Climate Resiliency Report

2023

energir imagine energy differently

Caution regarding forward-looking statements

The forward-looking statements contained in this Climate Resiliency Report for Énergir (as defined in the Glossary) (the "Report") include information regarding the impact of climate change on a global scale, including in the communities served by Énergir and its subsidiaries, GMP and VGS (as defined in the Glossary) (collectively, the "Corporations"), the Corporations' decarbonization[1] strategy to reduce the risks and impacts of climate change and to adapt to such changes and seize opportunities as well as other information that is not historical fact. These forward-looking statements reflect the intentions, projects, expectations, and opinions of the Corporations' management team (collectively, "management") in that regard, and are designed to help stakeholders better understand the approach management intends to take in managing climate change risks and opportunities. Such information may not be pertinent for other purposes. Generally, forward-looking statements are often identified by words and expressions such as "anticipates", "believes", "estimates", "expects", "seeks", "plans", "projects", "forecasts", "aims", and other variants and similar expressions suggesting the possibility of future outcomes or perspectives, as well as the negative or conjugated forms.

This Report contains forward-looking information or statements relating in particular to the following:

- the future of energy on a global scale, particularly factors and trends that could or should shape that future;
- the transition towards a low GHG (as defined in the Glossary) emissions economy and the role that different energy sources should play in this transition;
- quantitative scenarios issued by organizations forecasting several possible global GHG emission pathways by 2030-2050 and which the Corporations have relied on, scenarios that take into account the impact, over different timelines, of what the climate risks and opportunities identified in this Report might have on the resilience of the Corporations' business model. It should be noted that no climate scenario is perfect and, in this context, the Corporations have chosen those that best meet the Task Force on Climate-related Financial Disclosures (TCFD) criteria. Readers should note that the scenarios are not a statement by the Corporations on plausible assumptions, but aim instead to cover the realm of possibilities;
- the scenarios of Énergir, GMP and VGS (collectively, "the scenarios") as they have been scaled for Quebec and Vermont since the two jurisdictions have their own policies and regulations and they have each made political commitments to fight climate change;
- the trends shaping these scenarios and their expected or potential impact on energy markets in general and the Corporations in particular, as well as the physical and transition risks associated with each of these scenarios for the Corporations' business model;
- the analysis of the scenarios on the Corporations' strategies with respect to the resilience of their respective business models;
- the effectiveness of the Corporations' risk management strategies, particularly in mitigating climate change risks;
- Strategic vision of decarbonization for 2030-2050;
- Énergir's climate metrics and targets directly related to GHG emissions from its operations, as well as some of those from its entire value chain, both upstream and downstream from its customers' sites;
- GMP's climate plan Path to 100% Renewable;
- GMP's Zero Outages Initiative;
- VGS's climate plan Path to Net Zero;
- GMP and VGS's climate metrics and targets that are linked to their respective customers' GHG emissions;
- expected future financial and operating performance, financial strength and flexibility, opportunities for growth and expansion, strategic planning, and the execution of the Corporations' strategic plans.

Such forward-looking statements reflect the current opinions of management and are based on information currently available to management.

Forward-looking statements involve known and unknown risks and uncertainties and other factors outside the control of management, including but without limiting the generality of the foregoing, terms of decisions rendered by regulatory agencies; uncertainty that approvals will be obtained by the Corporations from regulatory agencies and interested parties to carry out all of their activities and the socio-economic risks associated with such activities; the competitiveness of natural gas in relation to other energy sources in a context of worldwide fluctuations in petroleum product prices; climate change and its impact on the Corporations' business activities, whether due to acute or chronic physical events, political, regulatory, technological, market, or legal changes; uncertainty related to the implementation of Quebec's 2030 Energy Policy, the Montréal Climate Plan and Vermont's Renewable Energy Standard, as well as the government's implementation of laws, regulations, plans and objectives for adapting to climate change as well as the positioning of Énergir, L.P. and its subsidiaries in that regard, including other measures, plans, laws or regulations with respect to the environment and the climate that are constantly evolving; the reliability or costs of the natural gas and electricity supply; the integrity of the natural gas and electricity transportation and distribution systems; the evolution and profitability of development projects; the ability to complete attractive acquisitions and the related financing and integration aspects; the ability to complete new development projects; the ability to secure future financing; general economic conditions; the impact of an epidemic or pandemic outbreak or other public health crises; exchange rate and interest rate fluctuations; a potential U.S. or Canadian tax reform; the impact of a war or other geopolitical conflicts and other factors described in section G) *RISK FACTORS RELATING TO ÉNERGIR INC. AND ÉNERGIR, L.P.* of Énergir Inc.'s MD&A for the fiscal year ended September 30, 2023 and in subsequent quarterly Énergir Inc. MD&As that might address changes to these risks. Variations in these factors could cause the information provided in this Report to differ materially from actual results. Such variations could, for example, include unforeseen changes in the legislative and regulatory framework, failure to obtain certain authorizations, significant fluctuations in natural gas prices, supply difficulties or any other significant change related to one or more of the aforesaid factors.

Although the forward-looking statements contained in this Report are based on what management believes to be reasonable assumptions, management cannot assure investors and other stakeholders that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as at the date of this Report, and management assumes no obligation to update or revise them to reflect new events or circumstances, except as required under applicable securities laws. These statements do not reflect the potential impact of any unusual item or any business combination or other transaction that may be announced or that may occur after the date hereof. All forward-looking statements in this Report are qualified by these cautionary statements. Readers are cautioned to not place undue reliance on these forward-looking statements.

1. In this report, decarbonization means the implementation of measures to limit GHG emissions.

In this Climate Resiliency Report:

2030 PGE means the 2030 Plan for a Green Economy of the Quebec government.

ºC means degrees Celsius.

Carbon neutrality or **carbon neutral**[2] means a net GHG emissions balance of zero. A business can achieve carbon neutrality by first avoiding and reducing its GHG emissions and, then by offsetting those emissions that could not be avoided or reduced by carbon sequestration or compensation (e.g. planting trees), therefore by producing negative emissions or being credited for the emission reductions or negative emissions produced by third parties. A carbon neutral business may therefore emit residual GHGs.

Carbon capture means the process of capturing the CO_2 molecule found in gas emissions, thus limiting the accumulation, or reducing the concentration of, additional CO_2 in the atmosphere. In this report, the term is used in the context of capturing from the emissions generated by the use of fossil natural gas so as to limit the accumulation of CO_2 in the atmosphere.

Carbon removal means an activity the purpose of which is to remove CO_2 from the atmosphere faster than what is usually observed in nature. Technologies for capturing CO_2 directly from the air that are currently under development allow for the conduct of this activity.

CATS means the cap-and-trade system for greenhouse gas emission allowances established by the *Regulation respecting a cap and trade system for greenhouse gas emission allowances* (Quebec).

CIRAIG means the International Research Centre for the Life Cycle Assessment and Sustainable Transition.

CO_2 means carbon dioxide.

CO_2 eq. means carbon dioxide equivalent.

Delayed Action Scenario means the 2ºC or less by 2100 scenario compared to pre-industrial levels by delayed action published by the Bank of Canada.

Énergir means Énergir L.P.

Énergir Board means the board of directors of Énergir Inc., in its capacity as general partner of Énergir, L.P.

ESG means environmental, social and governance factors.

GHG means greenhouse gases.

GMP means Green Mountain Power Corporation, an indirect subsidiary of Énergir.

GMP Board means the board of directors of GMP.

GWh means gigawatt hours.

IPCC means the Intergovernmental Panel on Climate Change, established in 1988 by the World Meteorological Organization and the United Nations Environment Program, to provide periodic scientific assessments on climate change, its implications and potential future risks.

ISSB means the International Sustainability Standards Board.

IRENA means the International Renewable Energy Agency.

Management means the management of Énergir Inc., in its capacity as general partner of Énergir, L.P.

Mm^3 means millions of cubic metres.

NATEM means the North American TIMES Energy Model.

NDC means nationally determined contributions as part of the Paris Agreement.

NDC Scenario means the NDC Scenario as described in greater detail in Appendix 4 to this report.

Net Zero Scenario means the Net Zero Emissions by 2050 Scenario as published by the International Energy Agency in May 2021, as described at greater length in Appendix 4 to this report.

Price of carbon means an economic tool which serves to internalize the costs of damages caused by GHG emissions into the market price of a product in order to direct consumers and society towards lower carbon choices. The simplest expression of carbon pricing is the carbon tax. CATS is also a form of carbon pricing.

RCP means Representative Concentration Pathways. The scenarios established by the IPCC were designed to be representative of the changing concentrations of GHGs in the 21st century and beyond. These scenarios are often used to study realistic future climate changes and take into consideration future GHG emissions, deforestation, population growth and many other factors.

RCP 2.6 means the RCP 2.6 Scenario, which represents a scenario with low levels of global GHG emissions. This scenario leads to the lowest global warming.

RCP 4.5 means the RCP 4.5 Scenario, which represents a scenario with moderate levels of global emissions. This scenario includes measures to limit or mitigate climate change.

RCP 6.0 means the RCP 6 Scenario, which represents stabilization.

RCP 8.5 means the RCP 8.5 Scenario, which represents a scenario with high global emissions. This scenario leads to the highest global warming.

Régie means the Régie de l'énergie du Québec.

REC means a renewable energy certificate certifying that one megawatt hour of electricity was generated from an eligible renewable energy source. RECs can be sold and traded independent of the underlying energy source, and their owner can claim that they purchased renewable energy.

RES means the mandatory Renewable Energy Standard for Vermont utilities set out by the Vermont renewable energy law.

RNG means renewable natural gas.

Scope 1 means direct GHG emissions from fixed or mobile Énergir, GMP or VGS facilities, as the case may be.

Scope 2 means indirect GHG emissions associated with the generation of electricity, heat or vapour imported for the operations of Énergir, GMP or VGS, as the case may be.

Scope 3 means indirect GHG emissions other than the Scope 2 emissions produced by the operations of Énergir, GMP or VGS, as the case may be, but that are nonetheless linked to their total value chain.

Status Quo Scenario means the Status Quo Scenario published by the Bank of Canada, as described at greater length in Appendix 4 to this report.

Strategic vision of decarbonization for 2030-2050 means Énergir's strategy, with respect to its natural gas distribution activities in Quebec, on how it will adapt, within the 2030 and 2050 horizons, to the evolving energy context and the impacts of climate change.

Sustainable Development Scenario or SDS means the 2ºC or less by 2100 scenario compared to pre-industrial levels published by the International Energy Agency, as described at greater length in Appendix 4 to this report.

TCFD means Task Force on Climate-Related Financial Disclosures.

Under2 Coalition means a global community of multinational corporations and state and regional governments committed to climate change action.

VGS means Vermont Gas Systems, Inc., an indirect subsidiary of Énergir.

VGS Board means the board of directors of VGS.

Énergir's Climate Resiliency Report follows the recommendations set by the TCFD. In addition to covering Énergir's activities, it also covers its subsidiary VGS as regards the distribution of natural gas in Vermont, and its subsidiary GMP, which is its largest subsidiary in terms of its size and the type of activities relating to climate change. GMP produces and distributes electricity in Vermont. This report therefore covers entities that represent more than 93% of Énergir's total assets. Énergir intends to gradually expand the scope of its report on climate resiliency to include other subsidiaries.

The report covers these entities' fiscal year ended on September 30, 2023, i.e., the period from October 1, 2022 to September 30, 2023.

To learn more about Énergir's sustainable development performance according to various ESG indicators, please refer to its Sustainability Performance Tracking Platform. As for performance, please refer to GMP's B Corp certification documents and to VGS's strategy documents for 2050.

To learn more about Énergir, GMP and VGS's operations, please refer to Énergir Inc.'s September 30, 2023 MD&A (which must be read alongside its financial statements for the fiscal year ended September 30, 2023) and its 2023 annual information form, available online on SEDAR+ at www.sedarplus.com under Énergir Inc.'s profile.

2. The definition used is adapted from the definition provided in the following report: Trajectoires de réduction d'émissions de GES du Québec – Horizons 2030 et 2050 (Updated 2021). Dunsky (Page 6): https://www.dunsky.com/wp-content/uploads/2021/09/Rapport_Final_Trajectoires_QC_2021.pdf

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President's Message

2023

Éric Lachance
President and Chief Executive Officer

In 2023, we were hit particularly hard by the climate crisis. The forest fires in Quebec as well as flooding and winter storms in Vermont exposed our vulnerability and that of energy assets, including their impact on the communities.

These disturbing human experiences will require a series of structural actions to combat and adapt to climate change. They remind us of how important it is to be able to rely on a resilient energy ecosystem and to reinforce the safety of the systems.

This reality is compounded by a series of economic turbulences. Inflation and rising interest rates are affecting the global economy and, even more concretely, the financial capacity of households and businesses.

Given this context, the need to decarbonize our activities must be aligned with government, business, and the population's finances, which are weighted down by the spiralling cost of living.

This pressure is redefining the priorities of customers, who are nevertheless expected to adopt certain decarbonization[3] measures that are often more costly than the *status quo*, which is still largely dependent on fossil fuels. As a responsible and pragmatic business, we must therefore align our objectives with the expectations of these customers as well as, more broadly, society's expectations.

In Quebec, the government's carbon neutrality target for 2050 will need to be achieved by responding simultaneously to the growing demand for electricity, particularly that required by new industrial players from emerging sectors that will be establishing themselves in the territory. Just last winter, some load peaks attained historical highs. Our winters are far more rigorous than those experienced by 95% of the world's population. This reality is a reminder that the system's balance is precarious, and that all stops must be pulled out in order to service communities regardless of the circumstances.

Complementary energy solutions will be one of the most promising approaches. It will guarantee the success of decarbonization by ensuring the resilience of the energy system while accurately reflecting the financial capabilities of the communities and our society.

» For a meaningful dialogue

The environment in which we are evolving is becoming increasingly complex. There are stark differences in the opinions expressed, punctuated by rapidly polarized debates and often categorical statements. Allegations of greenwashing are on the rise, fueling distrust in institutions.

Consequently, many are calling for a ban on natural gas in the buildings sector, and Quebec is no exception. Municipalities are adopting by-laws to accelerate the achievement of their carbon-neutrality targets by imposing measures to exclude natural gas, and even renewable natural gas (RNG) and dual energy.

However, the challenges we face highlight the importance of an open dialogue with decision-makers and communities to consolidate trust and defuse debates so we can collectively tackle the energy transition together.

To meet the colossal challenges that lie ahead, society's success will depend on collaboration, open-mindedness and flexibility. There is no single or perfect solution: there are many, and they are – above all – collective. It is therefore crucial to approach and consider all options carefully and judiciously.

» From rhetoric to reality

While it is important to orchestrate tangible and lasting actions for the sake of future generations, it is equally important to highlight the positive achievements that have taken place in recent months. Not only are we in line for achieving the 2030 targets set for our initiatives, we have also made promising commitments for the future, further extending our willingness to be part of the solution.

To that end, in Quebec, Énergir has sought the Régie's approval to have each new interconnection in the residential, commercial and institutional sectors consume 100% renewable energy by spring 2024. This proactive commitment constitutes an additional step towards decarbonizing the system and reducing its carbon footprint. Above all, this is a logical continuation of the actions that must be taken to accelerate the pace of decarbonization.

Once again, Énergir is demonstrating its firm commitment to moving from rhetoric to reality, just as it did with its recommendations during the consultation on the regulation and development of clean energy held by the Quebec government in the summer of 2023.

In August 2023, Énergir filed its brief on the update to Quebec's energy regulatory framework. Alignment with the government's carbon neutrality objectives, greater flexibility, as well as taking into consideration the value, decarbonization and resiliency factors: we have positioned our recommendations with the goal of ensuring a fair business environment and a successful energy transition.

This objective guided us when we first drafted in this report a pathway to decarbonize our industrial customers by 2050. Despite the uncertainties involved in projecting ourselves so far into the future, this exercise paves the way to a necessary dialogue regarding the efforts required in this sector and its particular constraints.

To be transparent and improve our accountability, we will gradually align the presentation of the ISSB standards in our next fiscal year, thus generating greater trust among our stakeholders.

» Quebec: on the road towards our Vision 2030

In terms of energy efficiency, our programs are propelling Énergir towards the achievement of historic results, despite economic upheavals.

We achieved the regulatory target of 1% RNG delivery to the system for fiscal year 2023 and are well positioned to meet the target of 2% for fiscal year 2024 and 5% for fiscal year 2026, the majority of supply contracts required to achieve this having been entered into. In the wake of these positive results, Énergir is redoubling its efforts to promote and expose the enviable societal value of RNG in the industrial and buildings sector, particularly during peak periods in complementarity with electricity.

The supply of dual-energy electricity-RNG, which has been available in the residential sector for more than 12 months, allows us to see positive effects on the reduction in participating customers' GHG emissions. Added to this component are the commercial and institutional sectors, the supply having been approved by the Régie and accessible since November 2023.

These recent months also proved to be an opportunity to expand the diversification of our sustainable growth vectors. In December 2022, Énergir Development Inc., an affiliate of Énergir, announced that it was partnering up with Nature Energy Canada Inc., a world leader in renewable energy, to develop biomethanization facilities in Quebec. This partnership could significantly increase the available supplies of RNG in Quebec, potentially contributing up to one third of the government's 2030 RNG target.

The thermal waste-to-energy sector has also seen interesting developments with the announcement of a partnership between Énergir Development Inc. and Fonds QScale, s.e.c., which will allow heat from their computer servers to be recovered, and a partnership between Énergir Urban Heating and Cooling (ÉUHC), a subsidiary of Énergir, and Quebec City to develop the waste-to-energy plant subsidiary.

» Vermont: tangible actions for a more sustainable world

In August 2023, GMP announced more good news: thanks to a regulatory change implemented by the Vermont Public Utility Commission, its customers will have easier access to home battery systems for emergency backup power thanks to the lifting of enrolment caps on its popular incentive program. The program's expansion paves the way for the Zero Outages Initiative introduced in October 2023. This ambitious plan aims to increase the resilience of the Vermont electricity grid.

GMP's proactivity was recognized in February 2023, when the company had the notable distinction of being added to the ranking of the 2023 Smart Electric Power Alliance (SEPA), which highlights the efforts of certain companies to upgrade to carbon-free electricity. As a result, GMP is one of the leading public utilities in the United States when it comes to the transformation of its electricity grid.

In May 2023, VGS unveiled its new residential heat pump installation program. This program, added to other existing decarbonization solutions such as RNG, allows VGS to position itself advantageously with a diversified supply. The company will benefit from the new legislation in force in Vermont, the *Affordable Heat Act*, which encourages people to adopt low-carbon and economical heating methods.

» Mobilizing for the energy transition

Organizations around the world face obstacles and unexpected events that may slow their development or ambitions. Despite these uncertainties on both sides of the border, we continue to act with confidence, remaining true to our convictions for a promising and sustainable energy future.

That said, we believe in the emergence of a just transition. In this regard, investments go beyond the purely financial. For us, acting involves taking concrete action, both pragmatic and responsible, that aligns with the aspirations of the people and governments.

While businesses and governments play a leading role in the energy transition and fight against climate change, the current rate of consumption requires increased individual responsibility, which means we must profoundly rethink our way of life and our relationship to consumption.

Énergir's transformation is the result of remarkable internal mobilization. Each team works with enthusiasm, creativity and agility to meet colossal challenges, including ambitious targets.

Together, we will ensure that the upcoming decades will see Énergir recognized as an exemplary leader in energy solutions and carbon neutrality. While the roadmap for how to get there may sometimes seem unclear, the destination remains the same: straight ahead.

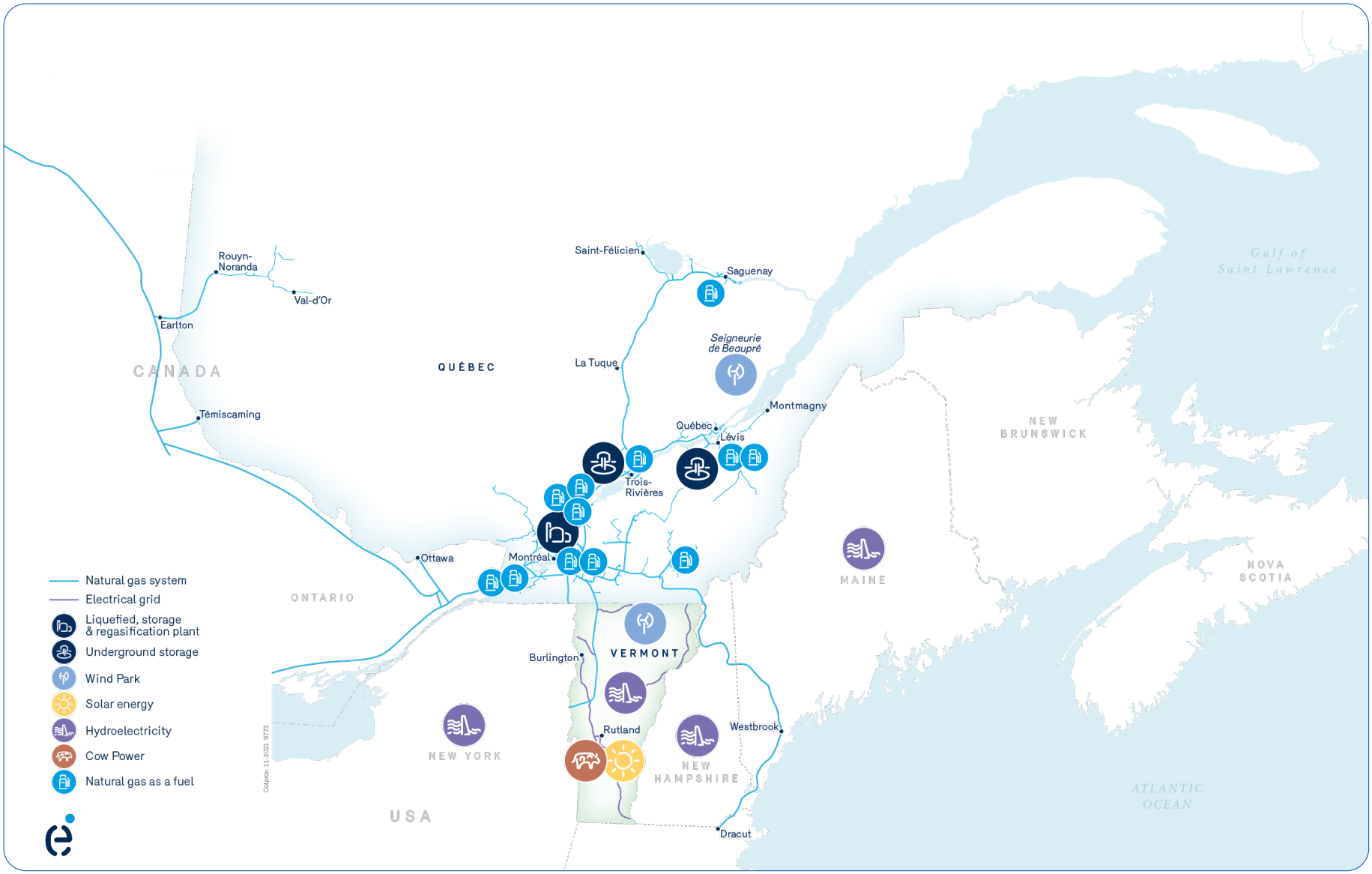
Éric Lachance
President and Chief Executive Officer

Presentation of the Corporate Group

With more than $10 billion in assets, Énergir is a diversified energy business whose mission is to meet the energy needs of approximately 540,000 customers and the communities it serves in an increasingly sustainable way in Quebec and Vermont. Énergir is the largest natural gas distribution company in Quebec; through its joint ventures, it also generates electricity from wind power. And through subsidiaries and other investments, Énergir is present in the United States, where it generates electricity from hydraulic, wind, and solar sources; it is also the largest electricity distributor and the sole distributor of natural gas by pipeline in the State of Vermont. Énergir values energy efficiency and invests its resources and continues its efforts in innovative energy projects such as renewable natural gas as well as liquefied and compressed natural gas. Through its subsidiaries, it also provides a variety of energy services.

In both Quebec for the distribution of natural gas and Vermont for the production and distribution of electricity and of natural gas, the distribution of energy is an activity that is regulated.

Corporate Group's main activities



Natural Gas Distribution in Quebec

Some
212,000 customers
in Quebec

In more than
340 municipalities

11,000 km
network

» Natural Gas Distribution in Quebec

Through its 11,000-km network, Énergir distributes approximately 97% of the natural gas consumed in Quebec to some 212,000 customers in more than 340 municipalities. Énergir has the storage capacity to manage fluctuations in its customers' consumption. Énergir provides natural gas service to the residential, commercial and industrial markets.

In all of these markets, Énergir also offers its customers energy efficiency programs to help them better consume energy and less. The following table illustrates the distribution of the volumes of natural gas distributed by Énergir and the total revenue for its 2023 fiscal year.

An analysis of how the various components of the value chain of Énergir's natural gas distribution activities contribute to GHG emissions is presented in the summary sheet *Profil environnemental du gaz naturel distribué au Québec* (environmental profile of natural gas distributed in Quebec) published by Énergir and established based on the findings of a study conducted by CIRAIG using a life cycle assessment methodology. This summary sheet is available on Énergir's website.[4]

Normalized Natural Gas[5] Distributed in Quebec and Revenues Generated

	Volumes distributed (Mm^3)	Volumes distributed by market (%)	Revenues (Millions $)	Revenues by market (%)
Industrial	3,950	63	712	36
Commercial	1,643	27	866	44
Residential	601	10	398	20
Total	**6,194**	**100**	**1,976**	**100**

4. The summary sheet is available (in French only) at Générique (energir.com).
5. Includes the volume of natural gas from fossil and renewable sources.

Distribution of Electricity in Vermont

GREEN MOUNTAIN POWER
Generating Possibilities Together

Over
273,000 customers
in Vermont

16,900 km
of overhead
distribution lines

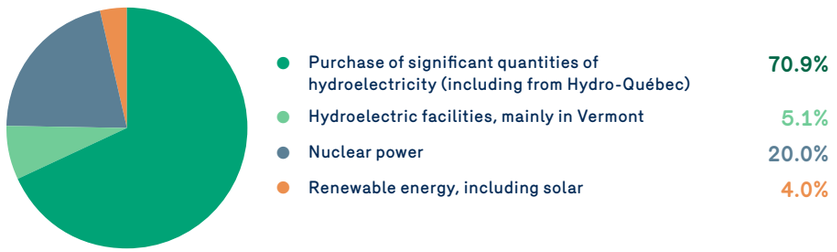
2,600 km
of underground
distribution lines

» Distribution of Electricity in Vermont

GMP distributes more than 76% of the electricity in the State of Vermont to over 273,000 customers. GMP's core business includes the production, purchase, and sale of electricity in Vermont and, to a much lesser degree, electricity transportation in New Hampshire and electricity production in New York, Maine, New Hampshire and Vermont. GMP's network comprises over 2,900 km of overhead transmission lines, 16,900 km of overhead distribution lines and 2,600 km of underground distribution lines, located mainly in Vermont but also extending to the States of New Hampshire and New York.

GMP's annual supply portfolio is now 100%[6] carbon free, 80% renewable and comprises several sources of power generation, including hydroelectricity and, to a lesser extent, nuclear, wind and solar power. GMP has 41 small hydroelectric facilities across New England. It also owns Kingdom Community's 63 MW wind farm in Lowell, Vermont. The following chart illustrates the breakdown of the electricity distributed by GMP, in GWh, and revenues during fiscal years 2022 and 2023.

GMP's Energy Supply Sources[7]



GMP's Electricity Deliveries and Revenues Generated

	Deliveries (GWh)	GWh Delivered by market (%)	Revenues (Millions US$)	Revenues bymarket (%)
Residential	1,541	38	320	46
Small and Medium Consumption Commercial and Industrial Customers	1,436	36	257	37
High Consumption Commercial and Industrial Customers	1,046	26	1,112	16
Other Customers	4	0	3	1
Total	**4,027**	**100**	**1,692**	**100**

6. Through direct sourcing, the retirement of RECs or a combination of both.
7. The data in this figure reflect the treatment of supply sources from which RECs and other carbon-free generation attributes were bought or sold. GMP operates under a revenue decoupling mechanism (allowing revenue variances compared to the rate case to be recovered from or returned to customers after a netting against variances in power supply costs, minus a dead band and major storm costs).

Distribution of Natural Gas in Vermont

Over
55,000 customers
in Vermont

Transportation and distribution network of
over
1,600 km

VGS

» Distribution of Natural Gas in Vermont

VGS owns and operates a natural gas transportation and distribution network of over 1,600 km in Vermont, United States. VGS is the sole gas distributor in Vermont, serving over 55,000 mainly residential and commercial customers. The following chart illustrates the distribution of customers according to the natural gas volume distributed by VGS and the total revenues for its 2023 fiscal year.

An analysis of how various components of the value chain of Énergir's natural gas distribution activities contribute to GHG emissions is presented in the summary sheet "Profil environnemental du gaz naturel distribué au Québec" (environmental profile of natural gas distributed in Quebec) published by Énergir and established based on the findings of a study conducted by CIRAIG using a life cycle assessment methodology. This sheet is available on Énergir's websiter.[8]

Volume of Normalized Natural Gas Distributed in Vermont and Revenues Generated

	Volumes distributed (Mm^3)	Volumes distributed by market (%)	Revenues (Millions US$)	Revenues by market (%)
Residential	110	30	65	47
Commercial	255	70	72	53
Total	**365**	**100**	**137**	**100**

8. The summary sheet is available (in French only) at Générique (energir.com).

Climate Change Risks and Opportunities

Énergir, GMP and VGS use a common methodology (see the "Risk Management" section for more information) to structure their understanding of the risks and opportunities related to climate change, based on the TCFD recommendations. The tables on the following pages present these risks and opportunities for Énergir, GMP and VGS, and specify how they would manifest themselves and what the potential financial repercussions would be.

To assess the potential financial repercussions, an analysis was carried out and is updated every year based on one or several of these measures, namely the impact on net profit, the rate of return and the impact on rates.

Considering that the risk manifestations mainly have favourable or unfavourable economic repercussions on the competitive position of Énergir, GMP or VGS, the tables also present the assessment of the impact of these risks on their competitive position and on customers' rates.

Three levels of impacts have been retained, and the perspective chosen is that of the 2030 horizon, knowing that some of these risks could have different repercussions over the longer term.

Limited Impact | Moderate Impact | Potentially Significant Impact

Risks		Sensitivity	Potential Financial Impacts	Opportunities
Political and legal	Increase in the Price of carbon.	Potentially Significant Impact	• Increase in service costs reflected in customers' rates. • Decrease in demand for fossil natural gas.	• Increased demand for RNG and energy services. • Increased demand for the procurement of natural gas from suppliers certified under the Equitable Origin standard.[9] • Policies, regulations and financing conducive to RNG and hydrogen development. • Injection of green hydrogen in the gas network. • Diversification of renewable energy sources. • Energy efficiency in offices, electrification of certain vehicle fleets, reduction at the source, re-use, recycle and repurpose of resources used. • Achievement of the 100% renewable supply targets (GMP's 2030 target). • Reduction of emissions with a renewable electricity supply.
	More aggressive and intensification of decarbonization goals.	Potentially Significant Impact		
	More restrictive regulation of existing products and services.	Moderate Impact		
	Inconsistency between the regulatory framework and our business objectives.	Limited Impact		
	Exposure to litigation related to GHG emissions or non-compliance with GHG emission reduction regulations.	Limited Impact		
Technological	Lesser efficiency of natural gas technologies compared to alternative energy solutions.	Limited Impact	• Decrease in demand for fossil natural gas (resulting from the use of comparatively more efficient equipment and electro-technology). • Stranded investment costs in technologies that do not favour the achievement of our objectives.	• Development of complementary energy services (energy expertise, storage assets, fuel, green hydrogen). • Increase in the offer of energy efficiency programs. • New clean technologies to decarbonize the energy distributed.
	Technological advances that facilitate decarbonization for customers.	Limited Impact		
	Unsuccessful investments in new technology.	Limited Impact		
Market-related	Change in customer behaviour that favours energy sources with lower GHG emissions.	Limited Impact	• Decrease in demand for fossil natural gas. • Lower share on certain markets that could have an impact on the distribution of revenues from Énergir.	• Dual energy offer for Québec customers. • Diversification of renewable energy sources including solar energy from sites of varied sizes (from residential rooftops to those of larger sites). • Sharing program for peak electricity periods with customers. • Development of geothermics.
	Increase in supply costs.	Moderate Impact		
Reputational	Change in customer behaviour that favours energy sources with lower GHG emissions.	Limited Impact	• Reduced or more difficult access to financing (resulting from the consideration of environmental (including GHG emissions), social and societal criteria in the financing of projects or businesses). • Decrease in demand for fossil natural gas.	• Greater demand for our decarbonization solutions.
Acute	• Increased severity of extreme weather events (floods, landslides, freeze/thaw cycles).	Potentially Significant Impact	• Lower revenues relating to a decreased energy distribution capacity (resulting, for example, from breaks in the supply chain). • Increased operating costs (maintenance and repairs, including labour, equipment and potential environmental damage, insurance premiums and costs related to the negative impacts on the workforce). • Increase in required investments (more resilient construction or more frequent repairs). • Reduced insurability of assets located in "high risk" areas. • Changes in demand due to milder winters and hotter summers.	• Investment in network resilience projects. • Zero Outages Initiative. • Recognition of the added value of carbon-neutral gas assets owing to their resiliency to climate changes.
Chronic	• Changes in precipitation patterns and extreme variations in meteorological profiles. • Rise in average temperatures.	Moderate Impact		

9. https://www.energir.com/en/about/media/news/developpement-et-approvisionnement-energetique-responsables-et-transparents/.

» Our approach

» Physical risks

Our assets are diversified and spread over a relatively limited geographic area (Quebec and Vermont) and are exposed to a variety of chronic and acute risks.

For the gas transmission and distribution assets, the system essentially consists of underground infrastructure that is less exposed to most climatic events and physical risks resulting from climate change. Some physical risks, including floods, forest fires and landslides, may nonetheless pose some risk to these assets.

The above-ground power generation and distribution assets are more sensitive to certain risks such as storms affecting transmission lines and variations in precipitation that may also affect electricity generation. Wind, hours of sunshine and extreme cold can also impact wind and solar electricity generation.

Climatic variations will undoubtedly have an impact on peak periods and the seasonal nature of consumption. We can therefore expect a greater need for electricity for air conditioning during hot seasons, and lower volumes of natural gas for heating during milder winters.

We are implementing a pragmatic, progressive and responsive approach to the risks we are facing and, in this regard, efforts are being made to prepare and proactively respond to the impacts of climate change.

For example, GMP is aware of the impact of climate change on the frequency and severity of storms in Vermont. We can therefore anticipate that in the future, if mitigation and accommodation measures are not implemented adequately, there will be a growing impact on costs and service reliability for customers.

GMP is therefore developing a plan to proactively address these challenges, with clear and concrete objectives to make the system more reliable and more resilient, so as to be able to resume service more quickly after climatic events and facilitate the transition to a lower-emission distribution system.

Adaptation strategies include burying power transmission lines or using cables that are better insulated and more resistant to climatic events.

Our approach essentially encompasses the following steps, although it may differ slightly from entity to entity:

- Identifying potential threats;
- Identifying the most vulnerable assets;
- Creating a model of climate changes likely to affect assets and activities;
- Measuring potential impacts based on various scenarios;
- Developing a mitigation and adaptation strategy.

In order to better anticipate the evolution of physical risks and their impact on our assets over time, we have conducted climate change modelling to assess the potential impacts of climate change on our infrastructure and activities.

With the help of a specialized firm, we modeled the evolution of different physical climate-related risks according to three distinct scenarios (RCP 2.6, 4.5 and 8.5) and three time horizons (2030-2050-2100) in order to visualize and better anticipate the potential exposure of our assets and activities.

The results of this work will allow us to better understand the speed and scope of the various risks associated with climate change, to begin to assess potential costs and to continue defining the necessary mitigation and adaptation measures.

» Electricity generation, transmission and distribution

The impact of the climate crisis continues to have an impact on GMP's operations, and this has resulted in an increase in the frequency and severity of service interruptions which has generated higher repair costs. In our service zone, the climate crisis is taking on the form of warmer temperatures and significantly higher precipitation levels. These impacts will take on the form of more frequent and severe episodes of flooding, wind, rain or ice and other climate-related risks. The impact on the quality of our customers' reliability and service experience, relative to the increased frequency of service interruptions, is increasingly likely in both the short and long term planning horizons. Funding for future adaptive measures is a significant public policy challenge. Climate risks could also result in a lower credit rating for public utilities that have not adequately planned for adaptation to a changing environment.

For more than ten years, GMP has been regularly conducting resiliency projects to progressively reinforce its system against the impacts of the climate crisis. At the same time, GMP is actively committed to mitigating the climate crisis by playing a leading role in reducing the carbon intensity of its operations and its electricity sourcing. GMP is implementing a plan that should accelerate its reinforcement projects across all its infrastructure departments and expand its reinforcement efforts to include additional capabilities that have proven important in order to provide quality services in what will be the new normal in years to come.

Actions underway include:

- reinforcing the system against disruptions by moving cross-country sections to the roadside where possible;
- installing insulated wires with spacer cable and underground cables to mitigate tree contacts and weather-related outages;
- promoting distributed residential and commercial generation[10] and adopting battery storage to improve local resiliency;
- automating system incident detection and isolation;
- enhancing post-storm restoration and forecasting capabilities.

It is crucial that GMP continue to lead the way and adapt to changing weather conditions.

The following tables describe the potential impact of certain physical risks likely to affect the generation, transmission and distribution of electricity in Vermont, as well as the mitigation and adaptation strategies that have been adopted. The most significant impacts on GMP's assets and a financial impact assessment are also presented.

10. Also referred to as decentralized generation, the generation of electricity using small, grid-connected facilities.

Climate risks	Potential impacts	Type of asset concerned	Adaptation strategies	Potential financial cost
Storms (rain/snow)	• Damage to power lines • Damage to substations and power plants • Impact of debris on equipment • Falling poles or power lines • Localized flooding due to storm sewer obstruction • Large hailstones causing property damage • Increased risk of vehicle accidents and therefore damage to poles • Inaccessibility for staff assigned to repairs and emergencies	• Customer residences and businesses • Distribution, transmission and substation lines • Flooding of hydroelectric power station basins and downstream city facilities	• Regular maintenance of trees to prevent them from falling on power lines • Bundling and covering of cables, relocation of cross-country lines to the edge of the roads • Reinforcement of power line infrastructure in case of storms • Development of emergency response plans for faster repairs • Replacement of aging assets, covering of conductor equipment and burial of distribution lines	Storm costs could range between $20 million and $40 million on average per year
Landslides	• Landslides damaging power lines and substations • Disruption to the electricity supply in hilly and mountainous regions	• Distribution, transmission and substation lines • Transportation and communication infrastructure	• Implementation of slope stabilization measures • Regular geotechnical assessments and checks	—
Forest fires	• Damage to power lines, substations and transmission towers • Smoke and ash affecting air quality and the operation of power plants • Inaccessibility for personnel assigned to repairs and emergencies	• Customer residences and businesses • Distribution, transmission and substation lines	• Creation of firebreaks around critical facilities • Development of evacuation plans and emergency response procedures • Use of fire-resistant materials for equipment and structures • Use of extensive air filtration systems to limit the impact of smoke particles on our facilities	—
Drought	• Reduction in hydroelectric power generation and availability of water • Increased risk of forest fires in dry weather • Impact on ability to effectively operate facilities • Inaccessibility of the terrain for emergency personnel	• Customer residences and businesses • Distribution, transmission and substation lines • Flooding of hydroelectric power station basins and downstream city facilities	—	—
Floods	• Severe flooding can: • Limit access to water for power generation • Restrict or prevent access to substations and other critical infrastructure • Damage infrastructure • Flood substations • Damage underground cables • Waterlog equipment • Render site inaccessible for personnel assigned to repairs and emergencies	• Customer residences and businesses • Distribution, transmission and substation lines • Flooding of hydroelectric power station basins and downstream city facilities	• Improve facility design to accommodate larger overflows • Relocate critical infrastructure away from flood-prone areas • Modernize infrastructure to withstand water damage • Install flood barriers and levees • Implement real-time flood monitoring and warning systems	—

Chronic risks	Potential impacts	Adaptation strategies
Extreme cold	• Equipment malfunction and freezing of power lines during cold spells • Increased energy demand for heating in cold weather, putting strain on the electricity grid	• Install heating systems for critical equipment and infrastructure
Extreme heat	• Overheating of transformers and equipment • Reduced efficiency of electricity generation • Increased wear and tear on equipment and cables • Impact on employee health and well-being	• Develop heat stress resilience plans and early warning systems
Precipitation	• Flooding in low-lying areas • Mudslides and debris flows • Increased maintenance due to corrosion and vegetation	• Improve drainage systems to deal with increased precipitation • Develop sediment control measures • Regular inspection of infrastructure to detect damage

» Transmission and distribution of natural gas

The natural gas transmission and distribution system is essentially an underground infrastructure, with less exposure to climate events than an overhead system such as electricity transmission and distribution. While not entirely immune, the associated risks and costs are lower and some adaptation measures are often an integral component of asset maintenance plans.

Certain risks, such as sea level fluctuations, droughts, storms (wind or rain) and increased precipitation, generally have little impact on natural gas assets. Current chronic risks do not, according to Énergir's analysis, represent a significant risk in the interim scenario (RCP 4.5).

Other consequences may include access restrictions in the event of disasters, where access to public roads may be reduced or interrupted (for example, the presence of trees or debris on the road), or an impact on the quality of working conditions for workers who may be exposed to more intense temperatures (heat waves or cold periods).

In addition, the combination of certain circumstances can increase the complexity of the intervention and the impact of the risk (frequency and magnitude), for example storms with lightning causing damage or precipitation accelerating landslides.

Potential long-term impacts may increase in severity or frequency over time. Rigorous monitoring of asset maintenance and system planning taking into account the impact of climate change can help minimize risk.

Here, for example, are some of the risks that could affect the gas system assets:

Physical risks	Potential impacts	Type of asset concerned	Adaptation strategies
Landslides	• Segment of the system subject to being deformed to the point of rupture due to physical constraints • Leaks • Service interruptions for certain customers	• Pipes in dangerous zones	• Work is underway to continue identifying the zones most at risk and assessing the need for corrective or detection measures, from air surveillance of landslides to stabilization measures. • System inspection activities described in integrity management programs
Forest fires	• Segments of the system subject to damage by intense heat • Increased maintenance, inspection and repair costs (limited access to certain zones for work) • Service interruptions for certain customers	• Delivery points in more remote northern regions • Access barrier/control station • Main line/valve terminal	• Agreement with service providers for fire detection and emergency response for strategic infrastructure • Gas, smoke and flame detection systems at building access barriers/ control stations • Vegetation management
Floods	• Service Interruptions for certain customers • Increased maintenance, inspection or repair costs (limited access to certain zones for work)	• Distribution and transmission lines • Access barrier/control station	• Relocation of infrastructure that is repeatedly impacted • Post-flood inspection programs to identify probable or potential damage • Change in the design of certain elements to accept higher water levels

» GHG Emission Scenarios

In its 2022 Climate Resiliency Report, Énergir used GHG emission scenarios. Of these scenarios, three have evolved and two remain unchanged. An explanation of the 2023 changes to the scenarios is provided below.

» Status Quo and NDC Scenarios

Since 2021, the Climate Action Tracker ("CAT")[11] forecasts have been used to quantify the emissions pathways of the Status Quo Scenario and the NDC Scenario. CAT data is updated annually based on the new NDC contributions announced by the Paris Agreement signatory countries. The CAT data for GHG emissions forecasts pursuant to current policies is used to represent the Status Quo Scenario on a global scale. Since the 2022 update, the GHG emissions pathway of the Status Quo Scenario has changed little (-2% gigatonnes of CO_2 eq. in 2050). For its part, the GHG emissions pathway of the NDC Scenario changes by less than 1%, and Énergir considers it unchanged. The GHG emissions pathway of the Status Quo Scenario on a global scale was updated in this report with the new data.

» Bank of Canada – Delayed Action Scenario

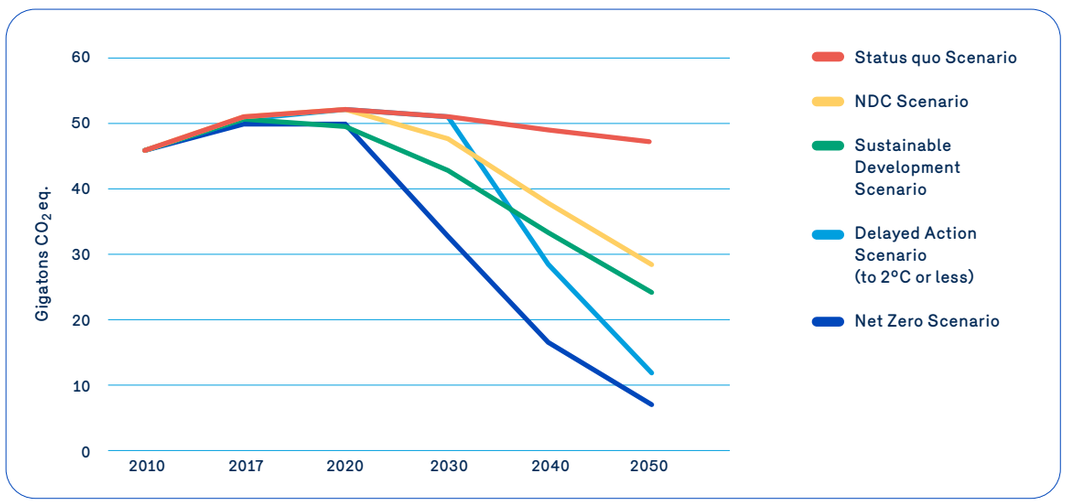
First published in 2020 as part of a Bank of Canada pilot project to understand climate-related risks to the Canadian economy, the Delayed Action Scenario was updated during a general review of the Bank of Canada scenarios in 2022. The nature of the scenario remains the same as the one originally published in 2020, that is, the status quo defined by the Bank of Canada is followed until 2030, when drastic measures are put in place to limit global warming to 2°C by 2100 compared to pre-industrial levels. This scenario relies, among other things, on the carbon price exceeding US$1000 per tonne of CO_2 eq. in 2050 to realize the targeted GHG reductions. Compared to the previous pathway published in 2020, the pathway of this scenario has been modified so that it reaches a similar level of emissions as the previous version for the 2030 horizon, except that this scenario now anticipates more emissions by 2050 (11.9 giga tonnes of CO_2 eq. compared to 9 gigatonnes of CO_2 eq. in 2020).

» Net Zero Scenario[12]

Published on October 24, 2023, the latest version of the International Energy Agency's ("IEA") World Energy Outlook updates the emission pathway of the Net Zero Scenario. For the Net Zero Scenario, emissions will have increased by 13% in 2030 compared to the 2022 edition of the scenario.

Using the GHG emissions scenarios described in the appendix to this report, Énergir, GMP and VGS can analyze the impacts of climate change on the resilience of their business model for different time horizons. The scenarios used are not GHG emissions forecasts. They represent a range of possible future scenarios related to GHG emissions.

GHG emissions on a global scale, depending on the scenarios used[13]



11. By 2100 compared to pre-industrial levels, and pursue efforts to limit warming to 1.5°C. This analysis is performed by Climate Analytics, a non-profit climate science and policy institution based in Berlin, Germany.
12. Designated as the IPCC SR 1.5 P2 scenario in Énergir's 2022 Report, but based on data from the IEA Net Zero Scenario and its assumptions.
13. The five scenarios used are defined in the appendices.

Strategy

Énergir, GMP and VGS strive to be proactive leaders in the fight against climate change thanks to the energy they distribute (and, where applicable, produce) while supporting their customers and society with innovative solutions that decarbonize their activities. Their ambition is therefore to make their in-house activities (Scope 1 and Scope 2) and energy distributions carbon neutral by 2050 (Scope 3).

Énergir, GMP and VGS are also aware that they must take into consideration exogenous constraints over which they have little or no control, including:

- changes in the regulation and Price of Carbon;
- adoption, by various government levels, of regulations affecting energy sources and equipment;
- technological developments related to the production of renewable energies;
- decarbonization plans of their industrial customers (desired technologies, timeframe for implementation, decarbonation targets, etc.);
- social acceptance of certain decarbonization technologies such as carbon capture and sequestration.

Activities in Quebec

Natural Gas Distribution in Quebec

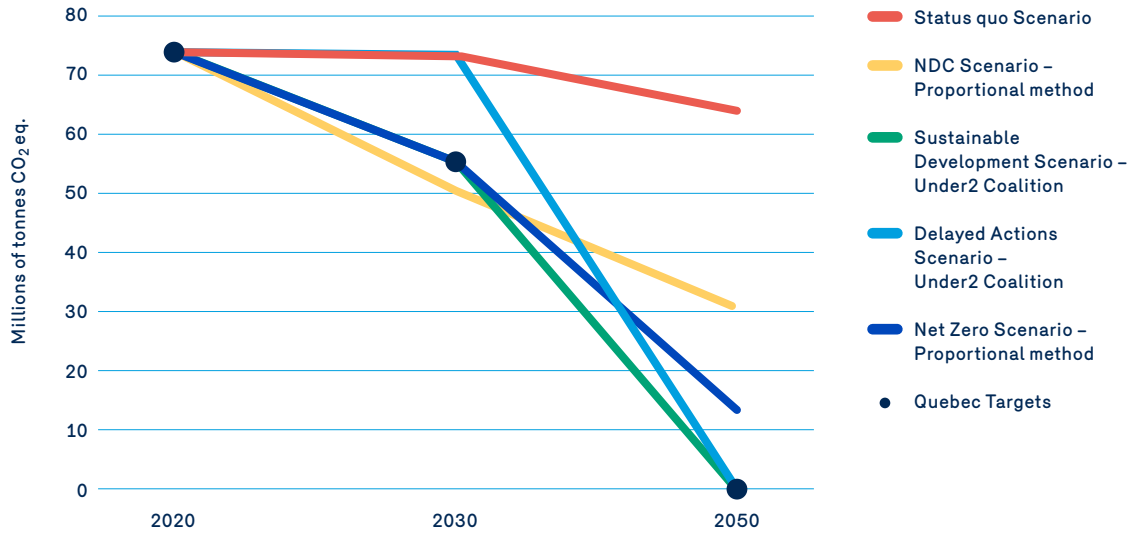
énergir

» Quebec-wide scenarios

The following graph presents the possible GHG emission pathways according to the scenarios used as they apply to Quebec. It also presents Quebec's targets in 2030 and 2050. As indicated in the GHG Emission Scenarios section, the scenarios used by Énergir are not projections but are used to analyze the risks and opportunities related to climate change from different angles.

This year we are using the 2020 data from Quebec's most recent GHG inventory as a starting point for representing the Quebec pathways. The goal is to use the most recently recorded emissions data published in Quebec.[14]

Possible annual GHG emission pathways according to the scenarios used as they apply to Quebec



The scenarios used for the Status Quo come from reports produced by Dunsky Energy Consulting for Quebec and Vermont, and are based on a modelling of the NATEM-Canada optimization model in the case of Quebec, and an earlier version of a similar modelling for Vermont. These scenarios have been developed across jurisdictions of interest, so no scaling is required.

14. Québec, 2022. RAPPORT SUR LA CIBLE DE RÉDUCTION DES GES 2020 – Québec rend public le rapport sur la cible de réduction de GES 2020 (in French only).

» Strategic vision of decarbonization for 2030-2050

In order to achieve its strategic vision of decarbonization, Énergir aims to guide customers towards the best energy solution in their journey to decarbonization, and to develop new low-carbon activities. The idea is to sell and market a decarbonization approach. To do this, Énergir is relying on the value that its infrastructure and gas energy can bring to Quebec's energy ecosystem. Énergir is convinced that gas energy and its infrastructure will maintain their value in the long term. First, this form of energy helps meet peak and seasonal energy needs at the best cost, especially in a cold climate like Quebec's. Énergir already has the storage and distribution infrastructure to do this, and points out that gas energy, including renewable energy, enables it to respond optimally to hundreds of hours of demand per year at an advantageous cost. Second, RNG makes it possible to decarbonize uses that are difficult to electrify, whether in industrial processes or in heavy road and maritime transport. Finally, maintaining a share of gas energy ensures the resilience of the energy system in Quebec. Énergir has a system that is in good condition, serves a vast territory and is also generally more resilient than electrical grids in the face of extreme weather events. These are three major assets that should allow Énergir to make a positive contribution to the energy transition. In order to decarbonize its system, Énergir is focusing on various initiatives, which will be discussed in detail in the following section:

1. Increasing energy efficiency efforts;
2. Converting natural gas users to the electricity-natural gas dual-energy solution;
3. Accelerating RNG injections;
4. Developing, through subsidiaries, low-carbon growth vectors such as energy loops, hydrogen and geothermal energy in particular.

The first two initiatives mainly aim to reduce the consumption of natural gas and focus on its value in meeting seasonal and peak demand, while the third initiative aims to gradually and increasingly integrate more and more renewable energy to replace fossil natural gas and decarbonize uses that are difficult to electrify. Finally, the fourth initiative ensures Énergir's long-term growth by developing low-carbon growth vectors that contribute to decarbonization at the lowest societal costs.

In 2050, Énergir should distribute approximately 50% less gas energy by concentrating on where it has value and where gas distribution infrastructure contribute the most to Quebec's energy ecosystem.

In order to contribute to the achievement of its own decarbonization targets, but also of those set out in the Quebec government's 2030 PGE, in particular the target to reduce the GHG emissions of heating buildings by 50% by 2030 compared to the 1990 level set out in the 2030 PGE (these 2030 targets are more fully described in Appendix 1 to this report), Énergir primarily targets the GHG emissions of its customers (Scope 3)[15] generated from the use of natural gas for the heating of air and water in the buildings sector (residential, commercial and institutional markets). In addition to ensuring consistency with the 2030 PGE, the priority given to the decarbonization of the buildings sector by 2030 is based on the fact that the technologies that help reduce GHG emissions from this sector are technically and commercially viable. As a result, uncertainty about the decarbonization of this sector is lower. With the initiatives presented below, Énergir projects that the buildings sector could become carbon neutral by around 2040 if the assumptions projected by Énergir become a reality.

15. According to emissions category number 11. Use of sold products of the GHG Reporting Protocol

» A vision of decarbonization for the industrial sector

At the same time, Énergir is presenting its first strategic vision for completely decarbonizing the energy it will distribute by 2050, including its customers in the industrial sector. This vision for completely decarbonizing the energy distributed is based in particular on rigorous analyses of decarbonization and energy production technologies across the entire value chain, including their cost and probability of deployment, but also on the behavior of energy consumers and the economic, political and regulatory context. While many technological uncertainties may be significant, particularly in the industrial sector, clear advantages related to certain technologies that have a place in Quebec's energy context have led Énergir to set a pathway that it considers will likely result in the achievement of the carbon neutrality of distributed energy. It is important to remember that these forecasts are based on assumptions. If they are not realized, these forecasts will be modified accordingly.

Énergir recognizes that close to 60% of Scope 3 downstream GHG emissions are generated by its industrial customers. This is why, during its 2022 fiscal year, Énergir started putting a great deal of thought into decarbonizing its customers in the industrial sector. These efforts continued through its 2023 fiscal year and led to the establishment of an industrial decarbonization pathway, which uses much of the same decarbonization solutions as those deployed in the buildings sector, adapted to this broad diversified sector. Indeed, Énergir's industrial customers are very heterogeneous, and many decarbonization strategies and technologies will be needed to achieve carbon neutrality. To achieve its objectives, Énergir proposes four guiding principles that rely, in particular, on the decarbonization pathways of global agencies (IEA, IRENA) and an information provider (Bloomberg NEF).[16]

1. Energy efficiency first;
2. Electrification where (use) and when (time) it is favourable;
3. Use of developing technologies is a must;
4. Versatility of RNG makes it a keystone to aligning with the 1.5°C pathway.

First, in keeping with the principles proposed by the International Energy Agency,[17] Énergir believes that energy efficiency is the first decarbonization measure that should be deployed, with its numerous advantages both from a societal and economic perspective as well as from a perspective for energy consumer.

Énergir has therefore developed energy efficiency programs to maximize the volume reductions of its customers over the coming years. These efforts will need to be pursued over the longer term. According to Énergir's assumptions, the contribution of energy efficiency to the complete decarbonization of the industrial sector by 2050 would be 21%, while global pathways suggest a contribution of between 8% (Bloomberg NEF) and approximately 28% (IRENA).

Although direct electrification from a renewable source is generally the preferred decarbonization vector due in particular to its cost, efficiency and low environmental footprint, there are multiple challenges in the industrial sector. Some industrial processes that currently use natural gas are very difficult to electrify (such as processes requiring high temperatures) or impossible to electrify directly (mainly when natural gas is used as a chemical production input). Also, when electrification is possible, issues may limit complete conversion to electricity. In the Quebec energy context, where a reliable electricity supply from the grid is very valuable in the wintertime, complete electrification can lead to infrastructure being oversized for only a short period of the year. Thus, for industrial processes that are more easily electrifiable (typically processes using low temperatures) and for space heating uses, Énergir is positioning itself so that its existing infrastructures reduce the pressure

16. IEA (2021) IRENA (2020), BNEF - New Energy Outlook (2022). In this section, the pathways of these agencies are compared to the industrial decarbonization pathway presented by Énergir, which also integrates the particularities of the context in Quebec and the composition of its industrial customers.
17. International Energy Agency – Energy Efficiency 2022 (https://www.iea.org/reports/energy-efficiency-2022/)

on the need for new electric power generation, transmission and distribution assets (such as the construction of new hydroelectric plants) to allow for decarbonization. According to Énergir's assumptions, the contribution of electricity to the complete decarbonization of the industrial sector would be 33%, while global pathways suggest a contribution of between approximately 15% (IEA) and 27% (Bloomberg NEF). This share attributable to electricity, which exceeds the contribution range reported by comparable entities, is first explained by the fact that Énergir's pathway only considers emissions from natural gas, mainly energy, whereas emissions from the industrial sector also include non-energy emissions. Moreover, since Énergir's pathway does not provide for any carbon removal contrary to all the other comparables, the contribution of all direct reduction measures must be increased in relation to the comparables.

Where direct electrification is more complex, the decarbonization pathway is more uncertain since it relies on a cluster of developing technologies. Two technologies could have a major impact on the GHG emissions of the industrial sector: carbon capture and low-carbon hydrogen.[18] Currently, carbon capture would offer the most competitive decarbonization costs for large industrial facilities whose gaseous discharges contain a significant concentration of CO_2. Carbon capture is recognized as an essential component of all pathways leading to carbon neutrality on a global scale (IPCC, IRENA, IEA).[19] This technology is deemed essential for achieving carbon neutrality, in particular by helping to reduce emissions from chemical industrial processes (in the manufacture of cement, for example). According to the pathway developed by Énergir, the contribution of carbon capture to the complete decarbonization of the industrial sector could be around 10%, while global pathways suggest a potential contribution of between approximately 26% (IRENA) to 48% (IEA).[20] One reason for this difference may be that global pathways also take carbon removals into consideration.

Furthermore, for the other industrial facilities that rely on processes that are difficult to electrify, conversion to low-carbon hydrogen may represent a competitive solution in the long run. At this point in time, there is significant interest in green hydrogen[21] produced from renewable electricity and water electrolysis, which could represent an option that is competitive in the long term; other technological options aiming to produce low-carbon hydrogen may also stand out. In addition, unlike RNG, low-carbon hydrogen, especially green hydrogen, should be less constrained in its supply, reducing upward pressure on its supply cost in the long run. Énergir believes that the low-carbon hydrogen could, much like carbon capture, represent an additional attractive decarbonization option that would complement potential strategies in the industrial sector.

18. Low-carbon hydrogen is produced using biomass, renewable resources and nuclear power, and also using fossil fuels when carbon capture, utilization and storage ("CCUS") techniques are used and the emissions stemming from the extraction and supply of fossil fuels are mitigated CER – Market Snapshot: Carbon capture, utilization, and storage market developments (cer-rec.gc.ca)
19. IPCC, IEA (2021) IRENA.
20. The value reported for the contribution of carbon capture and other measures in the IEA's pathway also include conversions from energy sources to less polluting fossil fuels.
21. There are different techniques for producing hydrogen. Depending on the process selected, the hydrogen obtained may be labelled as black, grey, blue, green, etc. Assigning a colour to hydrogen is a visual way of reflecting its origin, that is, the material and energy sources used in its production cycle. Hydrogen can be produced by "water electrolysis", whereby an electric current is passed through water to break down its molecules (H20) and extract hydrogen. If, in addition, the current comes from a renewable energy source, all elements of the generation cycle are low-carbon. The produced hydrogen is labelled as green hydrogen.

Finally, Énergir believes that, much like the strategic positioning of bioenergy in the decarbonization of sectors that are more difficult to electrify according to the major decarbonization pathways on a global scale, RNG is another option that must not be overlooked by its industrial customers. RNG is available, interchangeable with fossil natural gas and would allow any industrial customer to decarbonize the vast majority of its emissions without making investments in its facilities and to reduce its emissions at a lower societal cost by electrifying its processes outside peak periods and by consuming RNG so as to avoid significant investments in the electricity grid. In addition, RNG makes it possible to contribute to the 1.5°C pathway, since it would significantly contribute to interim GHG emission reduction targets without requiring the complete conversion of an industrial facility. According to the pathway developed by Énergir, the contribution of low-carbon hydrogen and bioenergy to the complete decarbonization of the industrial sector could represent around 36%, while the global pathways suggest a contribution of between approximately 16% (IEA) to 28% (Bloomberg NEF). Énergir estimates the share of these options to be greater due to the significant advantage that low-carbon hydrogen and bioenergy enjoy when it comes to contributing to the needs relating to managing seasonal peaks in the particular context of Quebec (which is characterized, among other things, by cold winters). In addition, Énergir emphasizes that the lower contribution of carbon capture, compared to global pathways, implies that the contribution of the other measures is increased.

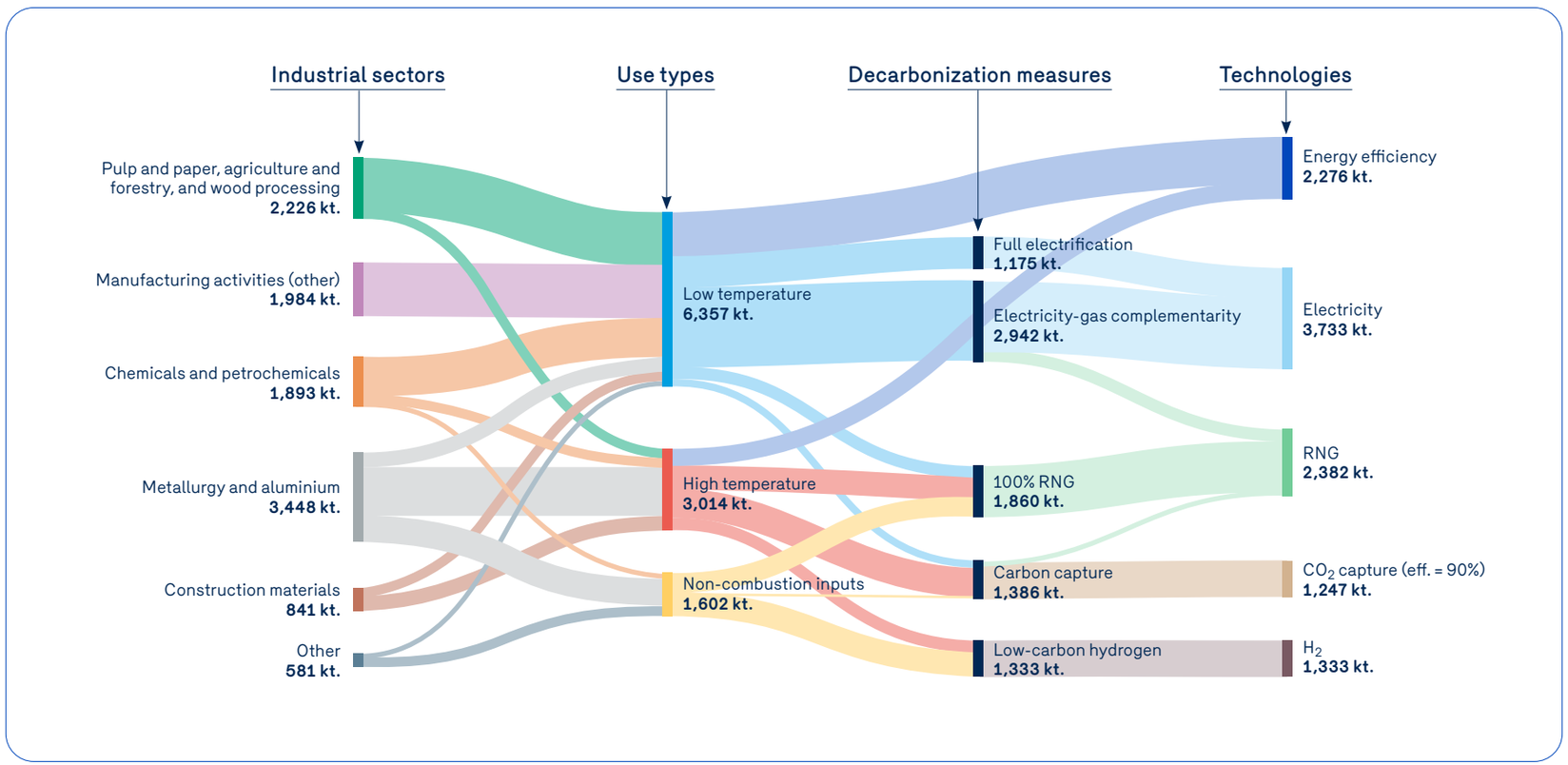
The decarbonization pathway of the industrial sector will be refined over the next few fiscal years as technological progress and the context in Quebec evolve.

The figure on the next page shows the forecast, in a static manner, for 2050. This forecast is clearly influenced by the intrinsic decarbonization ambitions of these large industrial customers, the regulatory context and the evolution of the overall technological context.

The figure can be interpreted as follows (left to right):

- Segmentation of volumes delivered by industrial group;
- Breakdown into three types of uses for natural gas, namely low-temperature, high temperature and non-combustion uses;
  - Illustrates the share of consumption in different industrial sectors intended for different uses
- Forecast of the decarbonization of these uses through various decarbonization strategies;
  - Illustrates the share of consumption of these types of decarbonized uses by different measures
- Contribution of various technologies;
  - Illustrates the share of technologies contributing to different decarbonization measures

Decarbonization of the natural gas volumes distributed in the industrial sector in 2050[22] (in thousands of tonnes of CO_2)



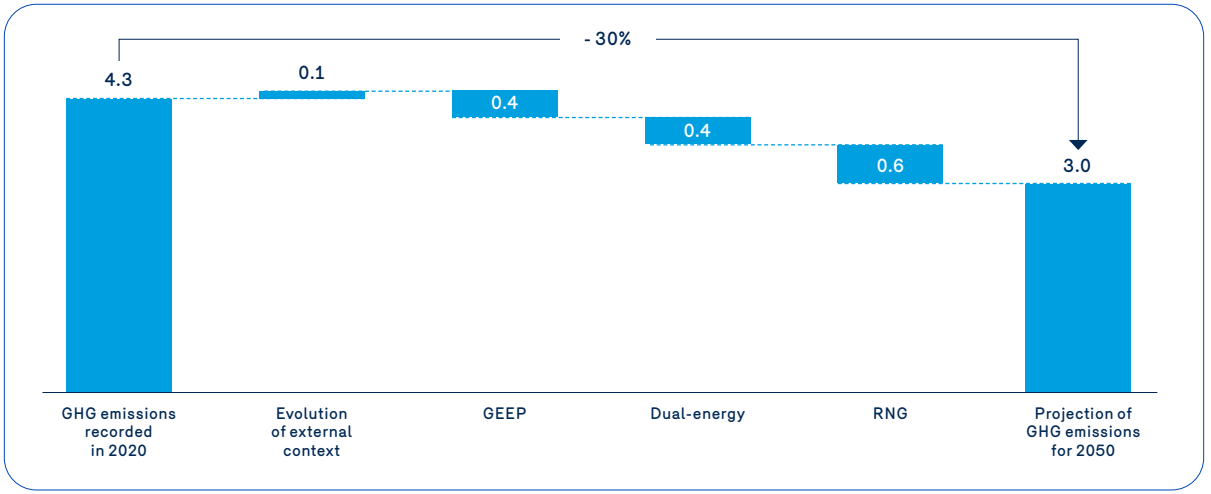
22. Energy efficiency is presented as a decarbonization measure as well as a grouping of technologies.

» Forecast of the benchmark decarbonization pathway

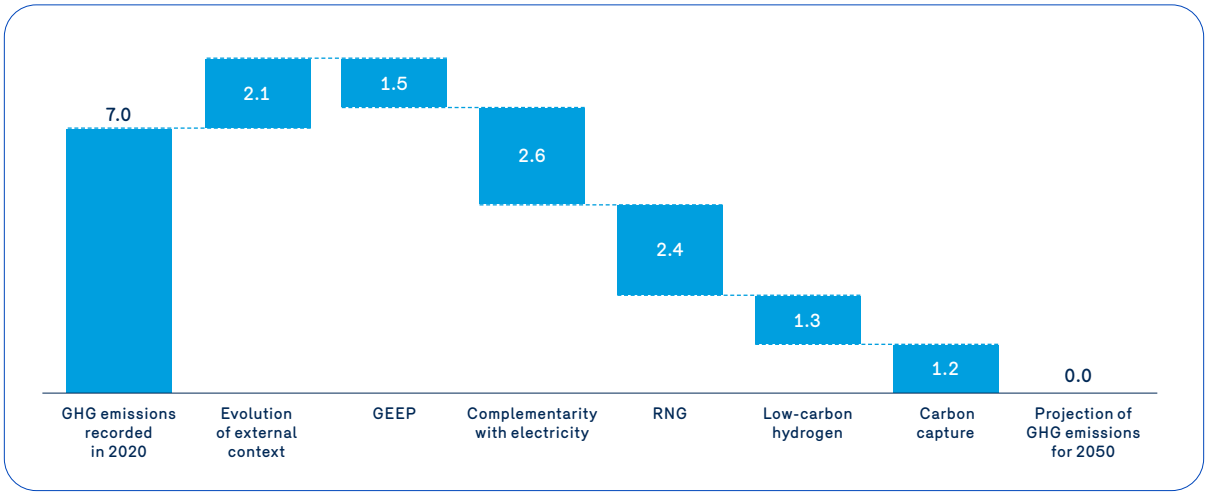
The updated projection of possible GHG emission reductions integrates the new consumption data of Énergir's customers, as well as the latest changes in the cost-of-service estimates that directly influence Énergir's competitiveness. This update also reflects changes in Énergir's external business environment, such as evolving energy prices, the Price of carbon pursuant to the regulations in effect, restrictions on the use of natural gas and other relevant factors.

This projection of the GHG emission reductions, according to the solutions identified in Énergir's strategic vision of decarbonization for 2030-2050, are illustrated in the following tables. Énergir recognizes that significant developments in new energy sectors will be required to achieve its carbon neutrality target for the energy sold to its customers by 2050 in a manner consistent with a pathway limiting temperature rise to 1.5°C (for more details, see the *Resiliency of Énergir's Business Model* section).

Projection of GHG emissions in the buildings sector in 2030 (in Mt. of CO_2 eq.)



Projection of GHG emissions in the industrial sector in 2050 (in Mt. of CO_2 eq.)



Projection of GHG emissions in sectors served by Énergir in 2050 (in Mt. of CO_2 eq. and % of change compared to 2020 levels)

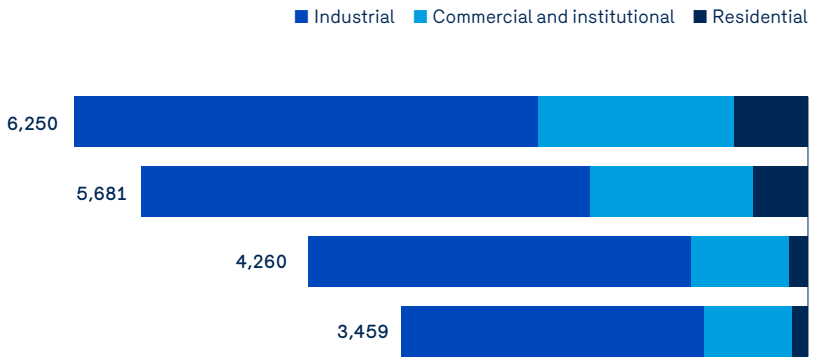
	Buildings		Industrial[23]		Total	
Emissions 2020	4.3	–	7.0	–	**11.3**	**–**
Evolution of external context	- 0.3	- 8%	2.1	30%	**1.7**	**15%**
Global energy efficiency plan (GEEP)	- 0.9	- 21%	- 1.5	- 22%	- 2.4	- 21%
Complementarity with electricity / dual-energy	- 1.4	- 32%	- 2.6	- 37%	- 3.9	- 35%
RNG	- 1.7	- 39%	- 2.4	- 34%	- 4.1	- 36%
Low-carbon hydrogen	0.0	0%	- 1.3	- 19%	- 1.3	- 12%
Carbon capture	0.0	0%	- 1.2	- 18%	- 1.2	- 11%
Subtotal decarbonization strategies	- 4.0	- 92%	- 9.0	- 130%	**- 13.0**	**- 115%**
Projected GHG emissions reduction in 2050 compared to 2020	4.3	–	7.0	–	**11.3**	**–**

23. Includes Énergir's activities serving the freight industry.

2050 Pathway: A vision of our decarbonized system

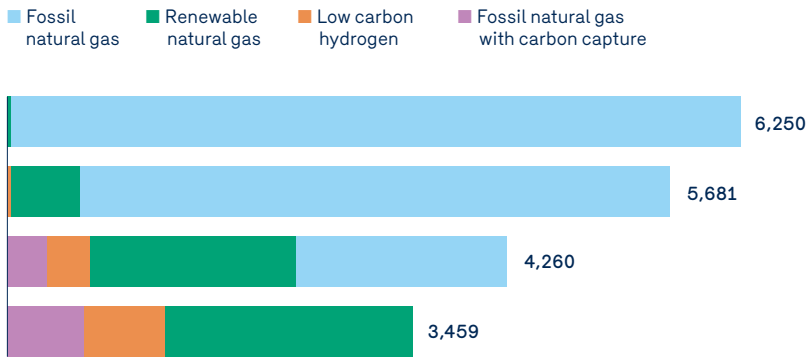
Volumes of gaseous energy distributed

(in Mm³-eq. distributed)



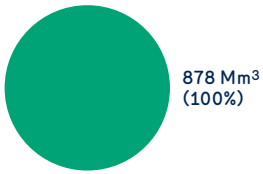
Composition gaseous energy distributed

(in Mm³-eq. distributed)

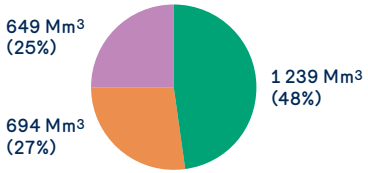


Volume variation vs 2022	2030	2040	2050
Résidential	- 26%	- 75%	- 80%
Commercial and institutional	- 17%	- 50%	- 55%
Industrial	- 3%	- 17%	- 35%
Total	**- 9%**	**- 32%**	**- 45%**

Building sector volume composition in 2050



Industrial sector volume composition in 2050



Reduction in volumes distributed, and decarbonization of remaining gas

Note: RNG represented for 2022 indicates the voluntary purchases and socialized quantities (and not supply).

» Status on major decarbonization initiatives

1 Increasing energy efficiency efforts

It is generally recognized that energy efficiency reduces GHG emissions at a low cost to society.[24] Énergir has set the target of helping its customers, through its various energy efficiency programs, to cumulatively avoid one million tonnes of CO_2 eq. emissions between 2020 and 2030.[25] This ambitious target represents achieving the performance achieved by Énergir between 2001 and 2020, but in half the time. Énergir aims to maintain this accelerated pace over the long term, as energy efficiency is a key initiative in terms of Énergir's resilience, because its benefits are multiple:

- **For customers**, energy efficiency reduces their energy bills, increases their competitiveness and release cash flows that may be used to invest in other decarbonization solutions (such as RNG) and therefore contribute more to the reduction of GHG emissions;
- **For society**, energy efficiency helps avoid or reduce GHG emissions at a lower cost;
- **For Énergir**, energy efficiency helps maintain customer loyalty, reduce the attrition rate and maintain long-term revenues.

To this end, Énergir should be launching several strategies to enhance its current offering while promoting new and increasingly efficient technologies and favouring the integration of digital intelligence. To do so, it is developing marketing strategies and communication campaigns to maximize customer participation in its energy efficiency programs and considering the development of new energy services.

In the buildings sector, Energir's efficiency efforts would contribute to avoiding GHG emissions in the range of 0.4 and 0.5 million tonnes of CO_2 eq. by 2030. These efforts, combined with those carried out by third-parties, are expected to help avoid 1 million tonnes of CO_2 eq. emissions by 2030, which is in line with the Quebec Government's targets. Since fiscal year 2020, energy efficiency efforts have allowed a total of 288,328 tonnes of CO_2 eq. to be avoided, which is the equivalent of removing almost 125,000 cars from the road.[26]

In fiscal year 2023, the natural gas savings associated with Énergir's energy efficiency programs reached 55.9 Mm^3, which corresponds to 107,325 tonnes of CO_2 eq. GHG emissions avoided.

This is an Énergir record that hasn't been beaten to date. These results are mainly attributable to major projects with large industrial and institutional customers that generated substantial savings of 29 Mm^3 of natural gas, or 53% of the annual target. The Efficient Construction and Renovation program[27] outstripped the projected net natural gas reductions by 261% with 9.0 Mm^3.

Climate metrics

2030 target

One million tonnes of CO_2 eq. avoided for all markets served between 2020 and 2030 resulting from Énergir's energy efficiency efforts.

2023 performance

The 55.9 Mm^3 reduction in consumed natural gas represents a historical high that helped avoid 107,325 tonnes of CO_2 eq. emissions. Énergir had a record year in terms of energy efficiency projects completed with the achievement of 103% of the annual target due mainly to major projects with large industrial and institutional customers.

The cumulative results between 2021 and 2023 have reached 0.3 million tonnes of CO_2 and are therefore aligned with the pathway for the 2030 horizon.

24. https://www.scorecard.efficiencycanada.org/wp-content/uploads/2019/11/Energy-Efficiency-At-A-Glance-Efficiency-Canada.pdf
25. This target covers the period from October 1, 2020 to September 30, 2030 and all markets served by Énergir, and takes into account the contribution of Énergir's energy efficiency programs.
26. Based on the following assumptions: an average fuel consumption of 7.8 L/100 km (Natural Resources Canada (2020)), an average distance travelled of 12,614 km per year per vehicle (Natural Resources Canada (2020)) and an emission factor of 2.3612 kg of CO_2 eq./L (Emission and conversion factor (Quebec)).
27. The Énergir Program aims to encourage either (a) the construction or major renovation of buildings so that they are 5% more energy efficient than what is provided for in the National Energy Code of Canada for Buildings 2015, as amended by the Quebec *Construction Code*, or (b) the performance of renovation work that improves the thermal envelope of buildings. Such work helps reduce the buildings' energy consumption and operating costs.

2

Accelerating injection of renewable natural gas

With the expected increase in the Price of Carbon in the medium and long term, the implementation of a decarbonization pathway for customers, through energy efficiency and RNG, would allow them to significantly reduce their carbon footprint related to the use of conventional natural gas and maintain the competitiveness[28] of Énergir's solutions.

Increasing the marketing of RNG to its customers is a key initiative in terms of Énergir's resiliency, as its benefits are multiple:

- **For customers**, RNG is a source of renewable energy that enhances the low-carbon energy supply and allows them to reduce their GHG emissions without having to invest in new equipment, whether in the buildings, industrial or even transportation segments;
- **For society**, RNG enables decarbonization at a competitive societal cost for several market segments compared to other renewable energy solutions. In addition, the RNG sector allows the recovery of residual organic residues, as well as the capture and reduction of GHG emissions from several sectors (such as the municipal and agricultural sectors) in a circular economy perspective. RNG is also a sector of locally produced renewable energy that promotes regional economic development. Also, during peak periods, when combined with electricity, using RNG is profitable for both customers and society;
- **For Énergir**, RNG makes it possible to replace fossil natural gas with renewable energy, thus reducing the attrition rate of its customers and maintaining the relevance of its distribution network.

Énergir aims to market increasing volumes of RNG to its customers annually. Énergir's objective is to have a proportion of RNG of at least 10% of the annual volumes sold by 2030, which would equate to an annual reduction of approximately 1 million tonnes of CO_2 eq. of GHG emissions.

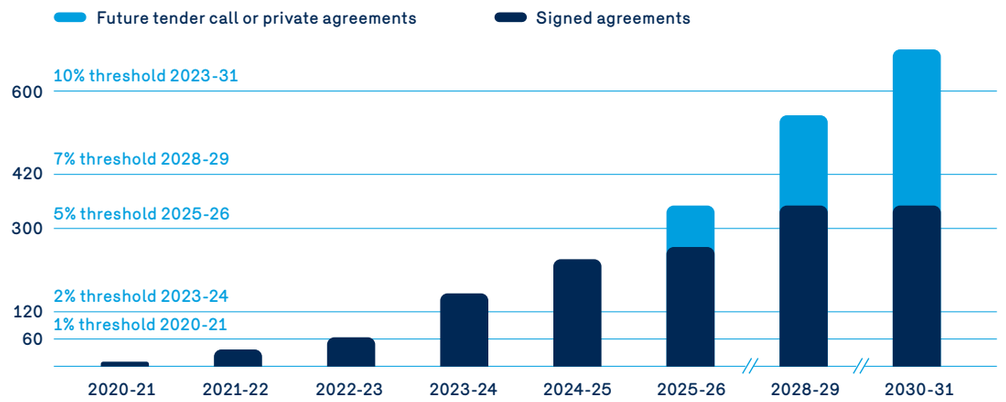
That being said, several external factors could impact the injection of RNG, in particular access to organic matter to produce RNG, the time to develop and commission RNG production sites and the evolution of the applicable legislative and regulatory framework.

However, RNG production in Quebec could be strengthened by the entering of Énergir Development Inc.,[29] an Énergir affiliate, into an agreement with Nature Energy Canada Inc. to develop and complete biomethanation facilities in Quebec, as announced in December 2022. In fact, the objective of Énergir Development Inc. and Nature Energy Canada Inc. in entering into this agreement is to develop RNG production projects in Quebec in regions with high agricultural density.

During its fiscal year 2023, Énergir signed six[30] new RNG supply contracts. Injections from three of these contracts are expected to begin in fiscal year 2024. These three contracts and the contracts signed in previous years should allow Énergir to obtain the necessary supply to meet the requirement under the *Regulation respecting the quantity of gas from renewable sources to be delivered by a distributor*, namely, 2% RNG during its fiscal year beginning October 1, 2023 (i.e., approximately 124 Mm^3). The signed contracts taken as a whole represent a potential contractual volume of 257 Mm^3 by 2025-2026, respectively more than 80% of the required volumes have been contracted to contribute towards reaching the 5% regulatory requirement of that fiscal year. A call for tenders to obtain the volumes required to contribute towards reaching the 5% RNG regulatory delivery requirement was launched in October 2023.

28. Depending on RNG prices projected by Énergir during this period based on Énergir's RNG supply contracts until 2030.
29. The activities of which are not subject to the jurisdiction of the Régie.
30. Of which one contract is awaiting approval from the Régie.

RNG contractualized volumes and supply plan in the horizon (in Mm³)



To date, more than 80% of volumes required to achieve the 5% threshold and more than 50% of the volumes required for the 10% threshold have beeen secured.

In the longer term, the technical and economic potential of producing RNG in Quebec could be even greater with the arrival of new technologies, such as methanation.[31] The quantities of RNG sold to Énergir customers could grow significantly between 2030 and 2050 to reach approximately 2,100 Mm³ annually, based on the decarbonization pathway presented above (allowing for the movement of approximately 4,0 million tonnes of CO_2 eq.).

» Use of RNG

In order to meet the 2030 PGE targets, as well as Énergir's commitments relating to the buildings sector, Énergir believes that the consumption of RNG in this sector is a must because RNG in buildings brings great value to the energy ecosystem with respect to the decarbonization of the economy. The contribution of RNG to reducing the impact on peak electricity periods, when RNG is used as dual energy in the buildings sector, is on average more than eight times greater than its use in the industrial sector. This is due to the small quantity of RNG required during peak periods when used as dual energy in buildings, compared to the larger quantities required when it is used throughout the year in industries, outside of peak periods and even in the summer. Énergir anticipates that changing market conditions, as well as growing environmental concerns, should stimulate demand in the industrial sector in the medium and long term.

In the course of its fiscal year 2023, Énergir saw a dramatic increase in its customers' voluntary purchases. Since the commercial offering that promoted RNG to its business and residential customers has been launched, the repercussions have been felt.

Climate metrics

2030 target

Reduction of 1 million tonnes of CO_2 eq. between 2020 and 2030, including 0.6 million tonnes in the buildings sector.

2023 performance

Énergir is complying with its regulatory obligation by selling 60 Mm³ of RNG (representing 1% of the total volume distributed), 19 Mm³ of which by means of socialization.[32] The RNG volumes sold correspond to a reduction of approximately 114,600 tonnes of CO_2 eq. GHG emissions, including 32,000 tonnes of CO_2 eq. in the buildings sector.

31. Methanation is the reaction of carbon monoxide or CO_2 with hydrogen in the presence of a catalyst to produce methane.
32. The *Regulation respecting the quantity of gas from renewable sources to be delivered by a distributor* establishes a minimum quantity of RNG to be delivered by gas distributors. When this volume is not sold to voluntary customers, the volumes that are missing to reach the threshold set by this regulation are socialized, and therefore sold, to all Énergir's customers. For fiscal year 2023, the threshold is 1%, or 59,957,340 m³. Since 41,211,013 m³ of RNG were sold to voluntary customers, the volumes to be socialized amounted to 18,746,327 m³.

3

Converting natural gas users to the dual-energy electricity-natural gas solution

In May 2022, the Régie approved Hydro-Québec and Énergir's joint application to offer a shared dual-energy electricity-natural gas solution to existing natural gas customers in the residential sector. Hydro-Québec therefore pays Énergir a GHG contribution recognizing the gas system's value during winter peak demand periods and allowing a significant portion of distribution revenues to be maintained. The Régie de l'énergie's decision acknowledges that it is in the public interest that regulated entities assume their responsibilities by contributing to the economy's decarbonization in a context of climate crisis. An application to review this Régie decision has been filed. In a decision rendered on February 22, 2023,[33] the Régie, without questioning the merits of dual-energy, partially allowed the applicants' grounds, in particular as regards the objection to the possibility that the GHG contribution paid by Hydro-Québec is an expense that can be incorporated into the revenue required of Hydro-Québec for fixing its rates. This Régie decision, however, is currently subject to an application for judicial review before the Superior Court of Québec. It is important to note that dual energy continues to be offered, and that Hydro-Québec has paid Énergir the GHG contribution. With dual energy, the two leading energy distributors work to considerably reduce the volumes of natural gas consumed (and, consequently, GHG emitted) by over 100,000 customers for heating purposes.

The principle is the following: a vast majority of the time, electricity will be used for heating while, during peak periods, natural gas will take over, thereby relieving Hydro-Québec's network. Consequently, approximately 30% of natural gas volumes are set aside to cover heating needs during the coldest periods. The distributors also offer all Énergir customers, including new buildings, a 100% renewable solution thanks to dual-energy electricity-RNG. The dual-energy project is counting on a pragmatic approach that could help save Quebec society considerable amounts of money while accelerating the decarbonization of building heating. Achieving these goals will be further facilitated by Énergir's proposal to implement, as early as spring of 2024, a requirement that new customers in the buildings sector opt for a 100% renewable solution, either by covering their needs with a supply of 100% RNG or opting for dual-energy by combining electricity and RNG.

An application to offer dual energy to the commercial and institutional sectors was approved by the Régie in June 2023. The offer to commercial and institutional customers began in November of 2023.

33. Decision D-2023-024 of the Régie.

The complementarity of gas and electricity systems is a crucial component of a broader vision of an integrated approach to planning energy resources to meet Quebec's needs. As reported by Hydro-Québec in its annual capacity balance,[34] decarbonization and economic growth exert strong pressure on electricity needs, while the development of decarbonized power generation, transmission and distribution assets is increasingly complex and costly. The context in Quebec is unique, as the territory differs from other regions of the world in terms of the severity of its winters. For instance, in addition to being the city with the coldest winter temperatures of all C40[35] cities (a global network of nearly 100 mayors of the world's leading cities that are united in action to confront the climate crisis), less than 5% of the world's population experiences colder winter temperatures than those recorded in Montreal. These frigid temperatures generate very high energy needs for heating within only a few hundred hours per year.

Gaseous energy, when used in the right place and at the right time, represents an important asset in Quebec that not only relieves the pressure on the capacity and electricity energy balance[36] in winter, but contributes to resiliency at an advantageous cost. When the gas used in conjunction with electricity is RNG, this decarbonization strategy proves to be a win-win for society. These findings remain valid regardless of the market of the energy consumer, whether it is the buildings sector or the industrial sector. This is why Énergir has worked jointly with its partners Hydro-Québec and the Quebec government to expand eligible markets to larger buildings, and is examining options that could help its industrial customers achieve decarbonization in a way that is optimal for them, as well as for Quebec society.

Climate metrics

2030 target

Reduction of 400,000 tonnes of CO_2 eq. between 2020 and 2030.

2023 performance

The dual energy residential offer was launched in June 2022. The first dual energy agreements were signed in the fall of 2022 and have allowed 1,419 tonnes of CO_2 eq. to be avoided in fiscal year 2023. On an annual basis, GHG reductions from these agreements are estimated at 4,260 tonnes of CO_2 eq. The commercial and institutional dual energy offer was launched in November 2023. This offer is expected to generate additional GHG savings starting in fiscal year 2024. In fiscal year 2023, Énergir revised the GHG reduction target downward from 500,000 tonnes of CO_2 eq. to 400,000 tonnes. This revision can be explained mainly by the delay in launching the dual energy offer, but also by the presence of certain market barriers such as the availability of equipment and the increasing cost of devices. Énergir and its partners are constantly striving to ease impediments and maximize adoption.

34. Capacity balance refers to the notion of the appropriateness of the supplies to the power needs. The same concept can be used for the energy component.
The evidence of Phase 2 of Electricity Supply Plan 2023-2032 filed by Hydro-Québec with the Régie on November 2, 2023 shows a capacity deficit for 2032 in Table 4.3.
https://www.regie-energie.qc.ca/fr/participants/dossiers/R-4210-2022/doc/R-4210-2022-B-0148-Dem-Piece-2023_11_02.pdf.
The deficit within the time horizon of the supply plan is reported in previous versions of the same recurring file presented to the Régie.
35. Measured by comparing the lowest winter temperature, the average winter temperature, as well as the occurrence of temperatures below -12 degrees Celsius.
The statistics were produced using hourly global climate data recorded in 2010, 2015 and 2020 by the Copernicus Climate Data Store (ERA5), as well as global population data aggregated by SEDAC.
36. Energy and capacity are two ways of measuring energy. Energy is expressed in kWh, while capacity is expressed in kW.
Energy is the product obtained when capacity is multiplied by the length of time of use. Capacity will vary depending on the activities carried on.

4 Developing low-carbon growth drivers

Energy efficiency, RNG and complementarity with the electricity grid are vectors for maintaining customers and revenue for Énergir in a decarbonization context. Moreover, the diversification of its operations in Quebec would allow Énergir, through subsidiaries and affiliated companies, to achieve medium- and long-term growth. For example, Énergir Development Inc., an affiliated company whose activities are not regulated by the Régie, is currently evaluating certain opportunities in the development of energy loops, as well as the expansion of services offered to customers, particularly in terms of optimizing its energy consumption.

In addition, diversification could also take the form of more upstream involvement in the RNG sector, through the intermediary of an Énergir affiliate, as well as in the development of the green hydrogen sector as a source of energy supply.

2023 update	
Hydrogen	The development of the low-carbon hydrogen industry is an opportunity to promote new growth vectors and decarbonize certain sectors of the economy. In this context, Énergir is questioning its role in the green hydrogen value chain in Quebec. One possible avenue would be the distribution of this hydrogen (pure or in the form of RNG). However, one of the major challenges of hydrogen is its transportation and its impact if injected into Énergir's system and its customers' equipment. Énergir is implementing a pilot project to carry out the technical validation of the effects of a mixture of hydrogen and natural gas on network components and natural gas appliances.
Energy loops	The market for new generation energy loops continues to grow in Quebec, and Énergir's proposal to partner up by Énergir affiliate is well received by stakeholders met within the buildings sector (real estate developers, municipalities, businesses and industries). Owner of the subsidiary Énergir Urban Heating and Cooling (ÉUHC), the largest thermal power plant in Quebec for buildings, Énergir wants to expand its energy loop expertise and promote the deployment of new heating and air conditioning networks that are efficient, resilient and contribute to decarbonization. Developing this energy industry is in line with Énergir's diversification objectives, squares with the expertise of existing teams and is highly complementary to the dual-energy and RNG production growth initiatives. These solutions contribute in a concrete way to Quebec's energy transition, in particular by promoting circular economy through the recovery of our customers' waste heat deposits. Fiscal year 2023 was targeted by an announcement of a partnership between Énergir Development Inc. and Fonds QScale, s.e.c. in March 2023, in which Énergir Development Inc. will see to the deployment, design and operation of energy loops. These loops should connect the data centers to potential customers around this data processing center. Another partnership between Quebec City and ÉUHC for the development of the waste-to-energy plant subsidiary was also announced.
Carbon capture, utilization and sequestration (CCUS)	During fiscal year 2023, Énergir continued analyzing opportunities related to CCUS technologies. This process allowed it to define a corporate positioning for each opportunity and create a roadmap to guide activities regarding these positionings over the coming months. This analysis made it possible, among other things, to establish the value chain associated with producing RNG by methanation process based on the reutilization of biogenic CO_2[37] (biomethanation, technical landfills, pulp and paper, production of biofuels) as being the most promising use of carbon capture, utilization and sequestration in the short and medium terms for Énergir or its subsidiaries.
Geothermal energy	Fiscal year 2023 was marked by an analysis of opportunities that geothermal energy can offer Énergir. In addition to having significant market potential in Quebec, geothermal energy fits perfectly into a context where efforts to limit the winter peak demand on the electricity grid are essential. The efficiency of geothermal systems, even when combined with an offer of geothermal energy-RNG, makes it possible to offer carbon-free solutions for customers in Quebec while reducing energy consumption and pressure on peak electricity periods.

37. "Biogenic" CO_2 emissions are carbon emissions generated by the combustion or degradation of agricultural and forest biomass, or of the biomass contained in the organic compounds of soil. Carbon is said to be biogenic because it is in fact the carbon that plants capture and fixate during their growth that is released.

» Resiliency of Énergir's Business Model

Énergir believes that the achievement of the four initiatives of its strategic vision of decarbonization for 2030-2050 is consistent with a GHG emission reduction pathway as provided for in the Sustainable Development Scenario, which is aligned with the Quebec Government's targets. This pathway should help limit global warming to 2°C by 2100 compared to pre-industrial levels. To aim for a more ambitious pathway that would limit global warming to 1.5°C, Énergir continues to make efforts to accompany its customers on their path to decarbonization.

With its strategic vision of decarbonization for 2030-2050, Énergir also wishes to position itself in a way that will provide it protection against the main threats, as well as to seize the opportunities offered by decarbonization. Énergir believes that certain aspects of the Quebec-specific context as well as technological development should have an impact on the deployment of the energy transition. Its sustainability and diversification activities are aimed at ensuring a future that could be promising in various possible decarbonization pathways.

On the one hand, in a pathway led by massive electrification of the economy, the importance of RNG and carbon capture could be reduced since preference is given to solutions that benefit from the abundance of renewable energy production. Green hydrogen and geothermal energy are two technologies that would benefit from this context. For example, green hydrogen represents an interesting seasonal storage vector when renewable electricity is produced, while geothermal energy, with its high efficiency, even during extreme cold periods, could ease the pressure on energy and electrical capacity balances.

On the other hand, in a pathway where deploying power infrastructure throughout the value chain is more complex, in particular by the ability to build electricity generation capacity at the appropriate pace, or by technical, economic and behavioral constraints to modify the energy configuration behind customers' meters, carbon capture technologies would make it possible to contribute to GHG reduction targets with less upheaval.

Finally, in the pragmatic pathway considered by Énergir, all technologies are required and all these technologies have a role to play in contributing to the decarbonization pathway.

Ensuring the resiliency of Énergir's business model will be a complex task. The business model will have to ensure that it maintains competitive rates and preserves revenues and profits, at a time when the volumes distributed are expected to decrease and the integration of new sources of renewable energy will be more costly. With the initiatives set for in its Vision 2030-2050, Énergir, L.P. expects to ensure this resiliency.

This report introduces the competitive position of four archetypes of Énergir's customers, whose purchases of natural gas molecules consist entirely of RNG, in a manner consistent with Énergir's positioning regarding its decarbonization pathway. Several elements are considered when calculating a competitive position's evolution, especially the evolution of cost of service, as well as the evolution of electricity rates. These elements are updated on an ongoing basis. These projections show that the energy solutions Énergir offers should remain globally competitive.

1	In most markets, Énergir expects that until 2050, RNG should provide a competitive energy solution compared to electricity. RNG is expected to remain less expensive from a societal perspective[38] than most solutions involving conversion to electricity: RNG draws its main value from being interchangeable with fossil natural gas, which allows existing infrastructures to be upgraded and offers the same flexibility to meet Quebec's demanding seasonal needs. Moreover, RNG is a low-impact option that allows Énergir's customers to decarbonize their activities without requiring modifications or investments.
2	The rate options promoting the complementarity of electrical and gas systems in the buildings sector were implemented in fiscal year 2022 to favour the competitiveness of the dual-energy electricity-RNG solution for residential energy consumers. Given Hydro-Québec's Action Plan 2035 published in the fall of 2023 and the comparative advantage of Énergir's assets and cost structure, Énergir believes that it has considerable leeway to maintain the revenues of its customers who are considering electrifying their process.
3	The reduction in revenues associated with the estimated decrease in the natural gas volume distributed in 2050 could be offset by initiatives that allow Énergir to maintain its revenues, such as support for energy efficiency or the implementation of the joint dual-energy program with Hydro-Québec (as these two actions are more fully described in the section on the strategic vision of decarbonization for 2030-2050).

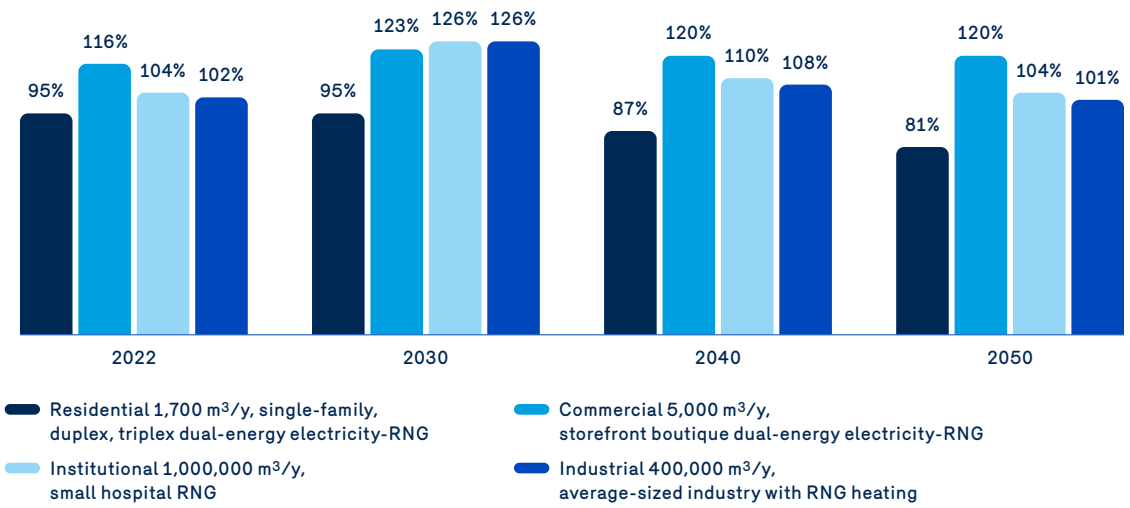
38. The concept of "cost from a societal perspective" refers to the concept of "total cost in resources", in other words all additional annual expenditures required comparatively to a benchmark configuration, to implement a measure, including those required on energy systems and by energy consumers.

The measures to ensure Énergir's resilience by 2050 are based mainly on the following premises, as shown in the graph below:

Maintaining Énergir's competitive position is indeed important. A decrease in distributed volumes coupled with an increase in costs (Price of Carbon, integration of renewable energy sources) induces upward pressure on rates. To limit this pressure over time and maintain a competitive energy supply, Énergir must therefore focus on value-added activities. Maintaining a competitive energy supply is an essential element of Énergir's business model. Indeed, natural gas distribution activities in Quebec are regulated. The profit generated by Énergir depends on the net value of its assets (its rate base) as well as the rate of return authorized by the Régie. Like operating costs, profit is authorized annually during the presentation of the rate case to the Régie and recovered through Énergir's rates. Rates that remain competitive in the majority of the target markets significantly limit the risk of not recovering invested capital and the associated return in the medium and long term. It is in this context that Énergir illustrates in the graph below the evolution of the competitive position in the main target markets.

Competitive position for 2022-2050

(Electricity bill as % of natural gas bill)



In this graph, a market with a competitive position greater than 100% is a market in which Énergir's rates, determined based on costs, profits and distributed volume, are advantageous for its customers compared to electricity. A competitive position of 125% or more represents a 25% economic advantage over a competing energy source. For typical dual-energy cases, it is important to note that the comparable electrical configuration used is a solution that relies on an air-air heat pump with electrical backup, a solution for which the conversion costs are generally higher than those of switching to dual energy, since converting to all-electric usually involves major work like upgrading the electrical entrance.

- The data used for inflation projections come from the Bank of Canada.
- RNG forecasts are based on Énergir's RNG supply contracts until 2030, on assumptions respecting the long-term composition of the supply portfolio and on the impact of Canada's *Clean Fuel Regulations* on the total cost of acquisition.
- The projection of long-term electricity rate levels is based on growth not exceeding inflation or 3% in the residential sector, and 3% in the business market.

» 2024 Climate Actions

For Énergir to achieve carbon neutrality in the power it distributes by 2050, continued efforts will need to be made to perfect its solutions and identify others in order to maximize the achievement of its targets. Énergir therefore intends to continue working to refine its decarbonization roadmap and align its strategy with a pathway compatible with limiting temperature rise to 1.5°C or less by 2100 compared to pre-industrial levels. This will involve the pursuit of a range of actions that should enable it to achieve its goal and reduce uncertainties, including the following:

1	**Accompany** its main industrial customers in order to act on the short-term decarbonization opportunities that were identified during the series of meetings that were held with its industrial customers in fiscal year 2022.
2	**Continue** marketing the dual-energy offering in the buildings sector and pursue initiatives that favour the complementarity of energy in all sectors.
3	**Continue** stepping up energy-efficiency efforts over the long term.
4	**Increase** the marketing of RNG to its customers and support the development of its ecosystem.
5	**Pursue** a roadmap for hydrogen and CCUS, in addition to other potential decarbonization solutions.
6	**Improve** knowledge of the life cycle of natural gas and the impact of methane, and pursue the initiative for the responsible procurement of natural gas.[39]
7	**Assess** the potential of geothermal technologies and their marketing.

39. https://energir.com/en/about/media/news/developpement-et-approvisionnement-energetique-responsables-et-transparents

Activities in Vermont

Electricity Distribution in Vermont

Distribution of Natural Gas in Vermont

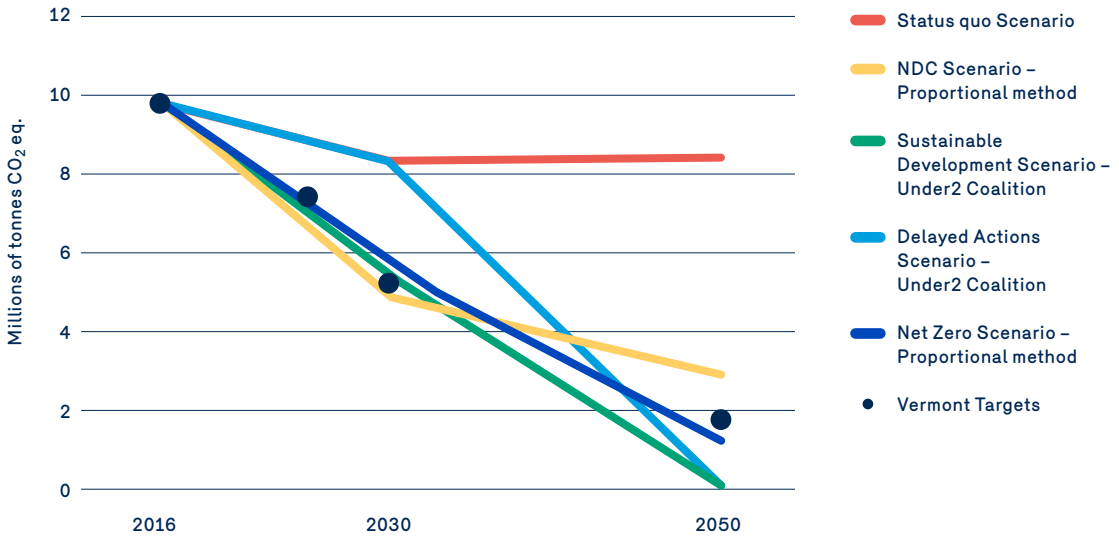
GREEN MOUNTAIN POWER
Generating Possibilities Together

VGS

» Vermont-Wide Scenarios

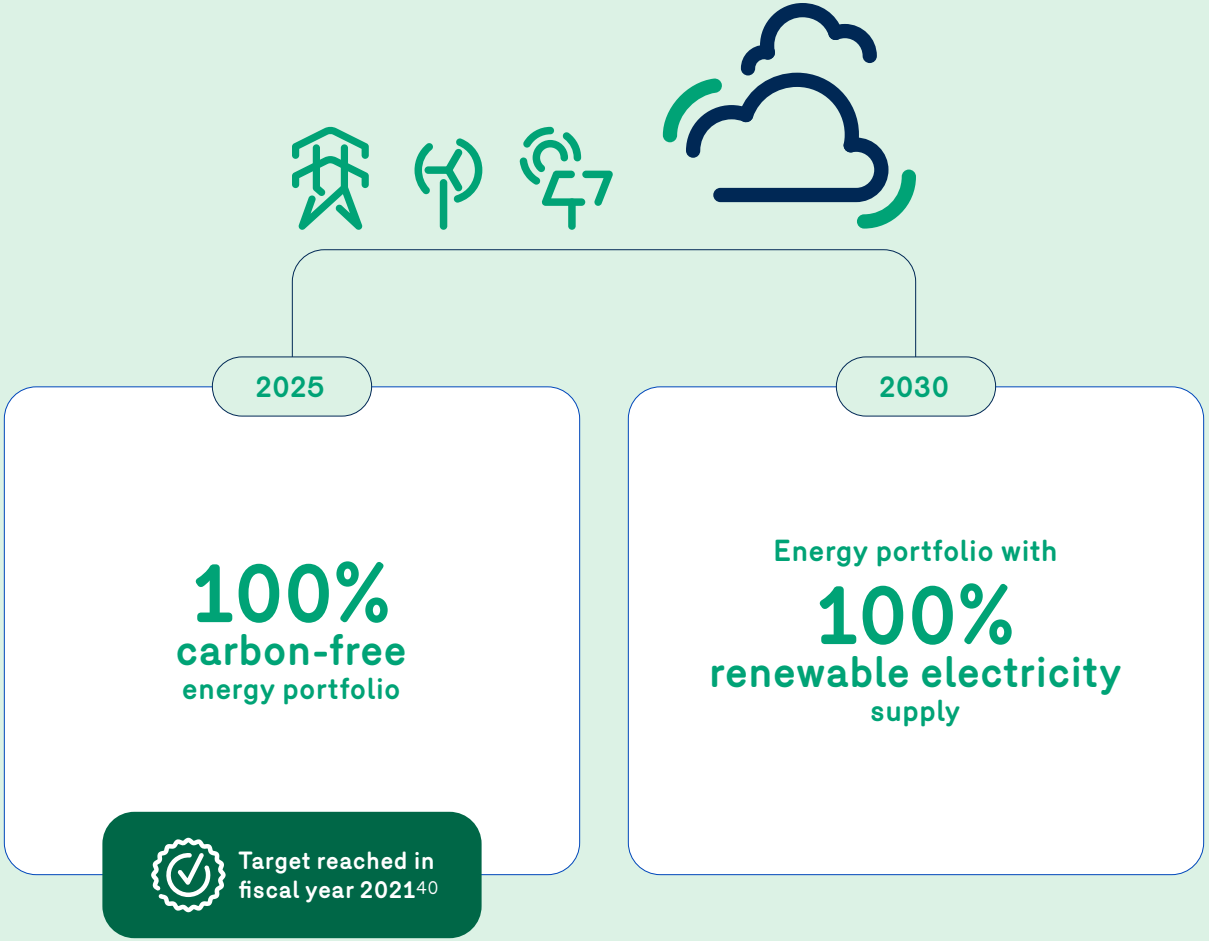
The scaling of the NDC Scenario for Vermont reveals a net drop of GHG emissions in 2050. These emissions should reach nearly 3 million tonnes of CO_2 eq. in 2050, though they were estimated at close to 4 million tonnes in 2021. Once again, the 2030 pathway remains unchanged.

Possible annual GHG emission pathways according to the scenarios used as they apply to Vermont



» GMP's Path to 100% Renewable and Zero Outages Initiative

To address climate risks and opportunities, GMP's Path to 100% Renewable and Zero Outages Initiative have one priority: customers – how best to serve them in a cost effective and reliable way in this time of climate change, and how to offer them the latest available technologies. GMP is providing clean, cost-effective, and reliable power, as more and more customers choose strategic electrification. For these purposes, GMP has adopted a proactive and detailed climate plan with ambitious goals – some exceeding Vermont's regulatory requirements – to achieve 100% carbon-free electricity supply on an annual basis by 2025 and 100% renewable supply by 2030. In fact, GMP's objective of having 100% carbon-free portfolio had been achieved four years early (through direct sourcing, the retirement of RECs or a combination of both). In the course of its fiscal year 2023, GMP's annual electricity supply portfolio is 100% carbon free and 80% renewable.



40. On an annual basis.

The main axes of GMP's Path to 100% Renewable and Zero Outages Initiative

	Because GMP's supply portfolio is already decarbonized, it is less exposed to the transition risks inherent to climate change. This is why GMP is focusing on physical resiliency risks to develop an energy system where generation is closer to interconnected customers and empowers those customers, which requires:
1	Switching from a one-way energy system of centralized, fossil fuel-based generation transmitted to far away customers through conventional electric poles and cables to a generation system that is lower in GHG emissions, renewable and distributed with new possibilities for managing complex local and regional networks;
2	Switching from one-way electricity flowing from a central plant to storage and delivery of a two-way flow between customers and GMP. GMP is deploying a large battery fleet across its system to reduce costs and carbon emissions and increase resiliency for customers;
3	Leveraging growing demand associated with strategic electrification to decarbonize the transportation and thermal power sectors, which are major sources of carbon pollution in Vermont;
4	Continually improving the resiliency of the energy distribution system and customers' buildings through innovative programs and solutions, including battery storage and smart electric infrastructure in homes and businesses.

	GMP to invest in energy distribution models that seek transformation to adapt to the evolving energy generation context in the following ways:
1	Leveraging many different resources (distributed energy resources) to manage the new, multi-directional grid with intermittent resources. Using battery storage to meet the needs previously fulfilled by fossil-fuel generators and retiring these assets;
2	Establishing communities of decentralized power generation that are communications enabled to optimize the operating cost of the electrical system and the use of renewable and non-GHG-emitting generating sources;
3	Offering a diverse portfolio of innovative energy programs that promote measures consistent with Vermont's energy policy and appeal to the specific goals of each customer.

	GMP invests in resiliency and reliability measures to counter the effects of climate changes on its system through its climate plan and Zero Outages Initiative, by:
1	Integrating evolving technology to underground parts of the distribution system to lead to a cost-competitive solution allowing for more burial of lines in locations with reliability issues, notably to reduce exposure of GMP's assets to physical risks of climate change, such as severe storms;
2	Better preparing GMP's grid to serve as the backbone for Vermont's aggressive goals to cut GHG emissions and transition off fossil fuels;
3	Favouring the creation of resiliency zones to take a targeted approach to communities that have multiple resiliency challenges, including electric, communications and social vulnerabilities. This helps customers achieve ubiquitous broadband connectivity that is required to unlock innovative energy services that help cut costs and reduce GHG emissions through load management and control. GMP successfully launched a broadband internet service deployment program to quickly help more Vermonters get connected at a lower cost. GMP is deploying a federally funded major rollout.

» Resiliency of GMP's Business Model

The implementation of the roadmap set out in Path to 100% Renewable is, according to GMP, consistent with a GHG emission reduction pathway as described in the Sustainable Development Scenario or Delayed Action Scenario in the Vermont-Wide Scenarios section above. GMP uses a scenario to assess its climate resilience in a pathway to limit the temperature rise to 1.5°C or less by 2100 compared to pre-industrial levels. It is important to clarify that, for the moment, neither Vermont nor the United States have adopted climate targets to align with this pathway. GMP is aware that additional emission reductions would need to be achieved, particularly in the next ten years, if Vermont were to adopt a more aggressive GHG emission reduction pathway than those limiting global warming to 2°C or less by 2100 compared to pre-industrial levels. This may have a positive impact on GMP's customers, as the company is already well positioned to offer decarbonized solutions to Vermonters that will grow load, which will reduce pressure on rates.

GMP has set specific targets for itself that are either more stringent than those of the Under2 – Coalition of which Vermont is a member – or in line with Vermont's stated objectives.

GMP's objectives

1	**Achieve** a carbon-free annual power supply portfolio by 2025, which was completed four years earlier than GMP had anticipated.[41]
2	**Achieve** a 100% renewable annual power supply portfolio by 2030, through direct sourcing, retirement of RECs or a combination of both. These goals exceed Vermont's requirements.
3	**Contribute** to Vermont's goal of reducing GHG emissions by at least 26% below 2005 levels by 2025, and at least 40% below 1990 levels by 2030, in part by electrifying transportation, per the *Global Warming Solutions Act* which came into force in 2020.
4	**Leveraging** Vermont's Tier III – Renewable Energy Standard by delivering solutions directly to customers that eliminate or reduce fossil fuel consumption and help reduce their bill.

41. Through direct sourcing, the retirement of RECs or a combination of both.

» VGS's Path to Net Zero

VGS has been offering its customers a safe, reliable, and affordable source of energy for over five decades. As a natural gas distribution utility that is evolving to address its customers' changing thermal energy needs, VGS acknowledges that its legacy fossil product has significant climate impacts. To address this fact, VGS has proactively adopted a strategy to reduce its GHG emissions and to make its in-house activities and energy distributions carbon neutral by 2050, in line with the State of Vermont's GHG emission reduction requirements. VGS has steadily expanded its weatherization efforts, added to its suite of decarbonized services for homes and businesses, as described at greater length in the table below, and is establishing a portfolio of low- and no-carbon alternative supplies to transform how its customers warm and cool their buildings.

To achieve its climate plan benchmarks, VGS's innovation is focused on three key areas:

1	Expanding Weatherization & Energy Efficiency Accelerating Access to Affordable Weatherization Services.	VGS has increased weatherization rebates and incentives available to income-qualified Vermonters and is assessing ways to ensure these funds go to customers with the highest energy burden. VGS is one of several Vermont utilities that is participating in a pilot project to offer its customers funding opportunities for comprehensive weatherization improvements using the tariffs available under the Weatherization Repayment Assistance Program (WRAP).
2	Launching Renewable In-Home Solutions	VGS is developing renewable, in-home heating technologies for its customers. It was the first natural-gas-only distributor of the American Gas Association to offer electric heat pump water heaters, and in fiscal year 2023 VGS launched a centrally ducted heat pump product for its customers. VGS is testing the installation of mini-split heat pumps to expand its decarbonized product offerings in fiscal year 2024. VGS is also continuing to test geothermal energy systems for commercial and multi-family housing applications.
3	Growing the Alternative Energy Supply	VGS is steadily increasing the renewable energy supply of its system. It actively supports RNG projects in Vermont, and partners on the development of green hydrogen, energy loops, and networked geothermal energy for commercial purposes.

» Resiliency of VGS's Business Model

Achieving VGS's climate plan outlined in the VGS's Path to Net Zero section of this report is consistent, according to VGS, with a GHG emission reduction pathway as described in the Sustainable Development Scenario or Delayed Action Scenario in the "Vermont-Wide Scenarios" section above. VGS has set specific goals that are equal or greater than those set through the Vermont *Global Warming Solutions Act* that took effect in 2020. This Act was passed in response to Vermont's concerns over climate change and the magnitude of what must be done to reduce GHG emissions and prepare for the impacts of climate changes on Vermont, its communities, and its residents.

In this context, this Act requires the State of Vermont to reduce GHG emissions to:

- 26% below 2005 levels by 2025;
- 40% below 1990 levels by 2030; and
- 80% below 1990 levels by 2050.

Over the past years, global climate discussions and government commitments have begun to take greater account of new scenarios aligned with pathways to limit temperature rise to 1.5°C or less than pre-industrial levels. To reflect this reality, VGS uses a scenario in the range of pathways to be used to assess its climate resiliency. It is important to clarify that for the moment, neither Vermont nor the United States have adopted climate targets to align with a pathway to limit the temperature rise to 1.5°C or less.

VGS is aware that additional emission reductions would have to be achieved, particularly in the next ten years, if Vermont were to adopt a more aggressive GHG emission reduction pathway than those limiting global warming to 2°C or less.

In fiscal year 2023, Vermont lawmakers enacted the *Affordable Heat Act*, the state's first comprehensive law regulating how thermal energy providers will reduce GHG their emissions over time to keep pace with Vermont's mandatory GHG reduction targets. The Act is based on a thermal performance standard structure called the Clean Heat Standard. The subject parties that import fossil heating fuels into Vermont are required to reduce their GHG emissions by annually retiring established amounts of clean heat credits. As a natural gas distributer, VGS is subject to the Act, which defines a list of eligible measures expected to generate credits. These measures include alternative supply options like RNG and green hydrogen. Additionally, many of the in-home services VGS has begun to develop or offer are set to generate credits, such as weatherization, air- and ground-source heat pumps, heat pump water heaters, electric boilers and energy loops. The Clean Heat Standard's regulatory development process began in mid-2023 and is expected to conclude late in fiscal year 2024. For the Clean Heat Standard to take effect, Vermont lawmakers need to approve the program's final rules in 2025.

VGS is revisiting even more aggressive targets to achieve GHG emission reductions, and has set the following:

Contribute to Vermont's goal of
reducing GHG emissions by at least 40%
below 1990 levels by 2030.

Achieve a
carbon neutral energy supply by 2050.

Risk Management

Énergir, GMP and VGS have adopted a risk governance framework to facilitate the achievement of business objectives and strategies while promoting an organizational culture committed to managing risks in a proactive and efficient way.

Risks, including those relating to climate change, are an integral part of the decision-making process. The current integrated risk management process includes the evaluation of climate risks in the broader context of operations, strategy and asset management.

The very essence of effective risk management lies in the commitment to proactively identify, thoroughly assess and strategically mitigate risks that are likely to impact Énergir, GMP and VGS.

Énergir, GMP and VGS constantly strive to refine and improve their risk management strategies by ensuring that they not only align the critical areas of their activities, but also remain flexible in the face of changing environmental and social challenges.

Énergir, GMP and VGS use a risk management framework as illustrated below. This is an ongoing process, and includes reporting to the boards of the various entities at least twice a year.

Identification of risks

Employees and management of Énergir, GMP and VGS share a collective commitment to the permanent management of risks and opportunities, relying on their vast experience and expertise. Risks are an integral part of management discussions and operational committees. The focus is on identifying emerging risks, making sure they are perfectly integrated into the respective risk universes of Énergir, GMP and VGS. These emerging risks are subject to a comprehensive assessment by the respective management of Énergir, GMP and VGS.

To identify the potential risks and opportunities linked to climate change, a methodology that aligns with best practices, notably those recommended by the TCFD, is used. This process includes:

- **Monitoring climate change publications and data:** monitoring new and relevant climate change publications and data sources to stay informed about changing climate-related risks and opportunities.
- **Reviewing sector documentation:** thoroughly reviewing industry-specific documentation that describes the potential impacts of climate change on the respective industries of Énergir, GMP and VGS. This helps identify the risks and opportunities related to their business segments.
- **Complying with applicable guidelines and standards:** closely monitoring the guidelines of the TCFD, the ISSB and Canadian or American regulators, and identifying key disclosure elements to comply therewith.

» Considering operational data

Operational data is an important source of information. Whether they relate to historical climate-related incidents or are predictive, the data collected helps identify and measure the potential impact of risks. For example, the number of days on which emergency response teams were mobilized to monitor the evolution of forest fires could be an indicator of an upward trend in this type of risk.

Evaluation of risks

Énergir, GMP and VGS have implemented risk assessment methods that, while slightly different from one entity to the next, share the common goal of evaluating the probability of risks' occurrence and their potential impacts.

These impacts are evaluated from a variety of angles: financial, health and safety, regulatory or legal, environmental, supply reliability and reputational impact. In addition, the risk assessment process considers the effectiveness and strength of existing controls and mitigation measures.

In some cases, modelling and quantification is performed, particularly when transitional or physical risks require a more complete evaluation. This approach provides a better understanding of the potential financial or social impact associated with specific risks or scenarios.

Risk management and mitigation

Énergir, GMP and VGS have developed comprehensive risk mitigation strategies based on their risk assessment findings. These strategies are designed to proactively address climate-related risks and improve their resiliency.

» In-depth risk analysis

To better identify the adaptation measures needed to deal with specific physical risks, targeted and detailed studies are carried out. These can encompass a series of potential risks, including storms, landslides and wildfires in particular.

These assessments may lead to the implementation of resiliency-building measures:

- **Improvement of infrastructure:** improving critical infrastructure so they can withstand extreme meteorological events and other climate-related risks.
- **Adaptive management practices:** implementing adaptive management practices that allow us to adjust our operations to changing climatic conditions.

» Continuous monitoring

Continuously monitoring climate-related risks is a key element of Énergir's, GMP's and VGS's risk mitigation strategy. Mechanisms to monitor these risks over time have been put in place by Énergir, GMP and VGS, which allows them to proactively adapt mitigation measures to changing circumstances.

» Risk prioritization

Operational risks, business-wide risks or climate-related risks are prioritized based on various factors such as their potential impact, residual exposure, and the feasibility of potential mitigation or adaptation measures.

Accountability

Énergir, GMP and VGS are committed to adopting a comprehensive risk management approach, including proactive monitoring, a transparent accountability mechanism and continuous improvement of our practices.

Énergir, GMP and VGS each monitor risks on an ongoing basis throughout the year, allowing them to remain vigilant and react to emerging risks in real time.

A consolidated dashboard that encompasses the activities of Énergir, GMP and VGS serves as a basis for semi-annual risk presentations given to the management committee, the audit committee and the Énergir Board.

The evaluation of corporate risks that include climate-related risks is performed at least twice every fiscal year.

Recognizing the risks associated with the transition to a low-carbon economy and the physical risks associated with climate change, Énergir, GMP and VGS understand that their processes must evolve and improve over time. Énergir, GMP and VGS are determined to adjust their strategies to effectively manage these ever-changing risks.

Governance

The governance of Énergir and its subsidiaries reflects the group-wide commitment to contribute to and pursue efforts to address the impacts of climate change.

» Oversight by the Énergir Board

Risks and opportunities related to climate change are monitored by the Énergir Board and by management. The Énergir Board oversees the management of Énergir's activities to ensure, among other things, Énergir's financial health and resilience over the short, medium and long term. More specifically, it ensures that management adopts a strategic planning process and periodically implements a strategic plan that addresses business opportunities and risks, among other things. It also ensures that Énergir's corporate strategy, including strategic initiatives stemming from climate change issues, is deployed. Furthermore, it identifies and monitors Énergir's main risks and ensures the implementation of appropriate measures and management systems for such risks. In fiscal year 2023, the Énergir Board was supported by the following committees, which jointly oversaw the effectiveness of Énergir's strategies and performance with respect to climate change risks and opportunities: the Corporate Governance, Ethics and Environment Committee, the Human Resources and Social Responsibility Committee and the Audit Committee, following changes to the committee structure of the Énergir Board on October 18, 2022.

The Énergir Board's mandate was amended on October 18, 2022 and December 15, 2022, so as to reflect changes to the committees' structure. The Énergir Board's mandate explicitly sets out the Énergir Board's oversight responsibility for environmental, social and governance factors. In order to ensure that the members of the committees described below have the expertise and knowledge required to support the Énergir Board, a grid of the requisite profiles and expertise has been drawn up indicating environmental and climate change expertise.

» The Corporate Governance, Ethics and Environment Committee

The Corporate Governance, Ethics and Environment Committee assumes the environmental responsibilities. It is responsible, among other things, for the climate change component, and it periodically receives reports from management in this regard, including a follow-up report on the achievement of GHG reduction targets. Moreover, the Corporate Governance, Ethics and Environment Committee develops Énergir's governance approach, including governance as it relates to the monitoring of climate-related risks and opportunities.

The committee's main environmental and climate change responsibilities are as follows:

- Receiving and reviewing environmental strategies, trends and best practices and making recommendations to the Énergir Board, as appropriate;
- Reviewing and periodically monitoring actions, targets, performance indicators and environmental objectives included in Énergir's ESG approach[42] or identified by it;
- Getting a report each quarter on Énergir's environmental performance to ensure its activities comply with industry standards and the applicable legislative and regulatory standards;
- Receiving and reviewing the CATS report on a quarterly basis;
- Reviewing, if necessary, the year's strategies, plan and priorities in relation to the Climate Resiliency Report;
- Receiving and reviewing the Climate Resiliency Report and recommending its approval to the Énergir Board;
- Presenting periodic reports and making recommendations on significant environmental matters; and
- Reviewing Énergir's environmental policy and recommending the approval thereof to the Énergir Board.

42. In fiscal year 2023, Énergir pursued the advancement of its ESG roadmap. Énergir's ESG priorities are now integrated and monitored by management as well by the Énergir Board. Énergir will continue taking concrete action in its ESG approach.

» The Human Resources and Social Responsibility Committee

The Human Resources and Social Responsibility Committee has certain environmental and climate-change responsibilities pertaining to social responsibility. In fact, the main responsibilities of the Human Resources and Social Responsibility Committee are as follows:

- Recommending to the Énergir Board appropriate compensation packages in light of the benefits and risks associated therewith, including the risks associated with environmental factors;
- Ensuring that Énergir's human resource practices and organizational culture are aligned with Énergir's environmental practices and strategies;
- Reviewing and monitoring, as appropriate, the corporate social responsibility actions, targets, performance indicators and objectives included in Énergir's ESG Plan or identified by Énergir.

» The Audit Committee

The Audit Committee is responsible for environmental matters, including financial risks. The Audit Committee ensures that management takes appropriate steps to identify financial risks (including those arising from climate change) that may affect Énergir, and that it implements appropriate measures to manage these risks.

» Oversight by Énergir's management

Énergir Inc.'s President and Chief Executive Officer manages Énergir's operations. He is ultimately responsible for strategic planning and ensuring that the company's initiatives cover risks and opportunities related to climate change. He is supported in his group-related responsibilities by the Group Management Committee, which consists of certain members of management as well as the presidents of GMP and VGS.

Under the leadership of the Executive Vice President, Quebec, of Énergir Inc., the Management Committee (in which all sectors of the company are represented) has developed the strategic vision of decarbonization for 2030-2050 to guide Énergir's development. The vision's alignments are regularly reviewed to take into account in particular emerging trends and ensure that they remain relevant. The Management Committee has established a framework in order to identify, assess and manage the various risks inherent to the industry in which Énergir operates, including those related to climate change. These elements are also addressed during the Group Management Committee meetings.

Énergir has adopted an internal governance structure that promotes the sound management of climate issues in establishing its objectives, strategies and actions across the organization. Thus, the offices of several vice presidents and the financial department support the Management Committee in its reporting to the Board and its committees. They are assisted by their respective teams, the ESG Leadership Committee, and employees from different sectors of Énergir.

» ESG Leadership Committee

Énergir has been actively advancing its roadmap for ESG factors in its corporate culture and business model since its fiscal year 2021. Responsibility for risk management, impacts and disclosure of ESG information is spread across several in-house teams (climate change, occupational health and safety, strategy, corporate secretariat, environmental management and finance). In addition, the ESG Leadership team is a multidisciplinary team that acts as a centre of excellence by monitoring and coordinating ESG issues among the various teams.

Énergir has designated ESG sponsors who represent different teams within Énergir (sustainable development and public affairs, culture and employees, corporate secretariat as well as finance) and follow up with management and the Énergir Board. These sponsors represent the ESG Executive Committee.

* With the exception of continuous improvement issues that involve ad hoc initiatives.

» Oversight by the GMP Board and Management of GMP

GMP is regulated by the State of Vermont Public Utility Commission and governed by the GMP Board, which has the power to oversee management of the business to ensure the resilience of GMP for its customers in the short, medium and long term. GMP is managed by its President and Chief Executive Officer. Its corporate governance structure is comprised of the GMP Board, two GMP Board Committees and its executive team.

The GMP Board reviews the company's strategic goals with management, provides advice and suggests general guidelines to GMP's management. The GMP Board currently maintains an Audit Committee and a Compensation and Governance Committee and carries out many of its responsibilities through these two committees.

GMP is committed to environmental action, awareness and accountability in all its business practices and operations. GMP has in effect certain procedures, plans and guidelines applicable to climate-change related matters adopted in the normal course of business. GMP's by-laws include a requirement that the GMP Board consider the environment and how to use energy as a force for the common good in its decision-making process. GMP must meet this requirement to be eligible for certification as a "Certified B Corporation" pursuant to the requirements and performance standards of B Lab, a non-profit organization that certifies companies who voluntarily meet higher standards of social and environmental performance, transparency and accountability.

GMP has successfully completed the certification three times, in 2014, 2017 and 2021. The next certification will take place in 2024.

Regular updates on GMP's activities are provided to the Énergir Board, including updates on its strategic initiatives related to clean energy and climate change.

GMP is committed to environmental action, awareness and accountability in all its business practices and operations.

» Oversight by the VGS Board and Management of VGS

VGS is regulated by the State of Vermont Public Utility Commission and governed by the VGS Board. The VGS Board exerts strategic influence on the business to ensure VGS's long-term resiliency and maintenance of the foundational values of a safe, reliable and affordable service for its customers. VGS is led by its President and Chief Executive Officer. The corporate governance structure is comprised of the VGS Board and executive team.

The VGS Board reviews and approves VGS's annual strategic plan, key performance indicators and major initiatives, and provides general advice and guidance to Vermont Gas' executive team. The VGS Board currently has an Audit Committee and a Human Resources and Compensation Committee, which meet regularly to review VGS's performance and fulfill other VGS Board responsibilities. Regular reports on VGS's activities are provided to the Énergir Board and the VGS Board, including updates on its strategic initiatives related to clean energy and climate change.

VGS is committed to climate change action, awareness, and accountability in all its business practices and operations. In November 2019, with the support of its Board, VGS publicly announced its climate plan. VGS recognizes the urgent imperative of climate change and has publicly – and vocally – supported policies advancing the reduction of GHG emissions. Over the last four fiscal years, VGS has demonstrated its commitment to climate action through a range of climate-forward actions, including the launch of sustainable in-home innovation programs, decarbonization pilot offerings, innovative filings with regulators, national and state speaking engagements on decarbonization, and deep local engagement with state and civic policy leaders on climate matters.

VGS Board

Audit Committee: The Audit Committee is responsible for advising management and making recommendations to the full VGS Board on all financial and accounting issues. Specifically, they are responsible for risk management review, including reviewing climate related risks.

The Audit Committee participants from management: Chief Executive Officer, Vice President Finance & Strategy, and Vice President Regulatory & General Counsel.

Human Resources and Compensation Committee: The Human Resources and Compensation Committee is responsible for Corporate Performance Plans and Awards inclusive of reviewing climate related goals around carbon reduction.

Participants from management: Chief Executive Officer, Vice President Regulatory & General Counsel, Vice President Finance & Strategy, Senior Director of People & Safety.

» Alignment of compensation with strategic and commercial objectives and the reduction of GHG emissions

» Énergir – Review of commercial approach

Following the execution, in fiscal year 2022, of an agreement respecting bonuses with the Syndicat des employées et employés professionnels-les et de bureau – Énergir (SEPB-463)'s executive, the sales representatives, who are already promoting the energy efficiency programs, have objectives to induce customers to consume less and opt for renewable energy. They therefore adopt the attitude of decarbonization agents and are compensated in part based on the GHG emission reductions they will have helped generate.

In this context of transformation, Énergir is pursuing talks with union executives so as to align its labour needs with evolving trades. Énergir is pursuing the talks, notably as part of a parity committee on just transition, which was created in fiscal year 2021, with the FTQ and the SEPB-463's executive to examine the impact that implementing its strategy will have on Énergir's workers.

» Short-term incentive program

Since October 1, 2022, the short-term incentive compensation for Énergir's professionals, executive managers and executive officers is aligned with the ESG priorities and Énergir's main strategic objectives. Decarbonization indicators affecting the three entities (Énergir, GMP and VGS) also influence the short-term incentive compensation for executives officers.

» Long-term incentive program

Énergir, VSG and GMP's long-term incentive programs for executive officers are both based on the monitoring of performance indicators and incorporate the following strategic environmental indicator – "Decarbonization Effort – Reduction of Greenhouse Gas (GHG) Emissions." This indicator tracks GHG emission reductions in Quebec and Vermont.

Metrics and Targets

» Énergir's Actions Aimed at Contributing to Decarbonization

Énergir uses climate metrics and targets to track the impact of its strategic decarbonization initiatives. These metrics are available on its Sustainability Performance Tracking Platform.

These metrics and targets may cover emissions related to its activities (Scope 1 and 2), as well as those occurring throughout its value chain (Scope 3), both upstream and downstream at its customers' sites.

	Metric	2023 Performance	Énergir 2030 Targets
1	**Initiative for the responsible procurement of natural gas (Scope 3)**	• Purchase of 50% of system gas as part of this initiative in 2023.	**Purchase of 100%** of fossil system gas by Énergir as part of the initiative for responsible procurement of natural gas.
2	**Direct emissions from Énergir's activities[43] (e.g. leaks, combustion, fleet) (Scope 1)** **Indirect emissions from Énergir's activities (e.g., electricity consumption) (Scope 2)**	• **Direct emissions (Scope 1):** 59,365 tonnes of CO_2 eq. in 2022;[44] • **Indirect emissions (Scope 2):** 46.1 tonnes of CO_2 eq. in 2022; • **Total direct and indirect emissions:** 59,411.1 tonnes of CO_2 eq. in 2022; These measures represent a 26.3% reduction from 1990 levels.	**GHG emission reduction of 37.5%** by 2030, from 1990 levels.
3	**Energy efficiency (Scope 3)**	• Reduction of 107,325 tonnes of CO_2 eq. resulting from energy efficiency in fiscal year 2023 (including a reduction of 36,288 tonnes of CO_2 eq. for customers in the buildings sector); • Énergir's energy efficiency programs have helped avoid the use of 55.9 Mm^3 of natural gas during fiscal year 2023, a new record! ☑ Target for 2023 exceeded (103%).	**GHG emission reduction of 1 million tonnes of CO_2 eq.** between 2020 and 2030.
4	**RNG (Scope 3)**	• Purchase of 60 Mm^3 of RNG, namely 1% of the total volume delivered, including 41 Mm^3 to voluntary customers and 19 Mm^3 to all of Énergir's customers in fiscal year 2023;[45] • GHG emission reduction of approximately 114,600 tonnes of CO_2 eq. for customers who purchased RNG in fiscal year 2023 (including a reduction of 32,376 tonnes of CO_2 eq. for customers in the buildings sector); • The target for 2023 was achieved (1% of total consumed).	**Purchase of 10% of RNG by Énergir's customers,** namely 567 Mm^3 and GHG emission reduction of 1 million tonnes of CO_2 eq. by 2030.
5	**Complementarity / Dual-energy[46] (Scope 3)**	• Approval of the application for commercial and institutional offering by the Régie. • For fiscal year 2023, GHG emission reductions of 1,890 tonnes of CO_2 eq. result from agreements in the residential sector. • Annually, the GHG reductions resulting from these agreements stand at approximately 5,401 tonnes of CO_2 eq.	**GHG emission reduction of 0.4 million tonnes of CO_2 eq.** by 2030.
6	**Total reduction of GHG emissions in the buildings sector (Scope 3)**	• GHG emissions drop of 0.3% since fiscal year 2020, namely 11,767 tonnes of CO_2 eq. due to a progressive return to the normal growth of economic activities in the long term, as well as the impact of decarbonization strategies that are bearing fruit.	**GHG emission reduction of 30%** for Énergir's customers in the buildings sector compared to 2020 levels by 2030.

43. Direct GHG Emissions (Scope 1) data include emissions that must be reported under the *Mandatory Reporting regulations for certain emissions of contaminants into the atmosphere* (RDO). To comply with the RDO, GHG declarations are based on the calendar year. That is why the 2020 data are presented in this report. Detailed information on emissions (Scope 1, Scope 2 and the energy distributed) are available in the annual sustainable development report at https://energir.metrio.net/?locale=fr.
44. In fiscal year 2022, Énergir emitted 59, 411.1 tonnes of CO_2 eq., representing a reduction of 4,137.7 CO_2 eq. compared to 2021.
45. The *Regulation respecting the quantity of renewable natural gas to be delivered by a distributor* establishes a minimum quantity of RNG to be delivered by the gas distributor. When this volume is not delivered to voluntary customers, the missing units required to meet the minimal quantity set by the regulation are socialized, and therefore delivered, to all Énergir's customers. For the year 2022-2023, the threshold is set at 1%, or 59,957,340 m^3. Since 41,211,13 m^3 of RNG were purchased on a voluntary basis, the volumes to be socialized amounted to 18,746,327 m^3.
46. The information should be disclosed in a future report.

» GMP Metrics, GHG Performance and Targets

GMP provides annual data on various performance metrics related to its climate change work. GMP Scope 1 and Scope 2 metrics are not currently available, and GMP could harmonize its report with the GHG Reporting Protocol in the future. According to its regulatory framework, GMP provides information to the State of Vermont for the preparation of the Vermont Greenhouse Gas Emissions Inventory and Forecast.

	Metric	2023 Performance	GMP Targets
1	**Carbon-free electricity supply (Scope 3)**	• Percentage of GMP's power supply which is: 1) carbon neutral; and 2) made up of renewable energy in accordance with the RES; • GMP's power supply is 100% carbon neutral and made up of over 80% renewable energy; • In calendar year 2020, GMP's power supply was 0 lbs of CO_2 eq. per MWh (0 kg of CO_2 eq. per MWh) on an annualized basis.	☑ **100% carbon neutral by 2025** (achieved in fiscal year 2021). **100% renewable energy** by 2030. (75% renewable with 10% decentralized generation by 2032 (RES)).
2	**Customers – electric vehicles (Scope 3)**	• 1,959 customers (4,227 total) currently subscribing to electric vehicle charging rates (where applicable) or other incentive programs by means of rates, pilot projects or other.	Fiscal Year 2023: **800 customers subscribed** to GMP's program for home electric vehicle charging programs, either controlled or self-directed.
3	**Heat pumps (Scope 3)**	• 9,609 heat pumps deployed.	Fiscal Year 2023: **5,000 heat pumps deployed.**
4	**Tier III**[47] **(Scope 3)**	• GMP added over 33,000 MWh and met its annual target.	The substitution of fossil fuels in terms of % of retail sales in kWh must reach 12% by 2033. The target for calendar year 2022 was 5.33%, and for 2023 is **6%**.

47. Tier III is part of the RES standards for Vermont. This level requires utilities to replace their fossil fuel use with increased electrification equivalent to 2% of annual sales every year by 2032, by implementing measures reviewed and approved by a group of state technical advisors.

» VGS Metrics, GHG Performance and Targets

VGS provides annual data on various performance metrics related to its climate change work. According to its regulatory framework, VGS provides information to the State of Vermont for the preparation of the Vermont Greenhouse Gas Emissions Inventory and Forecast. In 2023, VGS started participating in the development of rules with the State of Vermont during the regulatory proceeding to create a Clean Heat Standard. Under the Act, VGS and other obligated parties will need to annually report information to the Vermont Public Utility Commission and undergo regulatory review to determine their annual obligations.

Metric		2023 Performance	VGS 2030 Targets
1	Responsible procurement of natural gas (Scope 3)	• 44% of system gas was purchased under this initiative in 2023. • 64% of system gas purchases is provided for under this initiative in 2024. VGS secured 6.9 Bcf of responsibly sourced gas through the procurement tender process.	100% of fossil natural gas supplies were contracted by VGS under the **responsible procurement initiative**.
2	Direct emissions from VGS (Scope 3)	• Scope 1 emissions: 4,405 tonnes of CO_2 eq. • VGS did not have Scope 2 emissions (all electricity consumed came from carbon neutral sources). • In 2022, VGS established a plan to meet the objective for public service operations (fleet of vehicles and corporate buildings), and in 2023, VGS started executing this plan, ordering four electric vehicles and one hybrid vehicle to compensate for gas vehicles.	GHG emission **reduction of 50% by 2030**, compared to 2020 levels, for public service operations.
3	Energy efficiency (Scope 3)	• Additional annual savings of 3.2 Mm^3, equivalent to a GHG emission reduction of 6,298 tonnes of CO_2 eq. • On track to meet the objective of 6.8 Mm^3 saved over three years, which represents a GHG emission reduction of 13,214 tonnes of CO_2 eq., or 119 Mm^3 over the entire useful life of the measured equipment installed.	**GHG emission reduction of 43,000 Mt** by 2030.
4	Renewable energy (Scope 3)	• Volumes purchased by customers in 2023: 6.4 Mm^3 (2.3% of retail sales) • GHG emission reduction of 12,527 tonnes of CO_2 eq. • Long-term supply agreement to bring RNG up to 13% of retail consumption by 2030.	20% of energy purchased by customers will come from **alternative supply** by 2030.
5	Home energy innovation (Scope 3)	• Launch of the electric heat pump water heater program in fiscal year 2022 • Launch of a centrally ducted heat pump product in fiscal year 2023 • Planning of an offer of mini-split heat pumps to VGS customers in fiscal year 2024	10% of customers will have a **non-fossil thermal energy system** installed by VGS by 2030.

Appendices

Appendix 1

» Operational context – GHG emissions

Although several international agreements have been adopted in recent years to limit GHG emissions, Énergir, GMP and VGS's activities are more directly impacted by policies and regulations adopted at the national, regional and municipal levels. The commitments that national, regional or municipal authorities may make in international agreements have an influence on the context in which these authorities adopt their policies and regulations. Canada, Quebec and Vermont have therefore adopted policies and regulations to limit GHG emissions and combat climate change.

Jurisdiction		Policy or commitment	Objectives
Canada	**Policies and regulations**	National contribution – Paris Agreement	Reduce GHG emissions by **40 to 45% vs. 2005 levels** by 2030.
		Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds	Reduce methane emissions in the oil and gas sector by 40% to 45% vs. 2012 levels by 2025.
		Canadian Net-Zero Emissions Accountability Act	Establish a national GHG emissions target for 2035, 2040 and 2045 to achieve carbon neutrality by 2050.
		Clean Fuel Regulations	Require that individuals reduce the carbon intensity of the fuel and diesel they produce or import for use in Canada. The regulations set forth compliance measures that may promote a rise in the number of incentive measures favouring the development and adoption of clean fuels and technologies.
		2030 Emissions Reduction Plan (2030 ERP): Canada's Next Steps for Clean Air and a Strong Economy (PDF)	Achieve the emission reduction targets of the Paris Agreement. One focal point of this roadmap is to reduce carbon pollution in the oil and gas sectors.
		Carbon pollution pricing (carbon tax)	Put a price on carbon pollution to reduce GHG emissions while stimulating innovation by implementing a duty on fuel and the Output-Based Pricing System in provinces that do not already have such a system. It is important to specify that Quebec is not affected and Énergir is therefore not subject to such pricing.
Quebec	**Policies and regulations**	2030 GHG emission reduction objectives	**Reduce GHG emissions by 37.5%** under 1990 levels.
		Plan for a green economy (2030)	Plan to, among other things, (i) achieve the GHG emission reduction target set by the Quebec Government for 2030 (i.e., a reduction of 37.5% from 1990 levels), (ii) achieve the GHG emission reduction target of 50% by 2030 in the buildings sector, and (iii) adapt to climate change.
		Regulation respecting the CATS	Under CATS, Énergir is required to report its GHG emissions, GHG emissions from fugitive emissions and breakdowns on its network and the GHG emissions of its customers who are not themselves subject to CATS, and is required to cover all of these GHG emissions.
		Regulation respecting the quantity of renewable natural gas to be delivered by a distributor	Set the minimum quantity of RNG to be delivered by a natural gas distributor at **1% of the total quantity of natural gas it delivers as of its fiscal year beginning in 2020, at 2% in 2023, at 5% in 2025, at 7% in 2028 and at 10% in 2030**.
		Act respecting the Ministère des Ressources naturelles et de la Faune	Pay an annual contribution to the Minister of Energy and Natural Resources in order to fund, among other things, the programs and measures required to achieve energy efficiency targets set by the Quebec Government.
		Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere	Report atmospheric emissions affecting contaminants that cause an increase in the greenhouse effect, thus allowing the Ministry to monitor the quality of the environment. The contaminants covered by this regulation include greenhouse gases.
		Energy Transition Master Plan	Plan guiding government and partner interventions to improve the energy efficiency of Quebec society. To meet Quebec's energy targets set out in the plan, more than $12.7 billion in investments are planned by 2026.
	Political commitments	Under2 Coalition	**Reduce GHG emissions by 80% by 2050** in order to limit global warming to under 2°C.
Montréal	**Policies and regulations**	*Montréal Climate Plan*	55% reduction in GHG emissions by 2030, with a view to achieving carbon neutrality in 2050. The plan seeks to prohibit devices that emit GHGs attributable to combustion in the new construction of buildings in the residential, commercial and institutional sectors located in the nineteen boroughs of Ville de Montréal.
		Roadmap for zero-emission buildings in Montréal	New buildings: Impose a zero-emission performance threshold for new building permit applications: as early as 2024 for buildings under 2,000 square meters, and as early as 2025 for permit applications for buildings of 2,000 square meters and above. Existing buildings: Buildings of 2,000 square meters and more will be powered 100% by renewable energy in 2040. For buildings less than 2,000 square meters, starting in 2023, it will be mandatory to declare all heating appliances using fossil fuel (oil or natural gas).
		Règlement sur les émissions de GES des nouveaux bâtiments (available in French only)	Prohibits devices that emit GHGs attributable to combustion in the new construction of small buildings (i.e. under 600 m^2, 3 floors or less) in the residential, commercial and institutional sectors located in the nineteen boroughs of Ville de Montréal.[48] It will come into force in two phases on October 1 in both 2024 and 2025.
Vermont	**Policies and regulations**	*Global Warming Solutions Act of 2020*	Reduce Vermont's GHG emissions by at least **26% below 2005 levels by 2025**, at least 40% below 1990 levels by 2030, and at least 80% below 1990 levels by 2050.
		Comprehensive Energy Plan	Ensure that **90% of Vermont's energy needs are met by renewable sources** by 2050.
		Vermont Renewable Energy Law	Require a minimum amount of renewable electricity in supply portfolios of power suppliers; require power suppliers to support relatively small (less than 5 MW) new renewable energy projects connected to Vermont's network; and invest in projects aimed at reducing the use of fossil fuels for heating and transportation.
	Political commitments	*Regional Greenhouse Gas Initiative*	Reduce regional GHG emissions by **30% vs. 2020 levels by 2030**.[49]

48. Ville de Prévost has also enacted a by-law prohibiting the use of natural gas in new buildings in the course of 2023. This by-law was challenged by Énergir before the Superior Court of Québec.
49. The oil-fired turbine in Berlin, Vermont, is the only GMP power facility currently subject to compliance with the Regional Greenhouse Gas Initiative.

Appendix 2

» Scenarios and Scaling

Different possible pathways based on global climate change scenarios are scaled up in Quebec to assess their local scope.

To do so, Énergir, GMP and VGS have chosen the global scenarios and scaling methodologies described below.

Scenario	Description of global scenario	Scaling methodology used for Quebec and Vermont
Statu quo	The Status Quo Scenario represents a future in which emissions continue to increase since no additional action is taken to limit global warming.	The scenarios used for the Status Quo Scenario for all of Quebec come from the report carried out by Dunsky Energy Consulting for Quebec,[50] and are based on a modelling of the NATEM optimization model. This scenario was developed on a Quebec-wide basis and is consistent with a global Status Quo Scenario. Only the actions and policies already in place or planned in the short term are included in this scenario.
NDC – proportional method	The NDCs are the contributions to which the signatory nations of the Paris Agreement have committed through an NDC submission to the secretariat of the United Nations Framework Convention on Climate Change. The Paris Agreement provides that the signatory countries must submit new contributions every five years.[51] The scenario used for global NDC commitments is the one that was assessed by the Bank of Canada. It assumes that as of 2020, all countries act in accordance with their NDC submission, and assumes continuous action after 2030, by an implicit trend in emissions changes.[52]	The methodology for scaling targets proportionally is very simple. It is a matter of transposing the percentage of emission reductions at the global level to the jurisdiction of interest. This methodology was used to scale the NDC Scenario to the Quebec and Vermont contexts.
Sustainable Development Scenario – Under2 Coalition	The IEA scenarios are transition scenarios. They are widely used to describe the transition to a low-carbon economy and are particularly oriented towards the energy industry. The Sustainable Development Scenario represents stabilizing demand despite economic growth and a growing population. The substitution of combustion fuels and the sustained decarbonization efforts in this scenario are consistent with a world where global warming is limited to 2 degrees or less by 2100 compared to pre-industrial levels.	The Under2 Coalition brings together infranational governments that are committed to reducing GHG emissions in their jurisdictions. This coalition was created before the Conference of Parties (COP) which led to the Paris Agreement. The signatories of the Under2 Coalition then committed to reducing their GHG emissions by 80% to 95% with respect to 1990 levels, or at least by 2 metric tonnes per person, by 2050. Quebec and Vermont are both signatories to the Under2 Coalition and their respective GHG emission reduction target is aligned with the Under2 Coalition targets.
Delayed Action – Under2 Coalition	The Delayed Action Scenario represents a future where countries fail to meet their NDC commitments between 2020 and 2030, and then implement more stringent mitigation measures to limit global warming to 2oC or less by 2100 compared to pre-industrial levels. The scenario used for global delayed action is the one that was assessed by the Bank of Canada.	To scale up the Delayed Action Scenario, the Under2 Coalition methodology used is described above.
Net Zero – Proportional method	The Net Zero Scenario represents a transformation of the world's energy system to achieve global carbon neutrality by 2050, while limiting the increase in global temperatures to 1.5° C or less by 2100, compared to the pre-industrial era. This scenario also maintains economic growth. In this scenario, declining final energy demand, the rapid deployment of more energy-efficient technologies, electrification and the rapid growth of renewable energy play a central role in reducing GHG emissions across all sectors.	To scale up the Net Zero Scenario, the methodology for scaling targets proportionally used is described above.

50. See the *Trajectoires de réduction d'émissions de GES du Quebec* report for more information: http://www.environnement.gouv.qc.ca/changementsclimatiques/trajectoires-emissions-ges.pdf.
51. Further information on NDCs may be found on the secretariat website of the United Nations Framework Convention on Climate Change. Nationally Determined Contributions (NDCs) | UNFCCC.
52. More details on the NDC Scenario can be accessed here: https://www.bankofcanada.ca/2020/05/staff-discussion-paper-2020-3/.

Appendix 3

» Impact of the Climate scenarios on the activities of Énergir, GMP and VGS

Scenarios	Description of the impact		
	Énergir	GMP	VGS
Status quo	The growth in natural gas volume distributed by Énergir would continue past 2030. The increase in global temperatures could reach 3.6°C. It is therefore expected that climate change would further affect Énergir's physical assets.	Distributed volume would remain relatively stable beyond 2030. Global temperatures could rise by 3.6°C; in such a case, climate change would be likely to affect certain physical assets such as hydroelectric assets (increase in water level and volume, especially during very intense rainfall events), transmission and distribution (accelerated vegetation growth rates, stress on trees resulting from rising temperatures, isolated flooding episodes) of GMP or VGS assets.	
NDC	Compliance with GHG emission reduction policies and achievement of GHG emission reduction targets would result in significant changes to Énergir's traditional business model. Some of Énergir's markets are expected to be significantly impacted, specifically building heating, where lower GHG emitting alternatives are available.	Compliance with Vermont's GHG emission reduction policies and achievement of GHG emission reduction targets would result in significant changes to the current traditional business model of GMP and VGS. Because physical impacts of climate change over the next decade are driven by past GHG emissions, at least some of their above-mentioned physical effects would be felt even if the NDC Scenario materializes. A global warming above 2°C would nevertheless have significant physical repercussions.	
	Because physical impacts of climate change over the next decade are driven by past emissions, some of the physical effects of climate change would be felt without reaching the significant impacts of the Status Quo Scenario. A global warming above 2°C is nevertheless expected to result in significant physical impacts.	Some markets would be affected, such as building heating and transportation, for which less emissive alternatives are available through electrification. These changes would benefit GMP customers by increasing the load and reducing the pressure on rates.	Some markets would be affected, such as building heating and transportation, for which less emissive alternatives are available through electrification.
Sustainable Development and Delayed Action	The physical impacts of climate change would be the same for these two scenarios, but they are expected to affect Énergir at different times and in a more or less significant way. Énergir should therefore be less affected by the physical impacts of climate change after 2040.	The physical impacts of climate change would be the same, but they are expected to affect GMP and VGS customers at different times and in a less severe way. In both scenarios, global warming is limited to 2°C or less by 2100 and therefore the assets and customers of GMP and VGS would be less disrupted by climate change after 2040.	
	In the Sustainable Development Scenario, the energy transition would already be underway and continuing gradually through to 2030 and 2050. In this scenario, Énergir would have to continuously deal with sustained transition risks. Note that Quebec's targets are aligned with the pathway presented in this scenario. In the Delayed Action Scenario, the possibility of a shock (an abrupt change in policies after 2030 affecting Énergir directly or its customers' activities) is foreseeable. In this case, the adaptation of Énergir's business model in order to manage the risks associated with this transition could represent a significant challenge. These scenarios are consistent with limiting temperature rise to 2°C or less by 2100 compared to pre-industrial levels.	In the Sustainable Development Scenario, the energy transition is underway and is faster, but stable by the 2030 and 2050 horizons. GMP would benefit from this. In the Delayed Action Scenario, the actions needed to limit global warming to 2°C do not occur until a sharp change in policies after 2030. In this case, managing GMP's portfolio and operating activities to maintain a clean, cost-effective and reliable energy system would be key to helping its customers.	In the Sustainable Development Scenario, the energy transition is underway and is faster, but stable by 2030 and 2050. VGS is expected to continually deal with sustained transition risks. In the Delayed Action Scenario, there is a possibility of a shock (a sharp change in policies after 2030 affecting VGS directly or its customers' activities). In this case, adapting VGS's business model to control the risks associated with this transition could represent a considerable challenge. These scenarios are consistent with limiting the temperature rise to 2°C or less by 2100 compared to pre-industrial levels.
Net zero	Énergir will have to deal continuously with sustained short-term transition risks. While the decarbonization effort will be major for all sectors of the economy by 2030 to limit temperature to 1.5°C compared to pre-industrial levels, this scenario imposes increased transition risks for Énergir but creates conditions conducive to the implementation of its decarbonization solutions. Despite limiting temperature increases, physical risks are still expected, but are mitigated by prompt and concerted action. The current and announced policies so far do not allow the realization of the Net Zero Scenario.	Despite limiting temperature increases, physical risks are still expected, but are mitigated by prompt and concerted action. The current and announced policies so far do not allow the realization of the Net Zero Scenario.	
		GMP customers would reap maximum benefits from the Net Zero Scenario through greater load growth, thus reducing pressure on rates. While the decarbonization effort will be major for all sectors of the economy by 2030 to limit the temperature to 1.5°C compared to the pre-industrial era, this scenario imposes increased transition risks, but creates very favourable conditions for the implementation of its decarbonization solutions.	In the Net Zero Scenario, VGS has to continually deal with sustained transition risks in the short term. While the decarbonization effort will be major for all sectors of the economy by 2030 to limit the temperature to 1.5°C compared to the pre-industrial era, this scenario imposes increased transition risks for the gas distributor, but creates favourable conditions for the implementation of its decarbonization solutions.

Appendix 4

» Key definitions and hypotheses of the scenarios used

Scenario Statu quo[53] 1

The Status Quo Scenario is aligned with the IPCC RCP 7.0.[54] This scenario represents a future where little action is taken to limit global warming. The physical risks of this scenario are therefore greater in the second half of this century than those of the other scenarios described opposite, because no additional action is taken to reduce GHG emissions.

Scenario NDC 2

NDCs embody the commitments of each Paris Agreement country to reduce its national GHG emissions and adapt to the effects of climate change.

Each country that is a signatory to the agreement is required to establish, communicate and update, on a five-year basis, the successive NDCs that it plans to achieve at the national level. As a signatory to the Paris Agreement, Canada submitted an NDC plan that went into effect in 2016, which was revised in 2017 and again in 2021. The United States submitted its NDC plan in April 2021. Thus, this scenario evolves as new NDCs are announced by individual countries over time. To date, the commitments to reduce GHG emissions by 2050 through NDCs are not sufficient to contain global warming to 2°C or less relative to the pre-industrial era. However, this scenario is closer to the 2°C scenarios compared to when Énergir's 2020 Climate Resiliency Report was released, reflecting global commitments. Following the 28th annual United Nations Climate Conference (also known as COP26) held during November 2023, the NDC pathway presented in this report may change further in the coming months as countries that are signatories to the Paris Agreement are asked to revise their NDCs.

Scenario Sustainable Development 3

The Sustainable Development Scenario represents a stabilization of energy demand despite economic and population growth. This stabilization is supported by significant and internationally coordinated efforts to increase energy efficiency and shift away from fossil fuel for energy production. The fossil fuel substitution and sustained efforts for decarbonization in this scenario are consistent with a world where global warming is limited to 2°C or less relative to the pre-industrial era.

Scenario Delayed Action 4

The Delayed Action Scenario represents a future where countries fail to meet their NDC commitments between 2020 and 2030 and subsequently take stronger mitigation actions to restrict the level of GHG emissions and limit global warming to 2°C or less compared to the pre-industrial era. Actions lag until 2030 and require significant catch-up between 2030 and 2050. Therefore, GHG emission reductions after 2030 and the associated transition risks are much higher in this scenario.

Scenario Net zero 5

The Net Zero Scenario is based on the IPCC SR 1.5 P2 scenario.[55] The Net Zero scenario represents a transformation of the global energy system to achieve global carbon neutrality by 2050 and limit the global temperature increase to 1.5°C or less compared to the pre-industrial era. It also maintains economic growth.

In this scenario, lower final energy demand, rapid deployment of more energy efficient technologies, electrification, and rapid growth of renewable energy play a central role in reducing GHG emissions in all sectors. Fuels and emerging technologies, such as hydrogen and hydrogen-based fuels, bioenergy, and CO_2 capture and storage, also play a major role, particularly in those sectors where emissions are often the most difficult to reduce. This scenario excludes any new oil and gas fields beyond those projects already approved at the time the Net Zero Emissions by 2050 Scenario was published by the International Energy Agency in May 2021.

Current and announced policies to date do not allow the Net Zero Scenario to be achieved.[56]

53. Bank of Canada – Scenario Analysis and the Economic and Financial Risks from Climate Change : https://www.bankofcanada.ca/2020/05/staff-discussion-paper-2020-3/?page_moved=1.
54. The IPCC established, among other things, scenarios on the effects of climate change that allow for the analysis of the physical impacts of different scenarios of atmospheric GHG concentration by 2030, called Representative Concentration Pathways (RCP). Each RCP scenario gives a likely climate variant that will result from the level of GHG emissions chosen as a working hypothesis. The RCP8.5 scenario is the most pessimistic, i.e. it is the scenario according to which the earth and the atmosphere warm the most.
55. IPCC, 2019 – The IPCC developed pathway models presenting various attenuation strategies. The P2 scenario focuses broadly on sustainability, including energy intensity, human development, economic convergence and international cooperation, as well as a move towards sustainable and robust consumption patterns, low-carbon-intensity technological innovations and well-managed land use systems, with limited societal acceptability in terms of bioenergy with carbon dioxide capture and storage (BECCS). SR15_Summary_Volume_french.pdf (ipcc.ch)
56. The SR1.5 P2 scenario was published in 2019 in the IPCC Special Report on the consequences of global warming of 1.5°C above pre-industrial levels and the associated pathways of global greenhouse gas emissions, in the context of strengthening the global climate change response, sustainable development and the fight against poverty. This scenario focuses on sustainable economic activity, healthy and low-carbon consumption patterns propelled by technological innovation in the energy sector with limited societal acceptability for bioenergy and carbon capture and storage. This scenario charts a global emission reduction pathway of 47% in 2030 and 95% in 2050 compared to 2010 emissions.

» Key definitions and hypotheses of the scenarios used

The table of technical assumptions underlying the scenarios was also updated for the Bank of Canada's delayed action scenarios and the Net Zero Scenario based on the recent release of the International Energy Agency's World Energy Outlook 2023.

The key changes to the Net Zero Scenario assumptions are as follows:

- 65% of the GHG reductions for 2050 come from technologies that already exist, namely an increase of 20% compared to the assumption used in 2021;
- A 23% reduction in global natural gas consumption % by 2030 and 78.5% by 2050 compared to 2020. This corresponds to reductions of 7% and 8.5%, respectively, greater than those anticipated in 2022;
- Current global investments in oil and natural gas are double the level required in the Net Zero Scenario in 2030. This signals a clear risk of prolonged use of fossil fuels that would put the 1.5°C target out of reach.

Scenario	Price of Carbon (USD 2020)	Impact of the Price of Carbon on the price of natural gas (Increase in the cost of natural gas associated with the Price of Carbon, in current 2020 dollars)	Capture and Sequestration	Technologies	Energy Consumption	Natural Gas Consumption	RCP	Temperature rise according to the RCP
Status Quo	• 2030: 120 USD/tonnes • 2050: 462 USD/tonnes[57]	• 2030: 6.3 USD (2020)/MBtu – 0.23 USD/m^3 • 2050: 24.3 USD (2020)/MBtu – 0.87 USD/m^3	• 2050: practically no capture and sequestration	• CCUS: future technologies	• 2030: 5% less compared to 2020 • 2040: 3% less compared to 2020 • 2050: 5% less compared to 2020	Quebec: • 2030: 22% less natural gas compared to 2020 • 2050: 77% less natural gas compared to 2020[58]	7.0	3.6 °C
NDC	• Canada 2030: 135 USD/tonnes • Global in 2050: 200 USD/tonnes[59]	• 2030: 7.1 USD (2020)/MBtu – 0.26 USD/m^3 • 2050: 10.5 USD (2020)/MBtu – 0.38 USD/m^3 • Reduction in demand that coincides with an increase due to the transition from coal to natural gas and the increase in the Price of Carbon	• 2030: 0.35 Gt/year • 2035: 2.5 Gt/year • 2050: 3.8 Gt/year	• Hydrogen electrolysis, CCUS whose technologies are to come. • CCUS 4 times lower than in the Net Zero Scenario. More than 90% of CCUS projects in advanced economies.	• 2030: 15% more compared to 2020 • 2040: 16% more compared to 2020 • 2050: 16% more compared to 2020	• 2030: 9% more natural gas compared to 2020 • 2040: 1% more natural gas compared to 2020 • 2050: 8% less natural gas compared to 2020 • All new buildings reach zero carbon emissions in 2030.[60]	4.5	More than 2 °C
Sustainable Development	• 2030 º: 100 USD/tonnes • 2050: 160 USD/tonnes[59]	• 2030: 5.3 USD (2020)/MBtu – 0.19 USD/m^3 • 2050: 8.4 USD (2020)/MBtu – 0.30 USD/m^3 • Drop in price in 2030 due to a more significant reduction of the demand for natural gas from major importers.	• 2030: 0.9 Gt/year • 2035: 3.5 Gt/year • 2050: 5.4 Gt/year	• CCUS: future technologies	• 2030: 5% more compared to 2020 • 2040: the same as 2020 • 2050: 5% less compared to 2020	• 2030: 2% more natural gas compared to 2020 • 2040: 18% less natural gas compared to 2020 • 2050: 41% less natural gas compared to 2020[60]	2.6	2 °C or less
Delayed Action	• 2035: 80 USD/tonnes • 2050: 1,200 USD/tonnes[61]	• 2030: 9 USD (2020)/MBtu – 0.32 USD/m^3 • 2050: 63.5 USD (2020)/MBtu – 2.2 USD/m^3	N.A.	• Moderate rate of technological evolution • Limited availability of Carbon dioxide removal (CDR)	N.A.	• 2030: global status quo (increase around 21%)[62] • 2050: 87% less production of natural gas compared to the global status quo[62]	4.5 (2030) 2.6 (2050)	2 °C
Net zero	• 2030: 140 USD/tonnes • 2050: 250 USD/tonnes[59]	• 2030: 7 USD (2020)/MBtu – 0.26 USD/m^3 • 2050: 13 USD (2020)/MBtu – 0.47 USD/m^3 • Reduction in natural gas consumption is quicker, although further investments are necessary to compensate for Russian supplies. In the short term, prices drop to the marginal cost of existing projects.[63]	• 2030: 1.23 Gt/year • 2050: 6 Gt/year	• 2050: 65% of reductions stemming from new technologies • +85% carbon- neutral buildings in 2050	• 2030: 5% less compared to 2020 • 2040: 15% less compared to 2020 • 2050: 19% less compared to 2020	• Demand for fossil fuels met by continued investments in existing assets, but no new conventional projects • 2030: 22% less natural gas compared to 2020 • 2050: 78,5% less natural gas compared to 2020[60]	1.9	1.4 °C

57. Modélisation faite à l'interne selon la majoration annuelle à la hausse de 5 % plus l'inflation du prix du SPEDE observée depuis 2013, Source : https://www.environnement.gouv.qc.ca/changements/carbone/documents-spede/questions-reponses.pdf, p.11 (in French only).
58. Source: Dunsky et ESMIA, Trajectoires de réduction d'émissions de GES du Québec – horizons 2030 et 2050 (mise à jour 2021), p.42, https://www.dunsky.com/wp-content/uploads/2021/09/Rapport_Final_Trajectoires_QC_2021.pdf.
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63. Source: *World Energy Outlook 2023*, Table 2.2: Fossil fuel prices by scenario , p. 97, https://iea.blob.core.windows.net/assets/26ca51d0-4a42-4649-a7c0-552d75ddf9b2/WorldEnergyOutlook2023.pdf.

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