
6 energies, which obviously includes electricity<sup>24</sup>. For its part, Gatineau will adopt a climate plan this fall that highlights  
7 the initiatives that it intends to implement to reduce greenhouse gases and adapt to climate change.<sup>25</sup> In a 2021  
8 public consultation briefing note, the City states that it intends to reduce greenhouse gases by converting its building  
9 stock.<sup>26</sup> This conversion will focus on replacing natural gas and fuel oil.<sup>27</sup> The environmental plans for the Quebec  
10 and Canadian governments, as well as those of the City of Montreal,<sup>28</sup> create an increased business risk for Énergir  
11 and Gazifère between now and 2030. Although Gatineau's climate plan has not yet been approved at the time of  
12 writing this report, based on the information available, it is highly likely that it will be in line with the environmental  
13 plans of the Canadian and Quebec governments and the City of Montreal.

## 14 The movement to ban natural gas

15 More generally, the movement to ban natural gas has grown in recent years, especially in the United States. The  
16 movement, which mainly originated in Pacific Coast American cities such as Berkeley and Seattle, has prompted  
17 several states to enact legislation to prevent municipal initiatives to ban natural gas, particularly in building heating.<sup>29</sup>  
18 In Quebec, two recent newspaper articles relating the position of the Regroupement des organismes  
19 environnementaux en énergie urged the government and municipalities to ban natural gas from new residential and  
20 commercial constructions<sup>30</sup>:

21 *"We are asking the government to go one step further: to conduct a regulatory impact analysis to assess the full*  
22 *scope of a regulation immediately banning natural gas use in new constructions, as it did to eliminate fuel oil."*  
23 *- Le Soleil, June 7, 2021*

25 *"Municipal elections will be taking place on November 7, 2021. Those elected will certainly have the ability to put*  
26 *an end to natural gas in the new buildings in their municipalities and thus help stop this environmental*  
27 *hemorrhaging."*  
28 *- Le Droit, June 14, 2021*

29 However, based on the cost of generating electricity, and because of the significant drop in natural gas prices since  
30 2008, a conversion from natural gas to electricity is not always economically advantageous.<sup>31</sup> Moreover, such a  
31 conversion does not necessarily guarantee success in terms of cost per tonne of emissions avoided. For example,  
32 two recent American studies estimated that a moratorium on natural gas use in residential and commercial buildings  
33 would lead to economic costs of US\$7.4<sup>32</sup> and US\$9.5<sup>33</sup> billion for Columbus, Ohio, and Denver, Colorado,

<sup>22</sup> This aspect will be discussed in more detail in the section on customer base composition.

<sup>23</sup> Plan climat Ville de Montréal 2020-2030, p. 21

<sup>24</sup> Plan climat Ville de Montréal 2020-2030, p. 89

<sup>25</sup> Ville de Gatineau – Vers un Plan Climat - 2021

<sup>26</sup> Ville de Gatineau – Consultation publique 2021, pp. 3-4

<sup>27</sup> While the fact that Gazifère and Evolgen have both committed to producing green hydrogen has been recognized in the context of the city's actions, it is not clear how this will be incorporated into its policies with regard to heating its building stock.

<sup>28</sup> The city of Montreal's Climate Plan has been specifically included in the analysis because of Énergir's strong presence in the Greater Montreal area, which will be discussed in greater detail in the following sections. It should be noted that in June 2021, the City of Québec published its sustainable development strategy for 2021–2025, but it does not provide for specific measures regarding natural gas. In fact, the only reference to natural gas in the above-mentioned strategy is the construction of a major biomethanation centre to process organic matter into RNG to sell.

<sup>29</sup> S&P Market Intelligence, 2021

<sup>30</sup> Le Soleil, April 7, 2021; Le Droit, June 14, 2021

<sup>31</sup> In June 2008, natural gas prices (Henry Hub) reached US\$12.69 per million BTUs compared to US\$3.26 per million BTUs in June 2021 (eia.gov). See also Figure 4 in this report for an illustration of this trend since 2011.

<sup>32</sup> Nystrom et al. (2020)

<sup>33</sup> American Gas Association

1 respectively. These measures would reduce CO<sub>2</sub> emissions by 8.0% and 1.2% respectively, representing a cost of  
2 US\$1,615 per metric tonne of CO<sub>2</sub> for Columbus and US\$12,875 for Denver.

3 Similarly, a Canadian study concluded that greenhouse gas reduction policies that are solely focused on  
4 electrification are costlier per tonne of CO<sub>2</sub> (\$289/tCO<sub>2</sub>) than those that combine electrification and natural gas  
5 (\$129/tCO<sub>2</sub>).<sup>34</sup> It would be unwise to make a direct comparison between the estimated costs in the U.S. and those  
6 that would apply here in Quebec. However, it is also true that the costs of new hydroelectric projects are higher  
7 than the average price, an indication of mounting marginal costs.<sup>35</sup> Banning natural gas in new constructions would  
8 lead to a greater demand for electricity and higher marginal costs. These costs would be in addition to issues related  
9 to peak demand periods.<sup>36</sup>

10 Although natural gas is used significantly less to heat buildings in Quebec than in the United States and various  
11 European countries, some are still calling for a province-wide natural gas ban. It is worth remembering that  
12 emissions from the residential, commercial and institutional sectors put together only account for 10.3% of Quebec's  
13 GHG emissions.<sup>37</sup>

14 Consequently, the City of Montreal intends to ban the use of fossil fuels, including traditional natural gas, in all its  
15 municipal buildings. The ban will only affect municipal building stock, but the city nevertheless has stated that it  
16 wishes to reduce the use of fossil natural gas for building heating.<sup>38</sup> Énergir would be particularly affected if the city  
17 of Montreal decides to ban natural gas for heating residential and commercial buildings, first because a significant  
18 percentage of its clientele is located in the Greater Montreal area (45% in 2020)<sup>39</sup>, and also because of the risk that  
19 other Quebec municipalities will follow the city's example. Gazifère, which mainly serves Gatineau and the  
20 municipality of Chelsea, is similarly vulnerable to the risk of natural gas bans because its activities are  
21 geographically concentrated. Thus, in addition to the aforementioned briefing note concerning the adoption of  
22 Gatineau's new climate plan, scheduled for fall 2021, the municipality of Chelsea also hopes to reduce greenhouse  
23 gases by encouraging geothermal energy on a large scale as well as conducting a GHG inventory of municipal  
24 buildings, both of which would be unfavourable to Gazifère.<sup>40</sup> The movement to ban natural gas, an idea that  
25 originated in the western United States, poses a new risk for Énergir and Gazifère in the coming years.

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<sup>34</sup> Canadian Gas Association (2019)

<sup>35</sup> One reason for this could be that the best dam locations are already taken.

<sup>36</sup> See Withmore and Pineau (2018) for more details on the impact of peak demand on the network.

<sup>37</sup> PEV 2030, pp 22 and 52

<sup>38</sup> Plan climat Ville de Montréal 2020-2030, p. 21

<sup>39</sup> See table 1

<sup>40</sup> Plan d'action en développement durable 2018-2021 – Municipalité de Chelsea, p. 26

## 1 Renewable natural gas

2 Renewable natural gas (RNG) may not be subject to the prohibitions covering natural gas. Since 2019, the  
3 *Regulation respecting the quantity of renewable natural gas to be delivered by a distributor*<sup>41</sup> provides that all natural  
4 gas distributors must deliver an annual quantity of RNG equal to or greater than 1% starting from the 2020–2021  
5 rate year, 2% for the 2023–2024 rate year and 5% for the 2025–2026 rate year.

6 The PEV 2030 calls for a minimum of 10% RNG to be injected into the natural gas network by 2030, although this  
7 target has not yet been legislated. RNG’s techno-economic potential in Quebec will be discussed in greater detail  
8 in the section on Quebec’s energy context, but the magnitude of risk associated with this new requirement is  
9 assessed in the section on business risks related to public and environmental policies.

## 10 Hydrogen development policies

11 In addition to RNG development, Canada wants to establish a position as a hydrogen producer. The Canadian  
12 government recently released its Hydrogen Strategy, which reveals Canada’s advantageous position in clean  
13 hydrogen production.

14 “Canada is well positioned to become a top global producer of clean hydrogen.”<sup>42</sup>

15 One study estimates that hydrogen could meet almost a quarter of the world’s energy needs by 2050, which is why  
16 Canada is moving quickly to take advantage of hydrogen’s economic and environmental potential.<sup>43</sup> It has been  
17 estimated that the Canadian hydrogen sector could help create and maintain 350,000 jobs, generate more than \$50  
18 billion in direct revenue, and reduce annual GHG emissions by up to 190 Mt of CO<sub>2</sub> equivalent.<sup>44</sup>

19 For its part, the Quebec government has confirmed that \$15 million will be allocated for the development of the  
20 green hydrogen sector<sup>45</sup> and that a Quebec green hydrogen and bioenergy strategy will be unveiled by the fall of  
21 2021.<sup>46</sup> Currently, hydrogen production in Quebec is regulated as a hazardous product but is not subject to a  
22 quota.<sup>47</sup> Plans to blend hydrogen with natural gas are in the works, but few standards exist<sup>48</sup> and as far as gas  
23 companies are concerned, the hydrogen industry’s future is contingent on the development of a regulatory  
24 framework that will allow for its expansion. A more detailed discussion of hydrogen’s potential and the associated  
25 risks can be found in the section on Quebec’s energy context.

26 In addition to decarbonizing the network, mixing natural gas with hydrogen could be an effective way to reduce  
27 industrial GHG emissions. For example, the pulp and paper industry and many industrial processes depend on  
28 steam production, which could be supplied by a mixture of hydrogen and natural gas while also reducing the  
29 resulting emissions.<sup>49</sup> There are several large pulp and paper mills among Gazifère’s industrial customers whose  
30 carbon footprint could be reduced by adding hydrogen into the network.

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<sup>41</sup> RLRQ Chapitre R-6.01, r. 4.3

<sup>42</sup> *Hydrogen Strategy for Canada (2020)*, p. 22

<sup>43</sup> *Bloomberg (2020)*

<sup>44</sup> *Stratégie canadienne pour l’hydrogène (2020)*, Sommaire, pp. XX-XXI

<sup>45</sup> Grey hydrogen is produced by steam methane reformation without carbon capture and sequestration. Like grey hydrogen, blue hydrogen is produced from fossil fuels by steam methane reformation or other processes, but with carbon capture and sequestration. It is therefore less polluting than grey hydrogen. Finally, green hydrogen is produced from water by electrolysis using renewable electricity, which is done at very low carbon intensity compared to the other two colours of hydrogen.

<sup>46</sup> *Gouvernement du Québec, Hydrogène vert*

<sup>47</sup> *Bureau de normalisation du Québec (2020)*, p. 38

<sup>48</sup> *Ibid.*

<sup>49</sup> *Gouvernement du Québec, Hydrogène vert*

## 1 Quebec's *Petroleum Resources Act*

2 In contrast to the last decade, Intragaz is now subject to the *Petroleum Resources Act*,<sup>50</sup> which came into effect on  
3 September 20, 2018. Among other things, this legislation provides for the creation of a monitoring committee and  
4 many new requirements resulting in a burden and additional costs. The regulation concerning the exploration,  
5 production and storage of petroleum on land establishes the conditions for carrying out these activities. On this  
6 subject, the draft published in the *Gazette officielle du Québec* on September 20, 2017,<sup>51</sup> states:

7 “Study of the matter shows that the draft Regulation will have an impact on enterprises currently holding rights to  
8 explore for and produce petroleum and gas or operate an underground reservoir that will have to obtain  
9 authorizations to carry out certain activities that were not regulated [...]. The additional requirements may impose,  
10 in certain cases, a significant burden.”

11 Under the *Petroleum Resources Act*, anyone wishing to build or use a pipeline must submit their project to the Régie  
12 for authorization, which increases the regulatory burden for the company. During the fiscal years covered by the  
13 last ten-year-long rate case, the effects of the new *Petroleum Resources Act* experienced by Intragaz could not  
14 have been foreseen in 2012 and are responsible for an increase in labour costs, professional fees and other  
15 expenses. For example, in Fiscal 2020, the “miscellaneous expenses” category was \$37,266—80.1% higher than  
16 forecast<sup>52</sup>—primarily due to the *Petroleum Resources Act*.<sup>53</sup> Similarly, professional fees recorded an unfavourable  
17 variance of \$24,573 in 2020, due to the fact that Intragaz incurred legal costs of \$47,000 in connection with  
18 implementing the *Petroleum Resources Act*. This is an increase of 51.7% compared to estimates.<sup>54</sup> This statute,  
19 which was introduced during last decade, has added further financial strain for Intragaz that it could not have  
20 foreseen in 2012. Intragaz's small size amplifies the impacts of the *Petroleum Resources Act* on the company's  
21 expenditure.<sup>55</sup>

## 22 Physical risks related to climate change

23 While not included in public or environmental policies, an associated risk that deserves mention in a broader  
24 discussion on environmental issues is the effects of climate change on the infrastructure. A report by Con Edison,<sup>56</sup>  
25 a company that supplies energy, including natural gas, highlights that overall, the company will increasingly be  
26 faced with risks related to climate change, such as changes in temperature, humidity, precipitation and sea levels,  
27 and an increasing frequency of extreme weather events. Natural gas distribution operations are particularly  
28 vulnerable to problems associated with heavy precipitation. Extreme summer temperatures are now more frequent  
29 in Quebec due to climate change and can affect the capacity of the compressors used to inject gas at Intragaz's  
30 Saint-Flavien site. This has created a need to increase cooling capacity to compensate for potential extreme heat  
31 during the summer.<sup>57</sup>

32 Several assets are located underground, making them vulnerable to water intrusion caused by flooding or heavy  
33 precipitation. Water intrusion into the facilities could cause water to infiltrate the natural gas ducts, resulting in a  
34 pressure drop and service interruptions.<sup>58</sup> In fact, significant flooding in the Outaouais region in 2017<sup>59</sup> resulted in  
35 additional costs to ensure the safety of Gazifère customers affected by the flooding.<sup>60</sup> Similar physical risks from

<sup>50</sup> *Loi sur les hydrocarbures*, RLRQ, c. H-4.2

<sup>51</sup> *Gazette officielle du Québec*, 20 septembre 2017, 149<sup>e</sup> année, n<sup>o</sup> 38

<sup>52</sup> R-3807-2012

<sup>53</sup> Intragaz, *Rapport annuel découlant de la décision D-2013-081 (R-3807-2012) (2020)*, p. 5

<sup>54</sup> R-3807-2012

<sup>55</sup> Intragaz, *Rapport annuel découlant de la décision D-2013-081 (R-3807-2012)*, 2020, p. 7

<sup>56</sup> Con Edison (2019), *Climate Change Vulnerability Study*

<sup>57</sup> This information was provided by Intragaz.

<sup>58</sup> Con Edison's report (2019) provides several more specific examples of the vulnerability of gas infrastructure to climate change. Readers may refer to this report for further details on this particular topic.

<sup>59</sup> The Outaouais region was affected by significant flooding in 2017 and 2018.

<sup>60</sup> D-2017-062

1 climate change are briefly outlined in Énergir's 2021 Rapport sur la résilience climatique (Climate Resiliency  
2 Report).

### 3 Findings

4 In summary, it appears that the risks and uncertainties related to public and environmental policies are greater for  
5 the 2021–2030 period than they were for the 2010–2020 period. Although some measures were introduced over  
6 the past decade, their effects will primarily be felt over the next decade. For example, the cumulative economic  
7 impact of the CATS is estimated to be three to five times greater over the 2013–2030 period than for 2013–2023,  
8 suggesting that the second period will be characterized by greater uncertainty. The various climate plans adopted  
9 by the Canadian and Quebec governments and municipalities, as well as energy transition efforts, put pressure on  
10 Quebec gas companies to decarbonize their networks, at the risk of having more stringent restrictive measures  
11 imposed on them.

# 1 Composition of Customer Base

2 The customer base is very different for each of the three gas companies. Accordingly, each business faces particular  
3 risks. This section deals more specifically with the risks for each company from a structural and economic  
4 perspective, with regard to the composition of their respective customer bases.

---

## 6 The industrial sector: a clientele more sensitive to economic 7 uncertainty

### 8 **Énergir's high percentage of revenues from industrial customers**

9 The average share of standardized distribution revenues attributable to Énergir's industrial customers was 29.9%  
10 over the 2013–2020 period.<sup>61</sup> The large share of industrial customers poses a particular risk for Énergir, since they  
11 are more sensitive to fluctuations in the economic cycle. While residential heating needs fluctuate more with the  
12 temperature than with economic activity, it is a different story for the industrial sector. A decline in general economic  
13 activity can lead to decreased demand for the goods industrial customers produce.

14 Since industrial customers' energy requirements are heavily process-dependent, a drop in production will lead to a  
15 drop in the company's energy needs. Similarly, a company's choice of location is influenced by a multitude of factors,  
16 such as input costs and the cost of energy used to produce goods and services.

17 A study<sup>62</sup> examining the price elasticity of demand for the main energy sources (electricity, natural gas, fuel oil) in  
18 Canadian provinces revealed that for industrial users in most of the areas studied, including Quebec, only natural  
19 gas has a price elasticity greater than 1. This means that industrial customers who use natural gas as an energy  
20 source are the most sensitive to the price fluctuations. Considering that this category of customer will be particularly  
21 affected by the CATS as well as by other environmental regulations that place a financial burden on companies,  
22 this higher percentage of industrial customers presents a significant risk to Énergir. This risk includes a potentially  
23 higher level of revenue variance.

### 24 **The impact of the health and economic crises and recovery-related uncertainties**

25 This risk is all the more significant because like the rest of the world, Quebec is emerging from a marked economic  
26 crisis that has proved tumultuous. The severity of the economic turmoil experienced as a result of the health crisis  
27 was considerably greater than from the 2008 financial crisis as shown in Figure 2 below. The economic crisis of  
28 2020 hit both the goods and service sectors harder and the impact on the real GDP (all industries) was nearly five  
29 times greater than in 2009.<sup>63</sup>

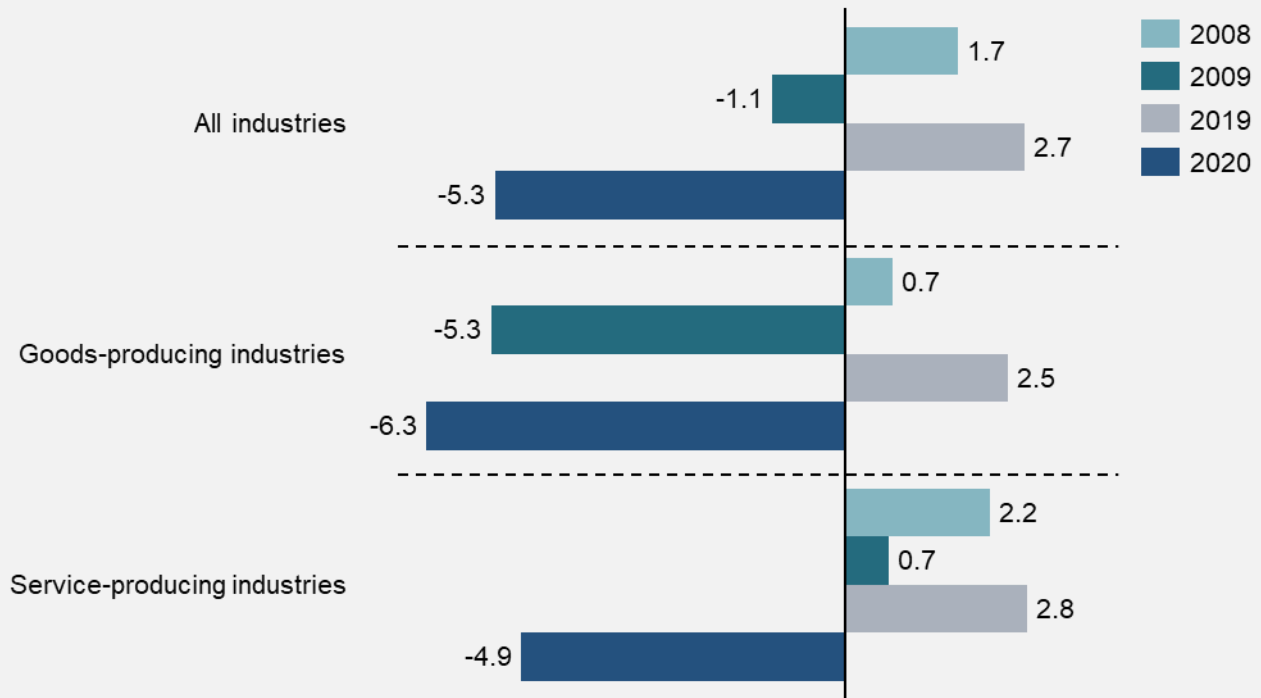
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<sup>61</sup> *Énergir data*

<sup>62</sup> *Ryan and Abdel Razek (2012)*

<sup>63</sup> *The economic impacts of the 2008 crisis were mainly observed in 2009.*

1 **Figure 2: Comparison of GDP variations during the 2008 financial crisis versus the 2020 economic crisis**  
 2 *Chained dollars, Quebec, in %*



3  
 4 Sources: Statistics Canada; Aviseo 2021 analysis

5 The recovery projected by the Quebec government provides for a return to nominal GDP growth of just over 3% as  
 6 early as 2023–2024, which would ostensibly follow a period of increased growth in 2021–2022.<sup>64</sup> There are several  
 7 risks that could undermine economic recovery. The increasing number of variants could reduce vaccine  
 8 effectiveness, particularly if the vaccines currently given to Quebecers prove to be less effective against new strains.  
 9 Although Quebec’s vaccination campaign is going well, not all countries are experiencing the same level of success,  
 10 which could slow the economic recovery. Nevertheless, Quebec’s main international trading partner is the United  
 11 States, which is experiencing a high vaccination rate, mitigating this aspect of the risk.

12 New variants, along with the possibility that the health crisis will continue or re-emerge over the next period, also  
 13 represent a risk to residential customer growth, which is largely dependent on the number of people living in the  
 14 province. As a result of the pandemic, Quebec received approximately 25,000 immigrants compared to just over  
 15 40,000 in the previous year.<sup>65</sup> This decrease, combined with COVID-19-related deaths, largely explains the  
 16 significant slowdown in Quebec’s population growth.

17 The strength of the economic recovery will also depend heavily on decisions that households make as to the  
 18 considerable savings accumulated during the pandemic. The net savings for Canadian households reached \$211.9  
 19 billion in 2020. This is a historic high, accounting for about 10% of the country’s GDP. By comparison, household  
 20 annual net savings between 2016 and 2019 never exceeded \$24 billion.<sup>66</sup> Similarly, the household savings rate in  
 21 Quebec reached 20% in 2020, which is a 30-year high.<sup>67</sup> Quebec’s 2021–2022 budget explicitly mentions the  
 22 importance of household savings for economic recovery:

<sup>64</sup> Budget du Québec 2021–2022, p. A.33

<sup>65</sup> Institut de la statistique du Québec, *Ralentissement de la croissance démographique*

<sup>66</sup> Statistique Canada, *tableau 36-10-0612-01*

<sup>67</sup> Budget du Québec 2021-2022, p. G.22

1 “These savings will drive the growth in consumer spending in the coming years. Households will therefore provide  
2 significant support to the economic recovery.”

3 However, how these savings will be used remains an unknown. If, over the short term, a significant percentage of  
4 the savings were not spent, economic recovery would be slower. Corrections in housing and stock markets, which  
5 are currently at historically high levels, could lead to a negative income effect that would affect growth and  
6 investment. These risk factors are significantly more critical in 2021 than they were during the last decade.  
7 Moreover, the 2021–2022 Quebec budget contains a provision for economic risks and other support measures in  
8 the 2021–2022 and 2022–2023 financial frameworks that are more than double those for 2024–2025 and 2025–  
9 2026, reflecting higher short-term risks<sup>69</sup>.

10 The slower-than-expected economic recovery poses a higher risk to Énergir given its large industrial customer base,  
11 which is more sensitive to price changes and fluctuations in the economic cycle. The increase in non-residential  
12 natural gas consumption is strongly linked to GDP development and growth scenarios,<sup>70</sup> hence the importance of  
13 considering the uncertainty surrounding Quebec’s economic recovery following the health crisis caused by COVID-  
14 19.

## 15 The concentration of Énergir facilities in the Greater Montreal area

16 Énergir’s facilities are mainly concentrated in the Greater Montreal area. Nearly half of its facilities are located in  
17 this region, over half of which serve the residential sector (see Table 1). Likewise, 41% of its distribution revenue  
18 comes from the Greater Montreal area. Although a geographical risk will still exist during the 2021–2030 period, we  
19 can see that between 2013 and 2020, the concentration was reduced. Although by 2013 the percentage of all  
20 facilities had reached 50%, by 2020 it had gradually decreased to 45%. In the same vein, the Montreal region’s  
21 share of volume and revenues fell by one and two percentage points respectively over the period.

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<sup>68</sup> *Budget du Québec 2021-2022, p.G.22*

<sup>69</sup> *Budget du Québec 2021-2022, p. H.3*

<sup>70</sup> Bianco et al. (2013)



1 **Table 1: Percentage of Énergir’s activities concentrated in the Montreal area**  
 2 *Montreal, 2013 and 2020, in %*

| Type          | Customers  |            | Volumes    |            | Revenues   |            |
|---------------|------------|------------|------------|------------|------------|------------|
|               | 2013       | 2020       | 2013       | 2020       | 2013       | 2020       |
| Commercial    | 38%        | 34%        | 46%        | 42%        | 44%        | 40%        |
| Industrial    | 34%        | 31%        | 21%        | 22%        | 23%        | 23%        |
| Institutional | 38%        | 36%        | 45%        | 44%        | 43%        | 41%        |
| Residential   | 56%        | 51%        | 70%        | 66%        | 65%        | 61%        |
| <b>Total</b>  | <b>50%</b> | <b>45%</b> | <b>33%</b> | <b>32%</b> | <b>43%</b> | <b>41%</b> |

3 *Sources: Énergir; Aviseo 2021 analysis*

## 4 **Gazifère’s concentration of residential and commercial customers**

5 Gazifère’s average share of revenues from industrial customers only reached 7.6% between 2013 and 2020. A high  
 6 percentage of those revenues come from companies operating pulp and paper mills, an industry that has faced  
 7 challenges over the past decade. Moreover, Quebec’s pulp and paper industry is highly dependent on exports, and  
 8 therefore on global economic growth.<sup>71</sup> Nevertheless, Gazifère is generally less exposed to the economic risk posed  
 9 by a slower-than-expected recovery or even a negative income effect from real estate or stock market corrections  
 10 compared to Énergir, for example. The prevalence of the pulp and paper mills in its industrial customer base is  
 11 consistent with the previous period.

12 On average, Gazifère had approximately 40,000 residential customers between 2013 and 2020, representing  
 13 almost 92.0% of its total customer base. Similarly, over the same period, an average of 92.4% of Gazifère’s  
 14 distribution revenue came from sales to residential and commercial customers, which indicates the importance that  
 15 these markets have for the company. Although less sensitive (elastic) to price fluctuations than the industrial sector,  
 16 Gazifère’s residential and commercial customers are nevertheless highly concentrated geographically, exclusively  
 17 in the Outaouais region and mainly in Gatineau.

18 Between 2005 and 2009, the company’s residential customer base grew by 20.6%, whereas it increased by 12.8%  
 19 between 2010 and 2015, and by 6.3% between 2015 and 2020 (Figure 3). It is an accepted fact that access to  
 20 homeownership increases with age, up to about the age of 65. After that age, homeownership rates gradually  
 21 decline.<sup>72</sup> Consequently, an increase in the population aged 20 and 64 should result in an increased demand for  
 22 property and a corresponding increase in the number of residential customers.

23 Between 2010 and 2020, the number of people aged 20 to 64 in the Outaouais region increased by 3.06%. Over  
 24 the past decade, Pearson’s correlation coefficient between Gazifère’s residential customers and the annual  
 25 population aged between 20 and 64 was 0.796.<sup>73</sup> This demonstrates a strong positive correlation between  
 26 population growth in the Outaouais region and the company’s residential clientele. Similarly, Pearson’s correlation  
 27 coefficient between the number of commercial clients and the population aged 20 to 64 years reached 0.878,<sup>74</sup>  
 28 again indicating a strong positive correlation between variables.

29 However, the Institut de la statistique du Québec (ISQ)’s regional population projections for the Outaouais region  
 30 include a 0.98% decrease in the population between 2020 and 2030 for the 20 to 64 age group in the baseline

<sup>71</sup> For a more detailed sectorial outlook on the pulp and paper industry and its interaction with Quebec’s gas sector, see Aviseo Conseil (2018).

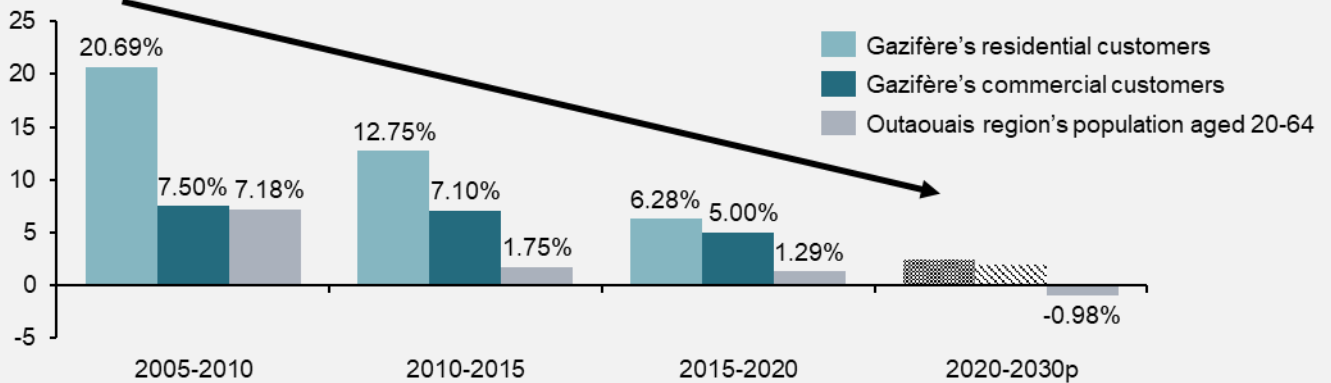
<sup>72</sup> Statistique Canada, *Taux d’accession à la propriété*

<sup>73</sup> Statistical significance threshold  $\alpha = 0.01$

<sup>74</sup> Statistical significance threshold  $\alpha = 0.01$

1 scenario. The population decline in this age group could result in fewer residential and commercial customers for  
 2 the company.<sup>75</sup>

3 **Figure 3: Growth of Gazifère’s residential and commercial customer base and the Outaouais region’s**  
 4 **population aged 20 to 64**  
 5 *Quebec, 2005–2020, in %*



6  
 7 Sources: Institut de la Statistique du Québec; Gazifère; Aviseo 2021 analysis

8 In addition, the volume of the institutional portion also appears to be more at risk by 2030 than it was over the past  
 9 decade, due to the desire for governments to set an example. The federal government has developed a policy for  
 10 greening federal buildings. The federal initiative to lower carbon in the National Capital Region’s buildings, which  
 11 includes Gatineau, aims to modernize the system that heats and cools some 80 buildings in the region.<sup>76</sup>  
 12 Specifically, from 2025 onwards, natural gas will be replaced for peak load by low-carbon fuels. Transitional  
 13 measures, including testing of low-carbon fuels, are also planned for the 2020–2025 period.<sup>77</sup> As mentioned earlier  
 14 in the section on public and environmental policies, the Quebec government has also committed to reducing GHGs  
 15 in its building stock by 2030, prioritizing renewable energy as the main source of heating.<sup>78</sup>

<sup>75</sup> It would be worthwhile to carry out an in-depth study on the relationship between the variables (e.g., regression). For the purpose of this analysis, it is worth noting that there is a strong correlation between variables, which is statistically significant.

<sup>76</sup> Gouvernement du Canada, Réduction du Carbone dans les bâtiments

<sup>77</sup> Ibid.

<sup>78</sup> PEV 2030, p. 52

## 1 Intragaz and Énergir’s vertical integration means shared risks

2 Given that Énergir is Intragaz’s sole customer, the above-listed risks for Énergir also apply to Intragaz, although  
3 indirectly.<sup>79</sup> Although there has been no change over the past decade, having a single buyer remains a significant  
4 risk for Intragaz. There are situations where having a single buyer creates an unfavourable competitive situation,  
5 i.e., a monopsony,<sup>80</sup> which is a major concern for Canada’s Competition Bureau.<sup>81</sup> To give an example in the natural  
6 gas industry, Russia has long been the only international buyer of natural gas from Central Asia, allowing it to take  
7 advantage of its monopsony to buy natural gas at low prices.<sup>82</sup> Of course, the situation is very different for Intragaz,  
8 in part because it operates in a regulated market. Nevertheless, as Énergir is Intragaz’s only customer, risks that  
9 are specific to Énergir indirectly affect Intragaz, perhaps with somewhat of a delay.

10 For Intragaz, the risk of having a single customer lies more in its inability to diversify risk by growing its customer  
11 base, especially within an energy transition context. In his 2009 testimony before the Régie, expert Paul R.  
12 Carpenter stated that the most significant risks from an equity investor perspective are those that cannot be  
13 diversified.<sup>83</sup> Although the above context is slightly different, it remains that Intragaz is unable to diversify its risk by  
14 growing its customer base or expanding its scope of activity. If for any reason Intragaz ceases to be relevant to  
15 Énergir’s business model, the financial impact on the company would be significant.

## 16 Findings

17 The risk associated with the uncertainty surrounding economic recovery affects all three gas companies but mainly  
18 Énergir, which has a greater share of revenue from industrial customers. Of course, the rate structure can  
19 compensate for a portion of the economic risk. However, economic recovery uncertainty implies the possibility of  
20 lower volume growth in the coming years, with a higher risk of losing customers due to offshoring or bankruptcy.  
21 This economic risk appears to be greater than that which prevailed at the beginning of the last decade following the  
22 2008 financial crisis, especially since it is unclear when the health crisis and its effects will be over.

23 Given Gazifère’s high percentage of residential and commercial customers, an analysis of the correlation between  
24 the population aged 20 to 64 in the Outaouais region and the number of Gazifère customers, as well as the ISQ’s  
25 demographic projections, reveal a significant risk leading up to 2030.

26 As long as Intragaz remains relevant to Énergir’s business model, the risk of having only one customer will remain  
27 real but is less of a concern.

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<sup>79</sup> D-2013-081, p. 36

<sup>80</sup> Monopsony refers to a situation in which only a single buyer may purchase supplies from several sellers.

<sup>81</sup> Bureau de la concurrence, *Table ronde sur le monopsonne et le pouvoir de l’acheteur*

<sup>82</sup> Ericson (2012)

<sup>83</sup> Written evidence of Paul R. Carpenter for Gaz Métro, p. 7

# Quebec's Energy Context

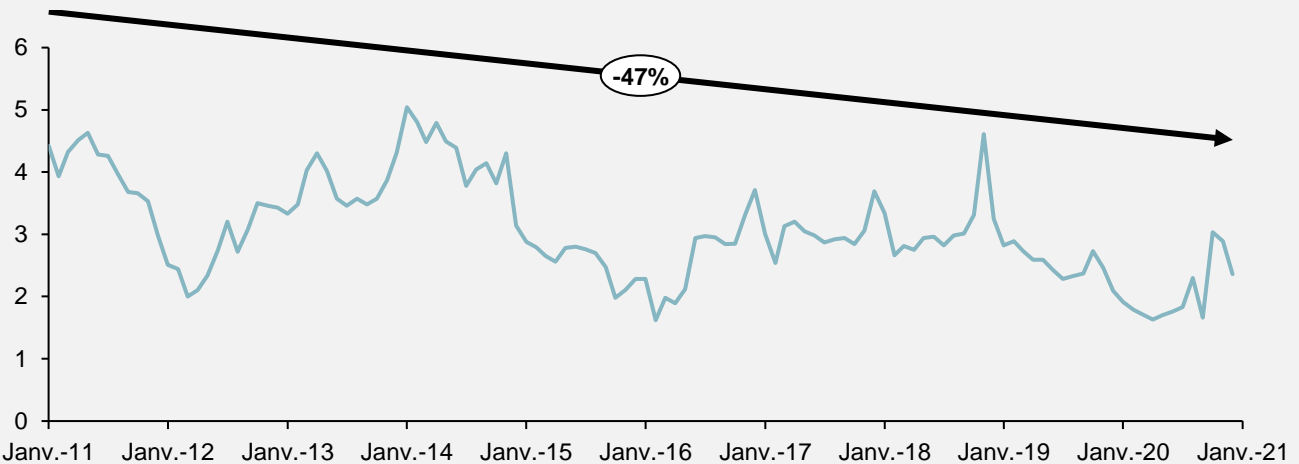
Quebec's energy context is very different from elsewhere in North America. Quebec's energy context is characterized by the presence of a government-owned vertically integrated monopoly (Hydro-Québec) with a high penetration in the electricity market, and, most particularly, by the low cost of hydroelectricity. This section discusses the evolution of Quebec's energy context over the past ten years and the outlook for the coming years.

## Decrease in the natural gas spot price (2011–2020) and its impact on Quebec's energy portfolio

In general, competitiveness in the natural gas sector has improved over the last ten years, mainly due to a fall of around 47% in the natural gas spot price (see Figure 4).

**Figure 4: Henry Hub natural gas spot price progression**

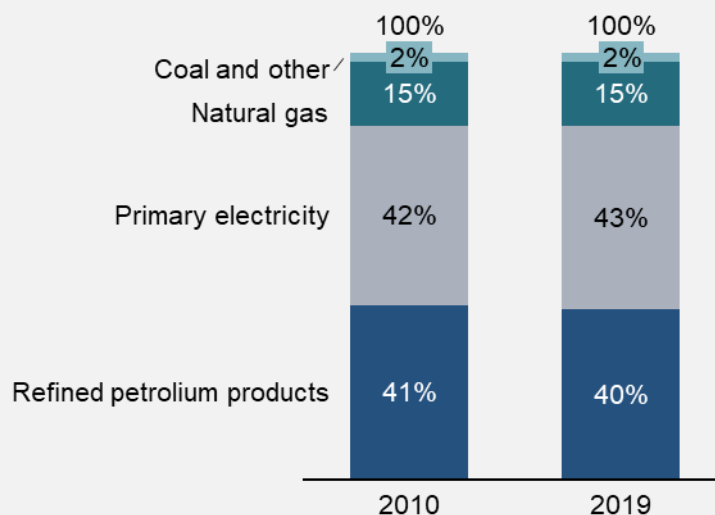
January 2011 to December 2020, in USD



Sources: U.S. Energy Information Administration; Aviseo 2021 analysis

Despite the decline in natural gas prices over the past decade, the share of natural gas in Quebec's energy portfolio has remained stable at 15% (Figure 5). Apart from a slight increase in electricity by one percentage point and a corresponding decrease in petroleum products, in terms of market share, Quebec's energy portfolio has remained essentially the same since 2010.

1 **Figure 5: Evolution of Quebec’s energy portfolio**  
 2 Quebec, 2010–2019, primary and secondary energy supply and flow, by energy source, in %



3  
 4 Sources: Statistics Canada; Avisaio 2021 analysis

5 Strong competition in the electricity sector helps explain natural gas’s low penetration in the various segments of  
 6 the energy market. The decrease in natural gas prices over the past decade has not resulted in a substantial  
 7 increase in use. In 2010, natural gas consumption reached 8.3% for the residential sector and 23.4% for the  
 8 industrial sector. In 2019, this grew to 9.5% and 26.2% respectively, a slight increase from 2010 levels.

9 **Table 2: Percentage of natural gas in final energy consumption**

10 Canada; 2010–2019; in %

| Type             | Residential |             | Industrial   |              | Commercial and institutional |              |
|------------------|-------------|-------------|--------------|--------------|------------------------------|--------------|
|                  | 2010        | 2019        | 2010         | 2019         | 2010                         | 2019         |
| <b>Quebec</b>    | <b>8.3%</b> | <b>9.5%</b> | <b>23.4%</b> | <b>26.2%</b> | <b>37.7%</b>                 | <b>30.1%</b> |
| Ontario          | 60.1%       | 68.3%       | 40.8%        | 42.3%        | 54.3%                        | 51.7%        |
| Alberta          | 82.6%       | 81.9%       | 72.3%        | 80.8%        | 53.9%                        | 63.7%        |
| British Columbia | 49.2%       | 52.2%       | 35.3%        | 37.7%        | 42.2%                        | 41%          |

11 Sources: Statistics Canada; Avisaio 2021 analysis

12 In absolute terms, however, these percentages are substantially lower than those in Ontario, Alberta and British  
 13 Columbia.<sup>84</sup> The percentage of natural gas for industrial and residential energy consumption increased in all  
 14 jurisdictions, with the exception of Alberta where the percentage of natural gas in residential energy consumption  
 15 remained essentially at the same level, almost 80%. The downward trend in natural gas use in the commercial and  
 16 institutional segments has steepened, as only Alberta has seen a proportional increase of natural gas use in this  
 17 category. It should be noted that the use of natural gas in the residential, institutional, commercial and industrial  
 18 sectors is considerably lower in Quebec than in other the provinces represented. This is similar to 2013 findings.<sup>85</sup>

<sup>84</sup> For consistency, these are the same provinces as were used for comparison in Énergir’s 2013 rate case (R-3809-2012). Together, they also make up 86.5% of Canada’s population.

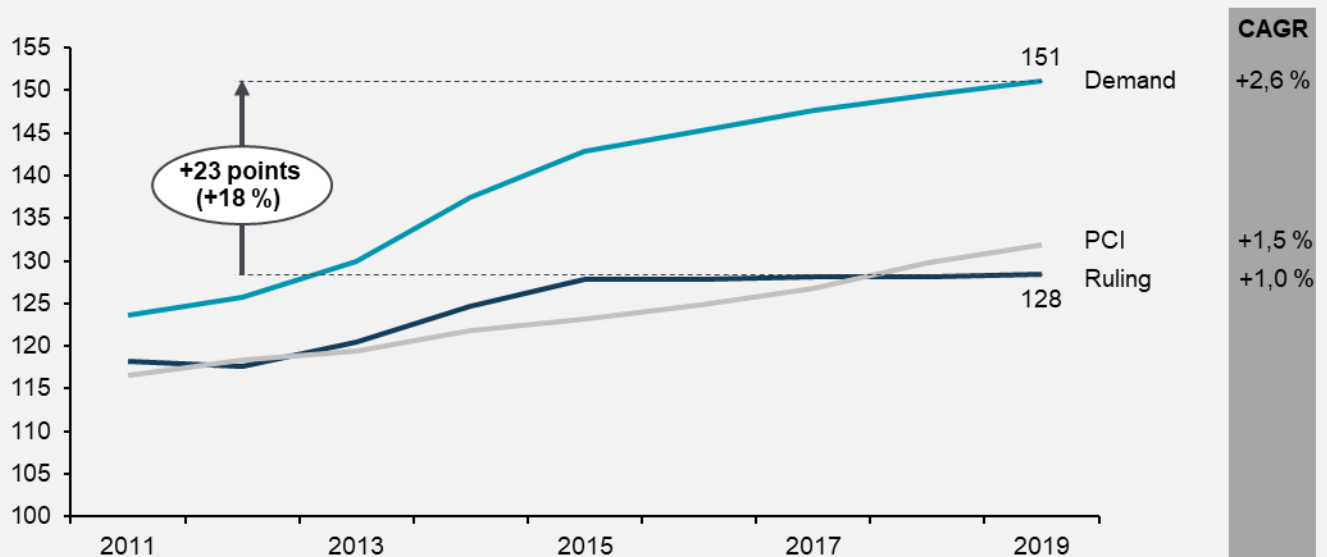
<sup>85</sup> Rate case 2013, R-3809-2012, Taux de rendement preuve en chef de Gaz Métro, p. 19.

## 1 Competition from Hydro-Québec and electricity price stability

2 In Quebec, electricity continues to be natural gas's main competitor due in part to its low cost and rate predictability.  
 3 This stability is expected to be even more predictable since electricity rate increases are now set according to price  
 4 levels, measured for the consumer price index (CPI) under *An Act to simplify the process for establishing electricity*  
 5 *distribution rates*<sup>86</sup> adopted by the Quebec government in 2019. In short, the annual variance of electricity prices  
 6 has been lower than natural gas and is expected to remain the same over the next few years.

7 It has been argued that by indexing electricity prices to the CPI, *An Act to simplify the process for establishing*  
 8 *electricity distribution rates* penalizes consumers because some increases granted in recent years have been lower  
 9 than the inflation rate (0.7% in 2016, 0.7% in 2017, 0.3% in 2018 and 0.9% in 2019), below what Hydro-Québec  
 10 asked for and sometimes even resulting in reductions (2012 and 2013).<sup>87</sup> Figure 6 shows that since 2003, rate  
 11 increases for industrial consumers have been considerably lower than what Hydro-Québec had sought and below  
 12 CPI growth.

13 **Figure 6: Cumulative demand and rate increases for Hydro-Québec's industrial consumers**  
 14 *Quebec, 2011 to 2019<sup>p</sup>, index (2003 = 100)*



15 Sources: AQCIE; Hydro-Québec; Régie de l'énergie; Aviseo 2021 analysis

17 It has been suggested that electricity consumers prefer rate increases that are lower than inflation rates rather than  
 18 the increased predictability of *An Act to simplify the process for establishing electricity distribution rates*.<sup>88</sup> However,  
 19 given the marginal increase in the use of natural gas in Quebec over the past decade despite the decline in natural  
 20 gas prices, it is unlikely that electricity prices increasing at a slightly higher annual rate than in the past will lead to  
 21 an increase in customers or volume for Énergir and Gazifère.

## 22 Complementarity of electricity and natural gas

23 Because the electricity and natural gas sectors compete to attract and retain customers, it is increasingly apparent  
 24 that the two energy sources could go hand in hand to improve Quebec's energy balance and decarbonize the  
 25 economy. Academic literature has made it abundantly clear that for practical and economic reasons, we cannot  
 26 solely depend on electricity to decarbonize the economy.<sup>89</sup> Industrial energy demand often requires a molecule,

<sup>86</sup> *An Act to simplify the process for establishing electricity distribution rates*, SQ 2019, c 27

<sup>87</sup> Schepper (2019)

<sup>88</sup> *Ibid.*

<sup>89</sup> Baker McKenzie (2020)

1 which electricity cannot provide, or at least not without major transformations in industrial processes.<sup>90</sup> In an  
2 industrial production context, molecules allow for greater energy storage and easier transport than electricity.<sup>91</sup>  
3 Natural gas is frequently used for industrial heating, for steam production and to supply petrochemical and fertilizer  
4 plants.<sup>92</sup> Although electricity will continue to provide strong competition to natural gas, particularly due to its  
5 penetration of the existing market, the imperative to decarbonize the economy reveals an opportunity for gas and  
6 electricity networks to complement one another, especially in the residential and commercial sectors where building  
7 heating lends itself well to this complementarity.

8 At the same time, the Quebec government is aiming to have 1.5 million electric vehicles on Quebec roads and 55%  
9 of city buses electrified by 2030.<sup>93</sup> This will increase the demand for electricity in Quebec. However, increasing peak  
10 demand will be costly for Hydro-Québec. In 2017, 85% of the maximum capacity needed could meet demand 95%  
11 of the time, which means that to meet demand 5% of the time, it was necessary to develop an additional capacity  
12 of 15%.<sup>94</sup>

13 From a perspective of reducing energy consumption and optimizing peak management, it makes sense for Hydro-  
14 Québec and Énergir to work together. This collaboration would aim to reduce greenhouse gas emissions through  
15 better energy peak management of electricity and natural gas use.<sup>95</sup> With regard to the recent increase in CDPQ's  
16 shares, which will enable it to become the majority Énergir shareholder, CDPQ's Executive Vice-President and  
17 Head of Infrastructure Emmanuel Jaclot stated:

18 "With this transaction, CDPQ is furthering its support of Énergir, an innovative business that is working to  
19 decarbonize its operations for the benefit of its customers, for example by focusing on energy efficiency and  
20 renewable gas, thus contributing to a greener North American economy."

21 A partial conversion of natural gas to electricity will reduce GHG emissions, but using natural gas to reduce peak  
22 energy increases will help maximize economic impacts and lower costs for customers.<sup>97</sup> However, this could  
23 complicate Énergir's network management. Better management of peak energy demands for buildings could reduce  
24 the impact of increased electricity demand caused by light vehicle electrification. This potential complementarity  
25 between natural gas and electricity to improve Quebec's energy efficiency is an opportunity for Énergir leading up  
26 to 2030.

27 A literature search did not turn up evidence of such a collaboration between Hydro-Québec and Gazifère. Based  
28 on the available information, the opportunity is therefore limited to Énergir.

## 29 Integrating renewable natural gas

30 The *Regulation respecting the quantity of renewable natural gas to be delivered by a distributor*<sup>98</sup> stipulates that  
31 distributors will have to gradually increase the quantity of RNG delivered, with the government aiming for 10% by  
32 2030, although this target has not yet been legislated. Regarding the possibility for Gazifère and Énergir to increase  
33 the quantity of renewable natural gas injected into the network, it is estimated that RNG's techno-economic potential  
34 in Quebec will be 144 million gigajoules in 2030—nearly two thirds the volume of natural gas Énergir delivered in  
35 Quebec in 2018.<sup>99</sup> However, the maximum attainable commercial potential was not covered in the Deloitte/WSP  
36 study (2018) and the actual exploitable potential may be less than the projected techno-economic potential.

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<sup>90</sup> *Ibid.*

<sup>91</sup> Tanguy et al. (2020)

<sup>92</sup> Natural Resources Canada, *Natural Gas: A Primer*

<sup>93</sup> PEV 2030

<sup>94</sup> Whitmore and Pineau (2018)

<sup>95</sup> Énergir. *Hydro-Québec and Énergir: An unprecedented partnership.*

<sup>96</sup> CDPQ, *La CDPQ accroît sa participation dans Énergir*

<sup>97</sup> PEV 2030

<sup>98</sup> RLRQ Chapitre R-6.01, r. 4.3

<sup>99</sup> Deloitte/WSP (2018)

1 This techno-economic potential mainly stems from RNG generated by second-generation technologies (82%).  
2 Moreover, according to this study, more than half of the techno-economic potential from second-generation  
3 technologies could be produced at a cost of less than \$15/GJ.<sup>100</sup> It should be noted that production costs are  
4 increasing and that some RNG sources, such as animal agricultural biomass, have significantly higher production  
5 costs.

6 Unlike the traditional natural gas market, RNG prices vary from one producer to another, particularly depending on  
7 the manufacturing process. Furthermore, one of the main challenges of RNG projects lies in the connection that  
8 transports RNG from the producer to the distributor.<sup>101</sup> Concentrating projects can also influence a producer's ability  
9 to deliver RNG at a lower cost, and clustering activities geographically can reduce costs by up to 60%.<sup>102</sup> Apart from  
10 the Saguenay–Lac-Saint-Jean region, which holds 30% of Quebec's techno-economic potential for RNG  
11 production, the residual RNG potential is spread throughout Quebec's other administrative regions. It should be  
12 noted that Quebec's gas network does not fully cover the entire province (Figure 7). While natural gas distributors  
13 are not necessarily required to source RNG from within their service area, or even in Quebec, transportation costs  
14 could increase supply costs. In fact, it is estimated that a significant portion of operating costs related to RNG  
15 distribution could be attributed to truck transport.<sup>103</sup>

16 Figure 7 shows that the RNG potential of the Outaouais region accounts for only about 1% of Quebec's total RNG  
17 potential, which could make it harder for Gazifère to explain and promote RNG to its customers, especially in terms  
18 of the impact on the local economy, higher price (especially if this increases because of the additional cost of  
19 sourcing outside the territory), and the lack of a guarantee that RNG will be provided to the customers who have  
20 chosen it.<sup>104</sup>

21 The *Clean Fuel Regulations*<sup>105</sup> aim to reduce pollution by making fuels cleaner. To achieve this, the Regulations  
22 would introduce requirements for liquid fuel suppliers, which would affect natural gas.<sup>106</sup> An impact study of the  
23 proposed Regulations concluded that it would lead to an increase in production costs for primary suppliers and,  
24 consequently, increased consumer prices for households and industry.<sup>107</sup> Interconnecting RNG producers with  
25 natural gas distributors is generally more costly than on-site use,<sup>108</sup> which could lead RNG producers to sell locally  
26 rather than to companies like Énergir or Gazifère.

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<sup>100</sup> *The Deloitte/WSP report (2018)* mentions that a purchase price of \$15/GJ represents a value for the end user that is generally competitive with electricity in Quebec.

<sup>101</sup> *MJB&A (2017)*

<sup>102</sup> *Jaffe et al. (2016)*

<sup>103</sup> *Aviseo Conseil (2019)*

<sup>104</sup> *R-4122-2020 – Phase 4 – Gazifère Inc. Réponses de Gazifère à la demande de renseignements no 4. p. 4*

<sup>105</sup> *La Gazette du Canada, Partie I, volume 154, numéro 51, Règlement sur les combustibles propres (publié le 19 décembre 2020)*

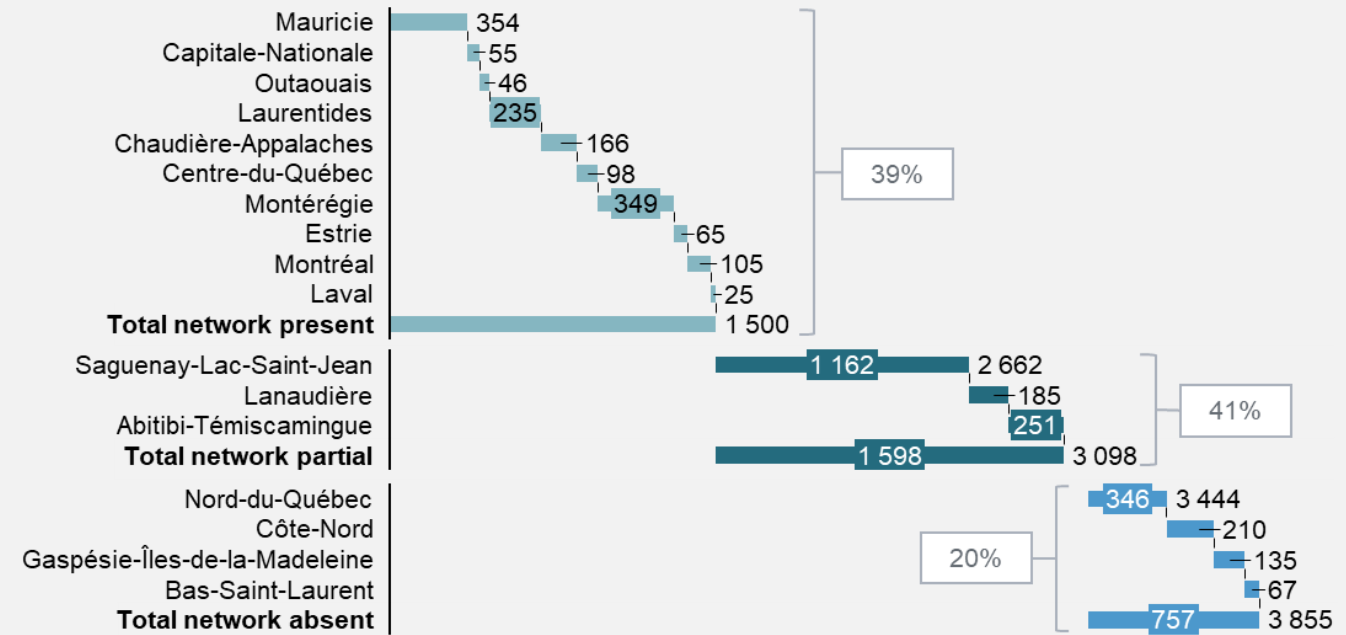
<sup>106</sup> *Gouvernement du Canada, Stratégie ministérielle de développement durable, 2020 à 2023*

<sup>107</sup> *La Gazette du Canada, December 19, 2020*

<sup>108</sup> *MJB&A (2017)*



1 **Figure 7: Techno-economic potential of renewable natural gas by region**  
 2 Quebec, 2019, in millions of m<sup>3</sup>



3 Sources: Deloitte-WSP (2018); Aiseo (2019); Aiseo 2021 analysis

5 RNG may attract a broader customer base due to the *Clean Fuel Regulations*<sup>109</sup> and increased awareness about  
 6 the environment and climate change,<sup>110</sup> which could increase difficulties for natural gas distributors in sourcing RNG  
 7 at a competitive price. In California, RNG penetration in the transportation sector has seen dramatic growth, from  
 8 17% of natural gas used in the transportation sector in 2015 to 37% in 2019.<sup>111</sup> In some eastern U.S. states  
 9 (Massachusetts, New Hampshire, New York and Rhode Island), local RNG production potential represents between  
 10 10% and 35% of total demand.<sup>112</sup> Competition for RNG from the U.S. could add to Énergir and Gazifère's supply  
 11 challenges, nor is it impossible that Quebec could face competition from other Canadian provinces.

12 In any event, RNG production projects are generally beyond Énergir and Gazifère's control although they are  
 13 considering the possibility of contributing to RNG production projects<sup>113</sup>. It is anticipated that the PSPGNR support  
 14 program for RNG production, injection or connection to the natural gas distribution network will expire soon (March  
 15 31, 2022),<sup>114</sup> which could impact the number of RNG projects. Some types of RNG projects involve higher  
 16 production costs, and a lack of government support could have an effect on their implementation.

17 In addition to these uncertainties about future supply of RNG, there is the challenge of persuading a growing  
 18 proportion of customers to pay more for RNG than they would for conventional natural gas. As shown above, with  
 19 natural gas prices falling significantly over the last 15 years, some customers may be less interested in paying more  
 20 for renewable natural gas. For example, a hospital with a natural gas bill of \$335,000 would pay \$722,000 for  
 21 renewable natural gas, significantly reducing the competitive advantage over hydroelectricity (\$768,000).<sup>115</sup>

22 The Quebec government's targets for a minimum threshold of RNG to be injected into the network by 2025 (5%),  
 23 and potentially doubled by 2030 (10%), represent an additional risk for Énergir and Gazifère leading up to 2030,  
 24 partly because of the uncertainty surrounding RNG development and partly because of the importance of reducing

<sup>109</sup> La Gazette du Canada, Partie I, volume 154, numéro 51, Règlement sur les combustibles propres (publié le 19 décembre 2020)

<sup>110</sup> See for example the recent IPCC Climate Report (August 2021).

<sup>111</sup> Cyrs et al. (2021)

<sup>112</sup> MJB&A (2017)

<sup>113</sup> During our discussions with distributors, we were told that Gazifère is taking steps to promote the production of RNG in the coming years.

<sup>114</sup> Ministère de l'Énergie et des Ressources naturelles, Programme de soutien

<sup>115</sup> Énergir, GNR : Énergir rétablit les faits

1 the natural gas carbon footprint to ensure its sustainability in Quebec’s energy portfolio. Achieving carbon footprint  
2 reduction targets for natural gas could be critical to ensuring that natural gas does not go the way of fuel oil.

### 3 **The potential integration of hydrogen**

4 Injecting hydrogen into the gas network would help reduce the network’s carbon intensity, but the current regulatory  
5 framework does not allow it. Although an amendment remains possible, the regulatory framework that would govern  
6 the injection of hydrogen into the gas network is still uncertain.

7 Furthermore, unlike RNG, hydrogen is not a perfect substitute for natural gas in the network due to its different  
8 properties. While a mixture of hydrogen and natural gas is possible, there is no consensus on the optimal  
9 concentration or the limit for injecting hydrogen into the natural gas network. A range between 5% and 20%  
10 hydrogen is generally considered acceptable, while higher concentrations result in costs for modifying the network  
11 and greater safety concerns.<sup>116</sup>

12 It is estimated that a concentration of 20% would have little influence on the severity of explosions, while 50% or  
13 more would increase their severity.<sup>117</sup> Énergir submitted a project to the Régie in 2021 that would enable technical  
14 validations of the effects of a hydrogen and natural gas mixture on network components and natural gas appliances  
15 in the event that hydrogen is injected into the network for distribution with natural gas.<sup>118</sup> Like other Canadian gas  
16 distributors, Gazifère is studying the technical risks for its network.<sup>119</sup> The technical risk of injecting hydrogen into  
17 the network is in addition to the regulatory risk described above.

18 This technical risk also applies to Intragaz, as the properties of hydrogen differ from natural gas, which is currently  
19 stored in its reservoirs. Hydrogen is more corrosive, has a smaller molecule and is lighter, which can result in  
20 significant adjustment costs for a small company like Intragaz. In addition, developing the expertise to adapt to the  
21 new use of hydrogen presents an additional challenge for the company, particularly with respect to the impact of  
22 hydrogen on reservoirs (including steel casing wells), since it is not possible to modify the structure of reservoirs to  
23 accommodate the particular characteristics of hydrogen.

24 The use of hydrogen may be particularly beneficial in manufacturing processes that require the physical and  
25 chemical properties of molecular energy to operate, as this industrial segment will be harder to decarbonize. Like  
26 natural gas, hydrogen is a molecular material, making it more amenable than electricity to industrial applications.  
27 This will also be the main driver of demand for hydrogen consumption by 2030.<sup>120</sup> Hydrogen is already used in the  
28 chemical, refining, biofuel, and steel and iron sectors.<sup>121</sup> While hydrogen offers significant decarbonization potential  
29 for Quebec, its appeal for the Quebec industrial sector could increase the competition that natural gas distributors  
30 would face for hydrogen supplies.

31 Similarly, decarbonization of the heavy and long-haul transport sector could be facilitated by hydrogen. Fuel cells  
32 that use green hydrogen could be an alternative to the electrification of heavy transport, as the power and range  
33 demands for long trips are major challenges for electrifying heavy transport.<sup>122</sup> Internal combustion engines that  
34 use hydrogen as a fuel in vehicles need to be adapted to account for the different combustion properties of  
35 hydrogen, which burns faster than gasoline or diesel.<sup>123</sup> In the longer term, technologies could be developed so that  
36 hydrogen can be used to decarbonize rail, maritime and air transport, although this will most likely occur beyond  
37 2030.<sup>124</sup> Like the industrial sector, the demand for hydrogen from the heavy transport sector could increase the  
38 competition that Énergir and Gazifère will face to secure the desired hydrogen supplies.

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<sup>116</sup> Melaina et al. (2013)

<sup>117</sup> *Ibid.*

<sup>118</sup> R-4165-2021, pp. 3-4

<sup>119</sup> This information was confirmed by Gazifère.

<sup>120</sup> Tanguy et al. (2020)

<sup>121</sup> *Ibid.*

<sup>122</sup> PEV 2030, pp. 31 and 40

<sup>123</sup> Roy and Demers (2019)

<sup>124</sup> Roy and Demers (2019)

1 The transition from fossil fuels to hydrogen or a natural gas that produces less GHG emissions, whether through  
2 renewable natural gas or a mixture of natural gas and hydrogen, could help Quebec achieve its environmental  
3 objectives. For example, it is estimated that injecting green hydrogen to make up 5% of the volume of the gas  
4 network would reduce CO<sub>2</sub> emissions by 1.4% during combustion, while 20% of the volume would reduce emissions  
5 by 6.3%.<sup>125</sup> However, for the time being the promise of hydrogen is tempered by regulatory, technical and supply  
6 risks. For Énergir and Gazifère, the risk looming by 2030 is that natural gas distributors will not be able to  
7 decarbonize their networks quickly enough using RNG and hydrogen.

## 8 Energy intensity

9 Alongside the development of renewable energies such as renewable natural gas and green hydrogen, the energy  
10 context also includes a trend toward decreasing energy intensity in Canada<sup>126</sup> and Quebec.<sup>127</sup> Between 1990 and  
11 2013, Canada's energy intensity dropped by 25%.<sup>128</sup> Like that of the rest of Canada, the energy intensity of  
12 Quebec's economy fell by 28% between 1990 and 2016.<sup>129</sup> This trend is expected to continue in the coming years.

13 Natural gas companies are expected to see reduced residential and commercial demand as a result of energy  
14 efficiency measures and the transition to electric heating. These pressures will impact performance and cost  
15 management. In its report on climate resilience (2021), Énergir noted that decarbonizing its network will require  
16 responding to these trends by injecting RNG into the network and reducing the carbon intensity of natural gas. Also,  
17 in a context where natural gas distribution could remain stable or even decrease by 2030, value creation, particularly  
18 through natural gas's complementary role to electricity, will become critical to Énergir's business model.

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<sup>125</sup> Tanguy et al. (2020)

<sup>126</sup> Régie de l'énergie du Canada. *L'intensité énergétique et l'intensité des émissions en baisse au Canada*

<sup>127</sup> Withmore and Pinault (2018)

<sup>128</sup> Régie de l'énergie du Canada. *L'intensité énergétique et l'intensité des émissions en baisse au Canada*

<sup>129</sup> Withmore and Pinault (2018)

## 1 Findings

2 Quebec's energy portfolio has changed slightly over the last decade, but the share of natural gas in final energy  
3 consumption remains below 10%. The period of 2021–2030 will be marked by the need to decarbonize the economy  
4 and, moreover, fossil fuels. Decarbonizing the Énergir and Gazifère network and targets for integrating renewable  
5 energy sources such as RNG and hydrogen into natural gas is a new risk that can be anticipated by 2030.

6 For Énergir, part of the risk regarding the sustainability of natural gas in Quebec's energy portfolio is mitigated by  
7 its partnership and complementarity with Hydro-Québec. The complementarity between Hydro-Québec and Énergir,  
8 which aims to use both natural gas and electricity to heat buildings, reduces the risk of competition from Hydro-  
9 Québec. To the extent that Énergir is able to green its natural gas, this complementarity should help ensure the  
10 viability of the company's business model.

11 However, this creation of value for Quebecers is accompanied by a reduction in volumes since this complementarity  
12 involves converting Énergir customers to electricity and because the trend is to reduce Quebec's energy intensity.  
13 Similarly, the (current) higher price of RNG reduces the positive competitiveness gap with electricity, which could  
14 exacerbate the decline in distribution volume. Although Énergir's network covers a large proportion of Quebec, a  
15 significant portion of the techno-economic potential of RNG is located in regions where the gas network is partial or  
16 non-existent. Even if there is no need to source RNG locally, local procurement can help promote the message of  
17 natural gas's contribution to the local economy and, all other things being equal, reduce costs. Uncertainty regarding  
18 the development of the RNG and hydrogen markets adds a degree of doubt about the volume of renewable natural  
19 gas that Énergir will be able to deliver to meet government targets. Despite the partnership with Hydro-Québec, the  
20 potential impact on volume and the risks associated with renewable natural gas cannot be ignored. The new risks  
21 appear to outweigh the reduced competition from Hydro-Québec.

22 With respect to Gazifère, the techno-economic potential for RNG in the Outaouais region represents only about 1%  
23 of the potential for all of Quebec, which could add to the complexity of sourcing RNG, as well as explaining and  
24 promoting it to current customers, especially if there are additional costs due to sourcing outside the region. The  
25 lack of a guarantee of RNG consumption by customers who sign up for RNG is also a current obstacle. Apart from  
26 the lack of complementarity between Hydro-Québec and Gazifère regarding dual energy, most of the observations  
27 made about Énergir also apply to Gazifère. The changing energy context and the increased pressure to decarbonize  
28 the economy and, consequently, the natural gas network pose a new risk for Gazifère, especially given its size.  
29 Despite the appeal of hydrogen due to its multiple uses and potential to decarbonize the economy, it remains that  
30 Gazifère is a small player in a market where there could be many competitors. This explains why the energy context  
31 between now and 2030 appears to be fraught with more risks than the previous period.

32 The energy transition that will characterize the next decade may constitute a new challenge for Intragaz. While an  
33 increased amount of renewable natural gas injected into the network will green the company's operations, hydrogen  
34 presents certain challenges for Intragaz. The lighter, less dense and more corrosive gas may represent unknowns,  
35 adjustments and new investments for Intragaz. The amount of hydrogen potentially injected into the network by  
36 Énergir will determine the magnitude of this risk. For this reason, while it is difficult to quantify exactly what the  
37 inclusion of hydrogen in natural gas will mean for Intragaz, it seems that it represents a new risk for the 2021–2030  
38 period.

# Gas Company Size

Due in part to the predominance of electricity use in the Quebec energy context, the province's natural gas companies are smaller than many natural gas distribution companies elsewhere in Canada. This section discusses the issues related to the smaller size of gas companies operating in Quebec in the context of energy transition.

## Comparison of the size of Énergir and Gazifère with other natural gas distributors in Canada

Compared to several major natural gas distributors in Canada, Gazifère is particularly small. As in 2010,<sup>130</sup> Gazifère accounts for less than 5% of the number of customers, volumes and revenues of other major Canadian distributors. As for Énergir, although volumes and revenues are relatively similar to those of ATCO and FortisBC, the number of customers is considerably lower, again reflecting Énergir's highest profile in the industrial sector and the attractiveness of electricity.

**Table 3: Customers, volumes and revenues per distributor**  
Canada, 2020

| Distributors  | Customers<br><i>In thousands</i> | Volumes<br><i>In million m<sup>3</sup></i> | Revenues<br><i>In million \$</i> |
|---------------|----------------------------------|--|----------------------------------|
| Énergir       | 210                              | 5,860                                      | 1,264                            |
| Gazifère      | 43.5                             | 194  | 52                               |
| ATCO          | 1,247                            | 7,208                                      | 1,539                            |
| Enbridge Gas* | 3,800                            | 12,450                                     | 3,631                            |
| FortisBC      | 1,054                            | 5,780                                      | 1,335                            |

\* Enbridge Gas and Union Gas merged on January 1, 2019

Sources: Annual reports from Énergir, Gazifère, ATCO, Enbridge and FortisBC; Aviseo 2021 analysis

As noted earlier, of Gazifère's 43,500 or so customers, almost 40,000 are from the residential sector. Moreover, this residential market is concentrated in the Outaouais region, which increases the risk faced by Gazifère, especially given the size of Hydro-Québec and the government's intention to decarbonize building heating, as outlined in the PEV 2030.

<sup>130</sup> R-3724-2010, Opinion on return on equity for Gazifère Inc., pp 23-24

1 With respect to Intragaz, Table 4 highlights the small size of the company for all indicator categories.

2 **Tableau 4 : Design capacity for selected companies**

3 *Canada, 2020*

| Company      | Working Gas capacity             | Peak withdrawal capacity | Peak injection capacity |
|--------------|----------------------------------|--------------------------|-------------------------|
|              | <i>In millions m<sup>3</sup></i> | <i>GJ per day</i>        | <i>GJ per day</i>       |
| Intragaz     | 157                              | 132 005                  | 123 090                 |
| Enbridge Gas | 8 220                            | 6 175 345                | 3 043 450               |

4 *Sources : Enbridge, Intragaz, Régie de l'Énergie du Canada, Analyse Aviséo 2021*

## 5 **The respective sizes of Gazifère and Hydro-Québec: a significant** 6 **risk**

7 In 2019, the volume of gas that Gazifère distributed to its residential customers was equivalent to 719 MWh,  
8 representing a mere 0.35%<sup>131</sup> of Hydro-Québec's production. In addition to the geographic concentration of  
9 Gazifère's market, a transition to electricity poses a greater risk to its customer base, unlike in the industrial sector,  
10 for which electrification presents a greater challenge. In an energy transition context, given that the PEV 2030 is  
11 clearly targeting the decarbonization of building heating, Gazifère's residential and commercial volumes appear to  
12 be at greater risk, especially since no announcements regarding gas and hydroelectric complementarity between  
13 Hydro-Québec and Gazifère have been made. It is because of these reasons that Gazifère appears to be at greater  
14 risk leading up to 2030, even though its size has not changed substantially since 2010 compared to other major  
15 Canadian distributors.

## 16 **Hydrogen development: substantial supply and financial risks given** 17 **the size of the company**

18 The hydrogen market is enjoying strong momentum because of its potential to help decarbonize economies.<sup>132</sup>  
19 Considering its size, Gazifère will make considerable investments to secure a hydrogen supply. For example,  
20 Gazifère and Evolugen have announced a project to produce green hydrogen, which will be purchased by Gazifère.  
21 This announcement aligns with Gazifère's goal of becoming the first fully green natural gas distributor by 2050.<sup>133</sup>  
22 Similar projects will likely be announced in the future.

23 It is interesting to note that several natural gas distribution companies that are planning projects to blend natural  
24 gas with hydrogen (e.g., Southern California Gas Co. and San Diego Gas & Electric) are considerably larger than  
25 Gazifère.<sup>134</sup> While the supply risk and other risks relating to the development of a hydrogen sector are amplified by  
26 Gazifère's small size, these risks are also relevant to Énergir. Quebec is a small player in the North American  
27 market, and there is a real risk that the hydrogen produced in Quebec could be bought elsewhere in Canada, by  
28 the United States or by a sector other than natural gas distribution.<sup>135</sup> Supply problems would increase the risk that  
29 Énergir and Gazifère would be unable to green their networks quickly enough to meet the Quebec government's  
30 energy transition targets.

<sup>131</sup> Hydro-Québec produced 208.3 TWh in 2019. Equivalence in MWh is calculated by multiplying the cubic metres delivered by Gazifère to its residential customers by 0.010395 (the Canadian Energy Board's conversion tables were used to achieve these results).

<sup>132</sup> Hydrogen Council, *Building on the impressive momentum of hydrogen*

<sup>133</sup> Enbridge, *February 2021*

<sup>134</sup> Reuters, *November 23, 2020*

<sup>135</sup> This concern also applies to RNG.

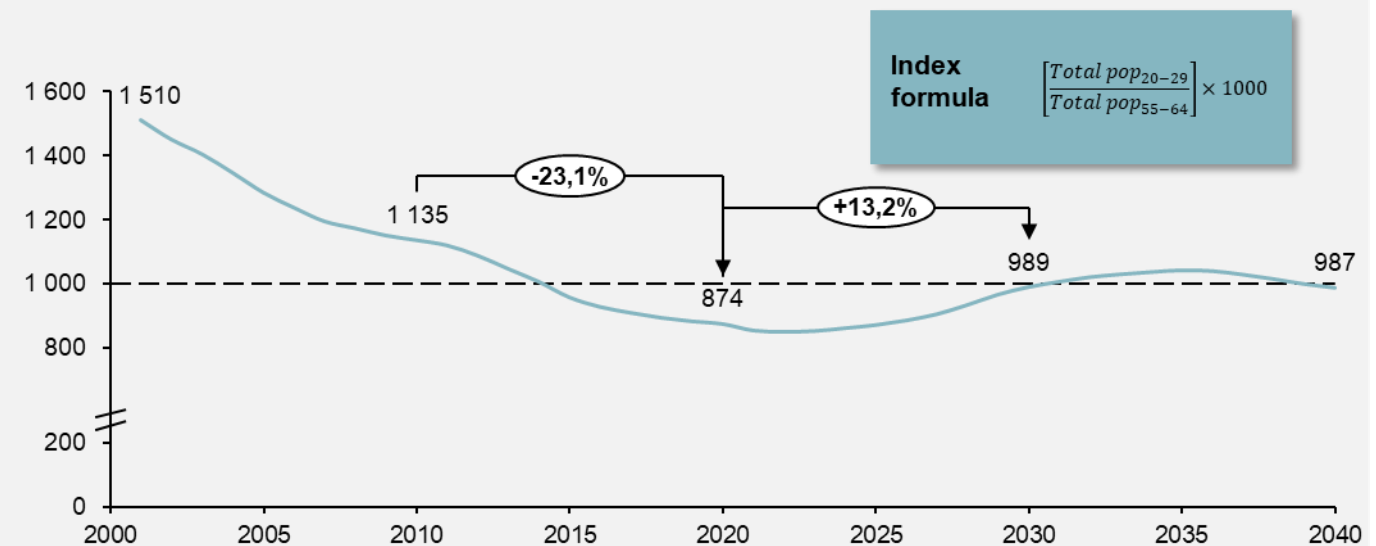
## 1 Labour force and the size effect

2 In its 2017 comparative analysis of Gazifère’s internal capacity and needs, Aviseo Consulting<sup>136</sup> concluded that the  
 3 use of existing resources was sufficient to maintain Gazifère’s activities but did not allow for activity growth. Its  
 4 absenteeism and turnover rates were well below the Canadian average. However, some departments raised  
 5 questions about the sustainability of the current work level. With only around 24 employees, Intragaz is even smaller,  
 6 requiring a great deal of versatility among team members and making it vulnerable to any departure, especially  
 7 given the niche quality of its operations.

8 The small size of both Gazifère and Intragaz contributes to increasing labour issues, especially regarding qualified  
 9 personnel. Skilled workers are more difficult to find in Quebec since the province has no commercial natural gas  
 10 production, which adds to Intragaz’s labour challenges.<sup>137</sup> With a relatively small number of employees, departures  
 11 and attracting quality candidates could become a greater problem over the next decade than it has been since  
 12 2010, especially given the current state of the labour market. Due to Intragaz’s small size, the company doesn’t  
 13 have a communications department and the work that would normally fall to that department must be handled by  
 14 other employees. This could become a problem if situations requiring communications expertise were to arise.

15 In 2018, Gatineau had higher activity and employment rates as well as lower unemployment rates than Quebec as  
 16 a whole.<sup>138</sup> Labour scarcity leading up to 2026 has been raised as a major challenge for Gatineau’s economic  
 17 development.<sup>139</sup>

18 **Figure 8: Labour force replacement index<sup>140</sup>**  
 19 *Ottawa-Gatineau CMA (Quebec), 2001–2040, per 1,000 individuals*



20 Sources: Institut de la statistique du Québec; Aviseo Analysis 2021  
 21

<sup>136</sup> Aviseo Conseil (2017)

<sup>137</sup> Intragaz has confirmed that this analysis reflected their perception of the labour market.

<sup>138</sup> Statistique Canada, 2018

<sup>139</sup> Plan stratégique de développement économique de la ville de Gatineau 2021–2026

<sup>140</sup> The labour force replacement index estimates the number of new workers in relation to retirements. An index above 1,000 indicates more new workers than retirees.

## 1 Impact of size on regulatory burden

2 Because utilities are regulated, the regulatory burden may be greater for smaller companies like Gazifère and  
3 Intragaz. For example, in 2020, Gazifère approached the Régie and obtained its approval to formulate a regulatory  
4 relief proposal.<sup>141</sup>

5 In terms of duration and consistency over time, Intragaz's rates differ from those of Énergir and Gazifère. Rates are  
6 set for a period of ten years, which is a form of regulatory relief, but it is a long period for a regulation and any  
7 number of events or contingencies could occur during this time that would be difficult to predict. Intragaz has already  
8 raised the challenges of a tariff application:

9 "Preparing and defending a rate application, especially a multi-year one, certainly represents high direct costs, but  
10 it also requires Intragaz to mobilize its small team for months. Such an effort would effectively prevent some of  
11 Intragaz's key team members from focusing on the Pointe-du-Lac Project. This would constitute an additional risk  
12 that should be avoided at all costs."

13 Set at \$16.8 million in 2013, Intragaz's revenues are particularly modest. They increased by \$1.4 million in 2019  
14 following the completion of a project to optimize its Pointe-du-Lac site that resulted in a rate rider.<sup>143</sup> This revenue  
15 leaves little room for the company to manage geological risks and a potential transformation of its infrastructure.  
16 Any major disruptions are likely to have a significant impact on the company's financial viability. Moreover, Intragaz's  
17 business model means that its growth is linked to geology. Intragaz has not presented any plans to develop a new  
18 site or expand an existing one in the short term, but the company hopes to optimize its existing operations (e.g., the  
19 Pointe-du-Lac site).<sup>144</sup>

## 20 Findings

21 Gazifère's modest size represents an increased risk leading up to 2030. Competition from Hydro-Québec is  
22 aggravated by the fact that Gazifère's residential and commercial volumes could easily be assimilated to the  
23 hydroelectric network, which would have devastating consequences for Gazifère. The company's small size along  
24 with an energy transition to hydrogen add to the risk. Massive investments will need to be made in the coming  
25 years. If the energy transition, particularly through hydrogen, is a success, Gazifère will be well positioned for the  
26 coming decades, but the next ten years will be crucial.

27 The regulatory burden is greater for smaller companies like Intragaz and Gazifère. This regulatory burden has been  
28 raised in recent cases before the Régie. In addition, Intragaz's modest revenues leave it little leeway to address  
29 geological issues or issues related to the potential injection of hydrogen into the network. Should the company be  
30 required to make additional investments to allow hydrogen to be injected into the network, this would add to its  
31 financial risk.

32 Since Énergir is a significantly larger company than both Intragaz and Gazifère, it is not faced with the same  
33 challenges. In comparison to other Canadian natural gas distributors, the company has a lower total number of  
34 customers because of its larger share of industrial customers. Since this aspect has already been discussed in the  
35 section on Quebec's energy context, it is excluded from the findings regarding this particular risk.

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<sup>141</sup> D-2020-104, R-4122-2020

<sup>142</sup> *Ibid.*

<sup>143</sup> Intragaz

<sup>144</sup> D-2018-155; R-4034-2018



# 1 Business Partners

2 The interviews with the gas companies revealed concerns about the sustainability of business ties with certain  
3 partners who are contributing to the current growth in the gas industry. Two business partners were identified in  
4 particular by 2030, namely master pipe mechanics (MCTs) and real estate developers. This section analyzes the  
5 magnitude of this business risk, primarily for Énergir and Gazifère. As noted previously, Énergir's risks indirectly  
6 impact Intragaz.

---

## 8 Master pipe mechanics

9 MCTs are construction companies that specialize in building services. Like other construction industry trades, MCTs  
10 are closely regulated by virtue of the *Master Pipe-Mechanics Act*. The Corporation of Master Pipe-Mechanics of  
11 Quebec (CMMTQ) is responsible for overseeing the administration of the Act and seeing to its application as regards  
12 the vocational qualification of its members and the financial guarantees that may be required from them.<sup>145</sup> Plumbing  
13 and heating contractors are required to be members of the CMMTQ.<sup>146</sup> These are the only companies permitted to  
14 install and repair key building systems, including those related to natural gas. In 2020, there were 2,710 in Quebec.  
15 Of these, 1,486 are also licenced for natural gas burner systems.<sup>147</sup>

16 MCTs primarily hire pipefitters, in addition to plumbers, steamfitters and other tradespeople. Pipefitters can  
17 specialize in plumbing, heating appliances, refrigeration, sheet metal work or fire protection mechanics.<sup>148</sup> To be  
18 able to install, connect, maintain, repair or remove any gas piping and accessory components, the professional,  
19 generally a pipefitter specialized in plumbing or heating appliances, must hold a gas piping installation certificate  
20 (ITG).

21 Given that MCTs mainly hire certified pipefitters, we have estimated the match between supply and demand for  
22 pipefitters who fall under the National Occupational Classification (NOC) 7252. All valuation assumptions are  
23 presented in the appendix. According to our various estimates, whether we assume that the labour force structure  
24 currently used for this NOC is similar to that of all industries in Quebec or based on its 2018 structure, we believe  
25 that the workforce supply from the various training programs is sufficient to meet labour needs for pipefitters leading  
26 up to 2030. However, we found that significant tension exists and will continue to exist over the next decade. The  
27 gap between supply and demand in the pipefitter trades is only about 2% and is therefore vulnerable to several  
28 variables, such as economic growth.

29 Moreover, these results are spread out over a ten-year period, meaning that the market could have difficulty meeting  
30 demand if it were to peak, for example with a major investment project. The assessment does not take into account  
31 specific regional needs or the need for experienced workers with additional skills (specific field of expertise,  
32 languages, management, etc.).

33 An in-depth analysis of NOCs potentially relevant to natural gas services<sup>149</sup> revealed a slightly different picture. The  
34 number of new workers emerging from various training programs is considerably lower than for pipefitters, and the  
35 age structure also differs. Figure 9 highlights the prevalence of pipefitting trade contractors and supervisors aged  
36 55 and over.

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<sup>145</sup>Loi sur le bâtiment, article 129.3; Loi sur les maîtres mécaniciens en tuyauterie, article 8.1

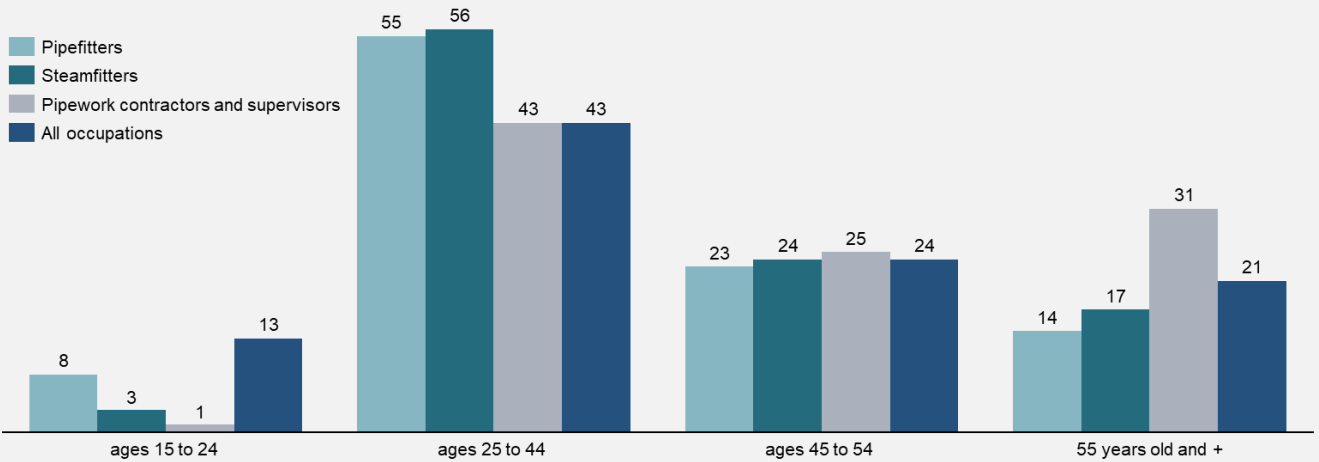
<sup>146</sup> CMMTQ (2012)

<sup>147</sup> CMMTQ, Nos membres

<sup>148</sup> CMMTQ (2012)

<sup>149</sup> This includes contractors and supervisors for the pipefitting trades (NOC 7203) who own and operate their own businesses, as well as gas fitters (NOC 7253).

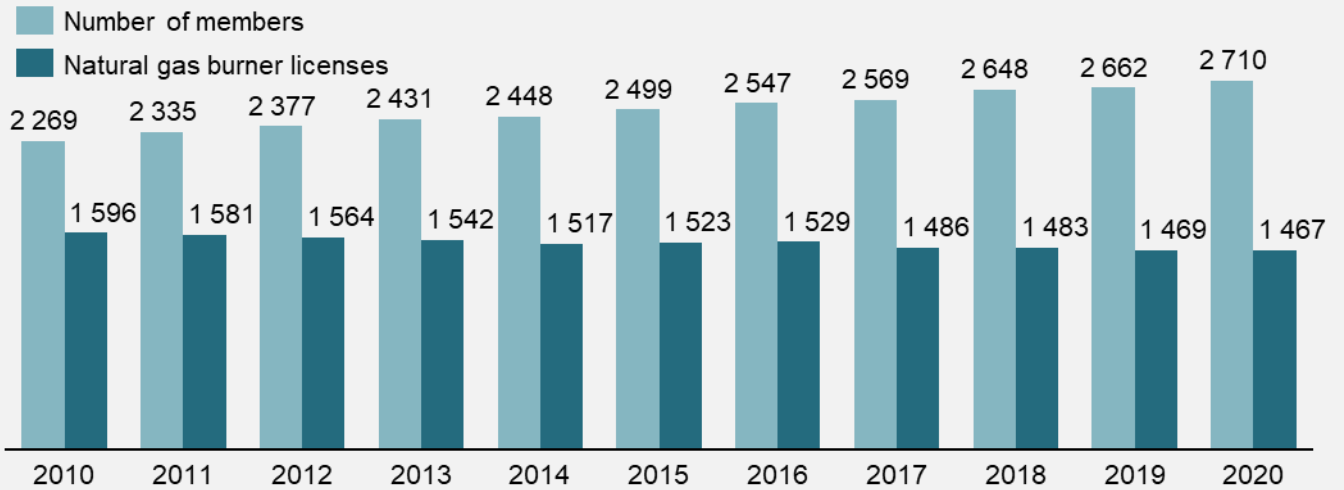
1 **Figure 9: Age structure for various occupations connected to MCT service offerings**  
 2 *Quebec, 2018, by NOC and for the industry as a whole, in %*



3  
 4 Sources: *Emploi Québec; Aviseo 2021 analysis*

5 The estimated match between labour supply and demand for MCTs revealed definite tension, which leads us to  
 6 conclude that Énergir and Gazifère’s business partnerships with MCTs will be affected leading up to 2030. While  
 7 MCT numbers have been steadily increasing since 2010, the number of MCTs with a licence for natural gas burner  
 8 systems has trended downward.

9 **Figure 10: Number of MCTs and licences for natural gas burner systems**  
 10 *Quebec, 2010–2020*



11  
 12  
 13 Sources: *CMMTQ; Aviseo 2021 analysis*

14 Not only has the total number of MCTs licenced for natural gas burner systems declined over the past decade, it  
 15 has also declined proportionately so that an increase in the number of MCTs would not necessarily result in an  
 16 increase in MCTs licenced for natural gas burner systems. In fact, trends revealed in Figure 10 suggest that new  
 17 MCTs have little interest in natural gas.

18 In terms of regional distribution, Emploi Québec statistics suggest that pipefitters (NOC 7252) are in higher demand  
 19 within the Montreal CMA than in the Outaouais region, which could potentially create a greater problem for Énergir  
 20 than for Gazifère. It should also be noted that Emploi Québec’s regional employment outlook is excellent for most  
 21 administrative regions, including the Montreal and Québec CMAs, and good for the Outaouais region. The excellent

1 employment outlooks estimated by Emploi Québec are the result of both high demand and high turnover. In short,  
2 the issue concerning master pipe mechanics can also be attributed to their lack of interest in natural gas.

3 In addition, the pandemic is affecting the short-term labour supply as training programs saw fewer graduates in  
4 2020 (see Figure 12 in the appendix). This shortage could be amplified if the pandemic persists. To avoid  
5 underestimating labour supply, we used an average based on previous years, which better represents a normal  
6 situation, but it is important to note that the pandemic and the possibility that the health crisis will persist would  
7 significantly amplify the tension between labour supply and demand, which we have briefly outlined.

8 It should also be noted that the CMMTQ has found that there was an increase in the amount of work done by non-  
9 members as well as a decrease in the quality of the work done by MCTs, such that the CMMTQ made the issue  
10 one of its strategic planning priorities.<sup>150</sup> This is consistent with trends affecting business risks for natural gas  
11 companies operating in Quebec, particularly Énergir.

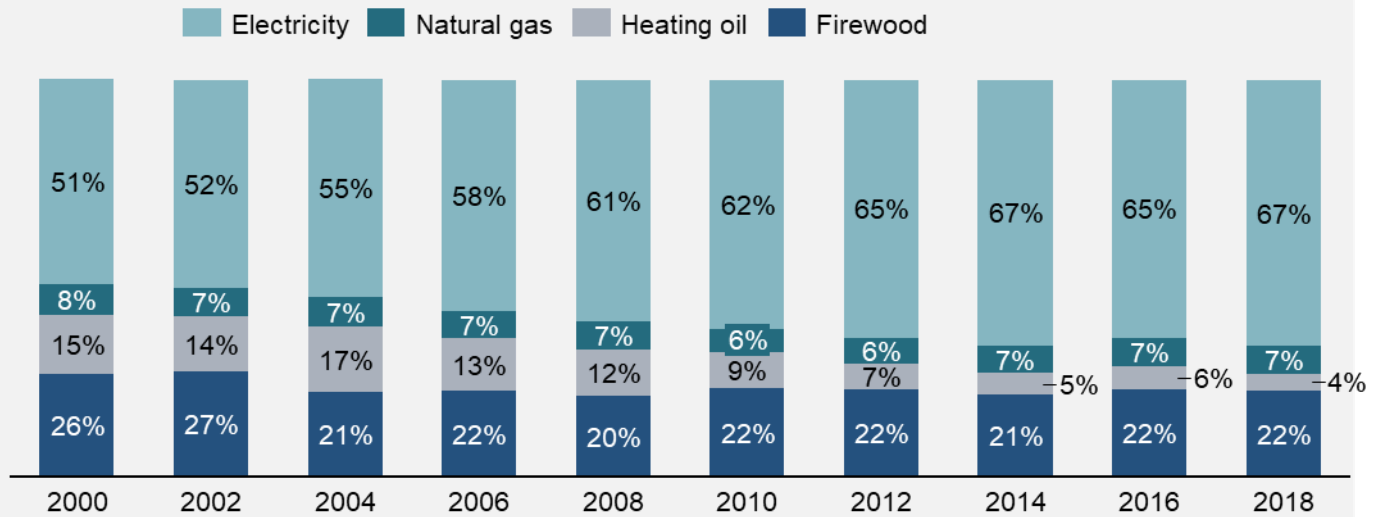
## 12 **Real estate developers**

13 The electricity sector's dominance in Quebec's energy market complicates market penetration for natural gas  
14 distribution companies. In particular, it is easier to convert residential and commercial building heating to electricity  
15 than industrial processes, which are more likely to have high energy requirements. Fuel oil, which once competed  
16 with natural gas and electricity for residential heating, has seen its market share decline drastically over the past  
17 two decades, mainly to Hydro-Québec's benefit.

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<sup>150</sup> CMMTQ, *Plan stratégique 2016–2019*

1 **Figure 11: Market shares of primary residential energy sources**  
 2 *Quebec, secondary market, 2000–2018*



3  
 4 Sources: Natural Resources Canada; Aiseo 2021 analysis

5 Since 2014, residential customer growth for Énergir and Gazifère, as well for Hydro-Québec, appears to correlate  
 6 with the increase in the number of households. Although substituting fuel oil in building heating has mostly benefited  
 7 Hydro-Québec, Énergir and Gazifère’s future residential customer growth will primarily come from connecting a  
 8 portion of newly constructed homes, thus bringing new customers.

9 **Table 5: Annual growth of Énergir and Gazifère customers, of Hydro-Québec and of household numbers**  
 10 *Quebec, 2014–2018*

|                              | 2014 | 2015 | 2016 | 2017 | 2018 |
|------------------------------|------|------|------|------|------|
| <b>Customer growth (gas)</b> | 1.5% | 0.9% | 0.9% | 1.0% | 1.1% |
| <b>Household growth</b>      | 1.0% | 1.0% | 0.9% | 1.0% | 1.3% |
| <b>HQ Growth</b>             | 1.0% | 0.9% | 0.9% | 0.8% | 0.9% |

11 Sources: Natural Resources Canada; Énergir and Gazifère data; Aiseo 2021 analysis

12 Should builders be less inclined to install natural gas in their new buildings, it would reduce residential customer  
 13 growth or replacement of customers opting for alternative energy sources, especially electricity. This is not a new  
 14 concern. At a hearing in 2010, a stakeholder mentioned that business relationships developed with building  
 15 contractors were likely to disintegrate as they eventually retired.<sup>151</sup>

16 In addition, new generations of contractors may be more mindful of climate change and energy transition issues.<sup>152</sup>  
 17 Given the limited number of contractors and developers in the Gatineau region, this could have a noticeable impact  
 18 on the growth (or decline) in Gazifère’s customer base. The development of new eco-neighbourhoods could limit  
 19 possibilities for network expansion and connecting to new residences if these eco-neighbourhoods were to prohibit  
 20 natural gas as an energy source for building heating. Changes to technical requirements for certifications could not  
 21 only prompt eco-neighbourhoods to abandon natural gas altogether, but also persuade property developers to stop

<sup>151</sup> D-2010-147

<sup>152</sup> For example, 76.9% of Canadians aged 18 to 34 stated that reducing greenhouse gases was a high priority (ranked between 7 and 10 on a scale of 1 to 10) compared to 68.7% for those aged 55 and over (Privy Council Office continuous tracking of Canadians’ views [June 2020]).

1 installing natural gas heating systems. As of January 1, 2021, natural gas is no longer a recognized primary energy  
2 source in the home section of the Novoclimat certification.<sup>153</sup>

3 The emergence of new neighbourhoods with energy provided from microgrids (e.g., Lac-Mégantic) or emerging  
4 energies (e.g., La Cité Verte and wood pellets) could curtail business development opportunities for natural gas  
5 distribution companies, especially Gazifère, which cannot rely on value creation or the reduced competition that a  
6 partnership with Hydro-Québec would achieve.

7 Moreover, the residential building market has significantly changed in recent decades. The number of condominium  
8 projects increased from an annual average of 8,674 between 2000 and 2009, to 12,170 between 2010 and 2018.<sup>154</sup>  
9 The increase in condominium appeal observed in recent decades is due the greater affordability of these homes,  
10 the densification of large cities and a decrease in the average household size (from 3.7 in 1971 to 2.3 in 2016);  
11 household size is expected to stabilize at 2.1 people per household by 2036.<sup>155</sup> During an interview, Gazifère  
12 reported that it is increasingly difficult to penetrate the new multi-unit housing market, compared to the single-family  
13 home market, which is in line with what was expressed during the hearings for the R-4032-2018 case.<sup>156</sup> The  
14 continued multi-unit housing trend, which is gaining popularity in smaller cities, could be detrimental to residential  
15 customer growth, which represents a substantial portion of Gazifère's clientele.

## 16 Findings

17 For Énergir, the risk related to business partners lies in the decreased number of MCTs licenced for natural gas  
18 burner systems, despite the fact that the total number of MCTs has increased over the past decade. If this trend  
19 continues, it could result in a decrease in services provided by MCTs or increased selectiveness in their choice of  
20 contracts. In the same vein, lower service quality from this category of business partner could impact consumer  
21 choices, to the detriment of natural gas. Since the data we reviewed mainly applies to Quebec as a whole, it was  
22 not possible to determine a trend for the Outaouais region or Gazifère specifically. However, available data related  
23 to pipefitters suggests that the labour demand would be lower in the Outaouais region than in Quebec as a whole,  
24 suggesting that this issue would be more critical for Énergir than for Gazifère.

25 As noted in D-2010-147, real estate developers are of greater concern to Gazifère given the importance of its  
26 residential and commercial segments. The shift toward increased multi-unit dwellings in residential building  
27 constructions creates uncertainty for Gazifère's residential segment. Moreover, the fact that natural gas is no longer  
28 approved as a primary energy source for Novoclimat certification could be a potential issue for both Énergir and  
29 Gazifère should such limitations become a significant disincentive for developers to install natural gas in new  
30 buildings.

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<sup>153</sup> *Ministère de l'Énergie et des Ressources naturelles (2020)*

<sup>154</sup> *APCHQ (2019)*

<sup>155</sup> *Ibid.*

<sup>156</sup> *R-4032-2018 Phase 4, Hearing on April 15, 2019*

# Analysis of Business Risk-related Challenges

The previous sections highlighted business risk characterization and evolution for Énergir, Gazifère and Intragaz. To understand the evolution of the various business risks over the last ten years and the potential associated challenges leading up to 2030, we will present a brief analysis of these risks and challenges for each company. The Risk Assessment Matrix presented below summarizes the key findings that emerged from our analysis. Please bear in mind that there is a certain overlap in the business risks identified and that similar challenges may arise from more than one risk. We have therefore taken this factor into account in an effort to avoid overweighting redundant factors in the analysis. Overall, our analyses show that the business risks for the next decade are similar or greater.

**Table 6: Risk Assessment Matrix for the 2021–2030 compared to the 2010–2020 period – Énergir, Gazifère, Intragaz**

| Risks                                    | Énergir    | Gazifère   | Intragaz   |
|--|------------|------------|------------|
| <b>Environmental and public policies</b> | Increasing | Increasing | Increasing |
| <b>Composition of customer base</b>      | Increasing | Increasing | Similar    |
| <b>Energy context</b>                    | Increasing | Increasing | Increasing |
| <b>Size</b>                              | Similar    | Increasing | Similar    |
| <b>Business partners</b>                 | Increasing | Increasing | Similar    |

## Énergir

Over the next decade, the impacts of environmental regulations such as the CATS will increase substantially compared to the previous decade due to a decrease in free emissions allowances granted by the government and the rising price of emissions units. The regulation of minimum RNG thresholds and the potential target of 10%, which could be legislated in the coming years, will increase the pressure on natural gas distributors to succeed in greening their networks in time. To achieve this, both Énergir and Gazifère will need to source RNG or hydrogen. But the evolution of these markets is uncertain both in terms of supply and demand. The risk, of course, is that Énergir will not be able to sufficiently green its network and that measures similar to those put in place for fuel oil will also be implemented for natural gas.

Industrial customers, representing approximately 60% of Énergir's volume, will be particularly affected due to the reduction in free emissions allowances and the rise in price for carbon units, although this increase will affect all customers through the inclusion of fossil fuel distributors in the CATS. Yet the industrial sector also has the greatest price elasticity of demand, adding a degree of uncertainty to volume demand and the company's annual revenue leading up to 2030. It is therefore the combination of environmental regulations and the composition of Énergir's customer base that creates uncertainty regarding the projected natural gas demand over the next decade.

The movement to ban natural gas, which came from the United States, also represents a new risk, but its impact would only be significant if it spread to several municipalities or took root in the Greater Montreal area where Énergir has the most residential customers (more than 50%). A similar risk to municipalities banning natural gas lies in the possibility that the Régie's future decisions regarding the extension or expansion of the existing network might be influenced by arguments from various stakeholders that the use of natural gas is incompatible with the fight against climate change. In fact, there were objections to the projects involving network expansions in Montmagny<sup>157</sup> and

<sup>157</sup> R-4109-2019

1 Richmond,<sup>158</sup> with some arguing that the expansion of the natural gas network was not consistent with Quebec's  
2 climate change policy. In both cases, the projects were nevertheless approved by the Régie.<sup>5</sup>

3 Given Énergir's high percentage of industrial customers, it is now more vulnerable to economic uncertainty than it  
4 was at the beginning of the last decade. Énergir's predominantly industrial customer base, and potentially a portion  
5 of its commercial clientele, are likely to be more vulnerable to market conditions. In many ways, the economic crisis  
6 of 2020 has proved worse than the 2008–2009 crisis. At the time of writing this report, the strength of the economic  
7 recovery is still uncertain, as is the health situation. As the quantity of natural gas consumed by industrial customers  
8 depends on the health of the economy, a slower-than-expected recovery or an ongoing health crisis would affect  
9 Énergir. A weaker or slower-than-expected recovery could also impact the commercial sector, particularly in the  
10 event that the state of the economy results in a slowdown of start-ups (potential new customers) or bankruptcies  
11 (potential loss of customers). This represents a tangible risk for Énergir that must be taken into account when  
12 assessing the potential business risks that will characterize the next ten years.

13 The drop in natural gas prices over the past decade has made natural gas a more competitive energy source.  
14 Énergir's partnership with Hydro-Québec to increase the use of dual energy also represents an opportunity for  
15 Énergir in the coming years. Using natural gas to manage energy peaks not only creates value, it also helps make  
16 natural gas particularly relevant to Quebec's energy future, especially with the greening of the network. Moreover,  
17 with the PEV 2030 implementation plan for 2021–2026, the Quebec government has budgeted \$125 million to fund  
18 initiatives aimed at developing the complementarity of the gas and electricity networks.<sup>159</sup>

19 Notwithstanding the value creation inherent in the complementarity of the electricity network and Énergir's gas  
20 network, the electrification of a portion of Énergir's customers will result in a reduction in volumes. The favourable  
21 environment for renewable energies as well as the proliferation of initiatives to decarbonize the economy—and,  
22 inevitably, the gas network—more quickly represent new risks that complicate the situation for natural gas  
23 competitiveness in Quebec, even considering the decline in competition from Hydro-Québec due to its partnership  
24 with Énergir. This is mainly due to uncertainties around the supply and development of RNG and hydrogen. A well-  
25 established market would likely have lessened doubts surrounding the quantity and prices that will prevail over the  
26 next decade. The composition and changing demand for these renewable energies are still subject to uncertainty,  
27 especially as environmental measures, customer awareness and technologies are constantly evolving.

28 In terms of size, Énergir is not exposed to the same kind of risk as Gazifère, but in terms of revenues, Énergir has  
29 a considerably smaller customer base than the Canadian companies FortisBC and ATCO. However, issues related  
30 to Énergir's size appear to be fairly stable and are generally similar to size-related risks at the beginning of the last  
31 period.

32 Énergir depends on its business partners for several natural gas appliance installation and repair services; a  
33 disruption in the quality or availability of these services is likely to reflect poorly on the company. The year 2020 has  
34 had an impact on the training of the MCT labour force, which, all things being equal, has implications for a match  
35 between supply and demand for MCTs in the short term. The employment context—more favourable for workers—  
36 has also changed over the past decade, reinforcing the potential short-term impacts involving business partners.  
37 Simulations identified a tension in the match between labour supply and demand for MCTs and a proportional and  
38 absolute decrease in the number of MCTs licenced for natural gas burner systems. Consequently, considering that  
39 Énergir's clientele is spread across Quebec's vast territory, business partner risk appears to be on the rise heading  
40 into 2030 compared to the previous decade.

## 41 Gazifère

42 Risks posed by evolving environmental regulations and public policies have followed an upward trend for Gazifère  
43 since 2010, even though the company aims to offer 100% green energy by 2050. Given that Gazifère's customer  
44 base is concentrated in the Outaouais region, the company is particularly vulnerable to the movement to ban natural  
45 gas, policy changes and the example that governments are setting, especially in the National Capital region. This

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<sup>158</sup> R-4150-2021

<sup>159</sup> Énergir, Hydro-Québec et Énergir : un partenariat inédit

1 puts its current volumes, especially its institutional volumes, at risk and affects its ability to connect new customers  
2 to its network.

3 Because of Gazifère's low revenue from industrial customers, the CATS's effect on its performance over the next  
4 few years is expected to be limited. However, the potential requirement to deliver up to 10% of RNG by 2030 is a  
5 new risk for Gazifère. Like for Énergir, the risk lies mainly in the real possibility that Gazifère will not be able to green  
6 its network quickly enough, which could lead to policies similar to those for fuel oil that would be unfavourable to  
7 natural gas development. The Outaouais region's limited techno-economic RNG potential adds to the challenges  
8 facing the company by making it more complicated to supply RNG and explain its benefits to its customers. The  
9 greening of the Gazifère network could be carried out by blending green hydrogen with natural gas to reduce its  
10 carbon intensity, but regulatory, technical and supply issues heighten the risk related to adding hydrogen to the gas  
11 network to reduce the carbon intensity by 2030.

12 Notwithstanding the drop in natural gas prices over the past decade, the trend in favour of renewable energies adds  
13 a layer of complexity to the competitive prospects of natural gas within the Quebec energy context. RNG, currently  
14 much more expensive than traditional natural gas, reduces the comparative advantage of natural gas over  
15 electricity. Considering the potential supply issues for Gazifère and the reduction in the comparative advantage of  
16 natural gas due to higher RNG prices, the risk posed by the energy context is therefore on the rise.

17 The company's small size continues to represent a substantial risk, especially in view of Hydro-Québec's  
18 competitive position. This risk for Gazifère is all the greater because for technical reasons, Hydro-Québec is in a  
19 much better position to compete with natural gas in residential and commercial markets than in the industrial sector.  
20 Gazifère's high percentage of residential and commercial customers, future growth corresponding to population  
21 levels, and especially its positive and significant correlation with the 20 to 64 age group reveal a real possibility of  
22 reduced customer growth or even decline. Regional population projections therefore add to the risks facing the  
23 company in the coming years.

24 While Gazifère is not as vulnerable to economic instability due to its lower industrial volume, the uncertainty  
25 surrounding the economic recovery still poses a risk to its commercial and industrial customers and should be  
26 considered when assessing business risks leading up to 2030. If the health crisis persists, it could indirectly affect  
27 the number of newcomers settling in Quebec, thereby reducing the pool of potential new buyers.

28 Because of its geographic concentration, Gazifère is exposed to a relatively limited number of real estate  
29 developers. As a result, a change in its business environment could cause the company's business ties to weaken.  
30 As of 2021, natural gas is no longer recognized as a primary energy source for Novoclimat certification, and eco-  
31 neighbourhood projects could ban natural gas, thereby limiting the potential of connecting new customers. Similarly,  
32 the shift in the residential development market, which has become more favourable to multi-unit housing, marks a  
33 notable trend that has only picked up speed in recent years: the penetration of natural gas in the multi-housing  
34 market is also more difficult. If this trend in the new housing market continues, it could be unfavourable to Gazifère,  
35 even if relationships with real estate developers remained unchanged.

36 In addition, society's increasing awareness of environmental issues, especially after the recent IPCC report, could  
37 lead some developers to abandon natural gas as a primary energy source in new buildings. In general, the business  
38 environment affecting real estate developers as well as their relationship with Gazifère appears to be more uncertain  
39 heading into 2030 than it has been over the last decade.

## 40 Intragaz

41 Given that Intragaz's sole customer is Énergir, risks faced by Énergir inevitably also affect Intragaz, even though  
42 the effects may not be immediately apparent. In many respects, Intragaz's present situation is similar to the previous  
43 period. Its operations, number of customers, size and growth prospects include relatively similar elements heading  
44 into 2030 as for the 2011–2020 period. The new environmental requirements create additional uncertainty for the  
45 company and together with the additional regulatory weight, they constitute new burdens given its small size. Since  
46 rates are based on a ten-year projection, there is no doubt that Intragaz would be particularly affected by a change  
47 in public policies or environmental regulations that would change the business environment. For the purposes of



1 this analysis, we include this opportunity in public and environmental policy, but these challenges are also  
2 exacerbated by the small size of Intragaz.

3 Moreover, an additional major risk heading into 2030 is the impact of hydrogen on Intragaz's reservoirs and facilities.  
4 Hydrogen is a much lighter and less dense gas than natural gas, and injecting a substantial quantity into the network  
5 could significantly impact Intragaz. With its modest revenues, the financial risk associated with investments needed  
6 to modify facilities is certainly higher than over the last decade. Similarly, geological risk must also be assessed  
7 with respect to Intragaz's size, both in terms of revenue and staff. Intragaz's small size could also become an issue  
8 if the company were faced with new challenges requiring a workforce or expertise it presently lacks. In general,  
9 most of the business risks affecting Intragaz are exacerbated by its small size, which should be taken into account  
10 when assessing the evolution of Intragaz's business risks.

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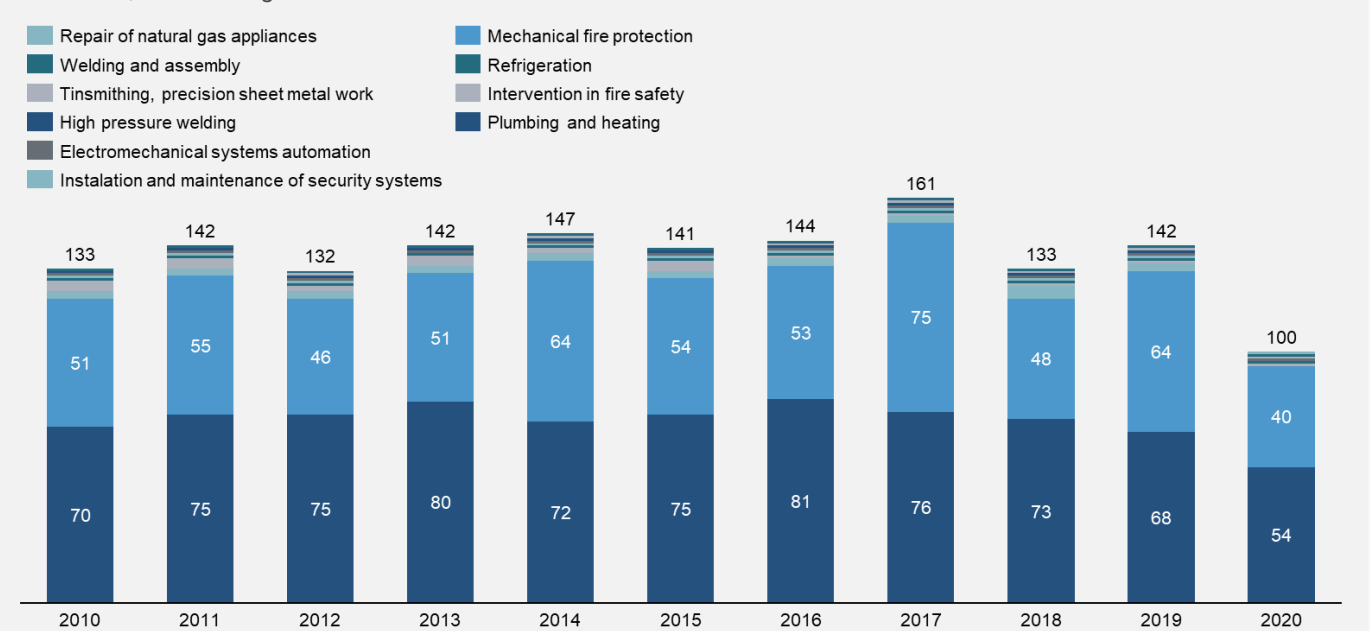
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# Appendix 1

To carry out a concise prospective study on the match between labour supply and demand in a given sector, it is first necessary to identify the main occupations performing the work in the targeted companies. In this regard, MCTs mainly hire pipefitters to carry out the work.<sup>160</sup> Several different training programs exist for pipefitters. To correctly classify the graduates of the various relevant programs as pipefitters as defined by the National Occupational Classification, we used the concordance matrices provided by the Ministère de l'Éducation et de l'Enseignement supérieur. Over the past ten years, over a hundred pipefitters have been trained, the vast majority of whom have graduated from programs specialized in plumbing and heating, and fire protection mechanics (Figure 12).

**Figure 12: Number of graduates by program employed as pipefitters**  
2010–2020, Number of graduates



Sources: Ministère de l'Éducation et de l'Enseignement supérieur du Québec; Aviseo 2021 Analyses

The year 2020 was characterized by a sharp decline in the number of newly trained pipefitters, but it is highly likely that this was due to the health crisis, which has disrupted the economy as a whole. Apart from in 2020, the average number of new pipefitters graduating from the various relevant programs was just over 141 per year, with a standard deviation of about 8. Assuming that the number of new pipefitters trained over the next ten years will follow the average of the previous ten years, there should be 1,417 new pipefitters entering the labour market between 2021 and 2030. We will assume that this number represents the entire new labour supply leading up to 2030. Although it is possible that immigration will bring new pipefitters, the methodology we used includes immigrants who will be trained in Quebec, reducing the risk of error.

Regarding pipefitter demand for the 2021–2030 period, we assume that it will be proportional to the number of MCTs. However, that number has increased by about 1.8% per year since 2010. We suggest that this trend will continue over the next decade.

Retirements strongly correlate with the age of the workforce. In a first situation, based on an age pyramid with a structure matching Quebec's population and a retirement age of 65, 727 pipefitters will have retired by 2030. However, Emploi Québec data shows that only 14% of pipefitters were aged 55 and over in 2018 compared to 21%

<sup>160</sup> CMMTQ (2012)

1 for all industries combined.<sup>161</sup> Basing a second situation on this age pyramid instead, some 435 pipefitters will retire  
2 over the next ten years.

3 Although it seems a little more pessimistic than the second situation, the first situation provides us with a margin for  
4 variables not included in the analysis, such as early retirements, and especially allows us to take into account  
5 intersectoral worker turnover for which we were unable to obtain data.

6 The results obtained suggest tension for 2030, where the estimated pipefitter supply (3,798) would be essentially  
7 equal to estimated demand (3,713). This is a supply-demand gap of only about 2%, indicating tension. Moreover,  
8 these results are spread out over a ten-year period, which means that the market could have difficulty meeting  
9 demand if it were to peak, for example with the arrival of a major investment project. The assessment also does not  
10 take into account specific regional needs or the need for experienced workers with additional skills (languages,  
11 management, etc.).

12 Finally, to account for the annual variability in the number of new pipefitters trained in Quebec, we conducted 5,000  
13 simulations in which all other variables remained stable and only five of them indicated a total supply of pipefitters  
14 that was lower than the demand. However, the results are more sensitive to changes in certain other variables such  
15 as the average pipefitter-MCT ratio or the more rapid increase in the number of MCTs.

16 Since the purpose of this analysis is to measure the labour demand for Énergir and Gazifère's main partners and  
17 not to carry out a diagnostic study specifically on the match of labour supply and demand within MCT companies,  
18 we limited our analysis to pipefitters. Occupations such as gas fitters or pipefitting trade contractors and supervisors  
19 are also of interest, but given their lower numbers and the objectives pursued, they were omitted from the model.

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<sup>161</sup> *Emploi Québec (2018)*



# Appendix 2

## Figure 1

Ressources naturelles Canada. Consommation d'énergie secondaire et émissions de GES par source d'énergie <https://oee.rncan.gc.ca/organisme/statistiques/bnce/apd/showTable.cfm?type=CP&sector=res&juris=qc&rn=1&page=0>.

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10 **Figure 10**

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12 **Figure 11**

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16 **Figure 12**

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18 **Table 1**

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