

# Climate Resiliency Report

2022

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 strategy in order to mitigate the risks of climate change and to adapt to such changes and take advantage of 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 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;
- Énergir’s Vision 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”;
- 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 city of Montreal’s Climate Plan and Vermont’s Renewable Energy Standard, as well as the government’s implementation of 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 (such as COVID-19) or other public health crises; exchange rate and interest rate fluctuations; a potential U.S. or Canadian tax reform 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, 2022 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.

## Glossary

In this Climate Resiliency Report:

**°C** means degrees Celsius.

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

**Carbon neutrality** or **carbon neutral**<sup>1</sup> 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.

**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.

**CATS** means the cap-and-trade system for greenhouse gas emission allowances established by the *Regulation respecting the 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<sub>2</sub>** means carbon dioxide.

**CO<sub>2</sub> eq.** means carbon dioxide equivalent.

**COVID-19** means the global coronavirus disease pandemic that broke out during fiscal years 2020 and 2021.

**Delayed Action Scenario** means the 2°C or less by 2100 scenario compared to preindustrial levels by delayed action published by the Bank of Canada.

**Énergir** means Énergir L.P.

**ESG** means environmental, social and governance factors.

**GHG** means greenhouse gases.

**GMP** means Green Mountain Power Corporation.

**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.

**LNG** means liquefied natural gas.

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

**Mm<sup>3</sup>** 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.

**Net Zero Scenario** means the Net Zero Emissions by 2050 Scenario as published by the International Energy Agency in May 2021.

**RCP** means Representative Concentration Pathways.

**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 GHG emissions other than the Scope 2 emissions indirectly 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.

**Sustainable Development Scenario** or **SDS** means the 2°C or less by 2100 scenario compared to preindustrial levels published by the International Energy Agency.

**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.

**UNFCCC** means the United Nations Framework Convention on Climate Change.

**VGS** means Vermont Gas Systems, Inc.

**VGS Board** means the board of directors of VGS.

**Vision 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.

## About this Report

This Climate Resiliency Report follows the recommendations set by the TCFD. It covers the two entities that distribute natural gas, that is to say, Énergir for the distribution of natural gas in Quebec and VGS for the distribution of natural gas in Vermont. It also covers GMP which distributes electricity in Vermont, the most material entity (besides Énergir) according to its size and type of activities in relation to climate change. This report therefore covers entities that represent more than 93% of the group'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, 2022, i.e., the period from October 1, 2021 to September 30, 2022.

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, 2022 MD&A (which must be read alongside its financial statements for the fiscal year ended September 30, 2022) and its 2022 annual information form, available online on SEDAR at [www.sedar.com](http://www.sedar.com) under Énergir Inc.'s profile.

1. 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](https://www.dunsky.com/wp-content/uploads/2021/09/Rapport_Final_Trajectoires_QC_2021.pdf).



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# President's Message

2022



**Éric Lachance**  
President and Chief Executive Officer

While the climate crisis, the COVID-19 pandemic and, more recently, the invasion of Ukraine have certainly highlighted our interconnectedness, they have also heightened our vulnerabilities. Countless factors shape our environment and make us question the role energy plays and our resilience. This is the unstable and fragile context in which Énergir is pursuing what it hopes will be a fair, ambitious and pragmatic energy transition.

## » Economic and geopolitical context

While our gradual emergence from the pandemic has stimulated demand and breathed new life into the world economy, the conflict in Ukraine has dealt a severe blow to global supply, resulting in new supply chain disruptions and aggravating inflationary pressures that have made the prices of energy and agricultural products skyrocket. Faced with excess demand, monetary policy makers have initiated successive interest rate hikes to relieve these pressures.

North America, notably its energy industry, has also felt these international shock waves. North America differs from Europe and Asia, however, in that gas prices here have been far lower and more resilient in the face of international pressures. With export capacities being somewhat low compared to production, the North American natural gas market has remained relatively unscathed by international convulsions and therefore much more sensitive to the domestic context. A slightly rising production, robust domestic consumption and storage to be increased have prompted a significant increase in North American prices for natural gas, and consequently for electricity generated, though levels remain markedly lower than in Europe, for instance.

## » The fight against climate change at the heart of our strategy

Over the past year, we have achieved major milestones of our corporate vision. In Quebec, for example, our actions are guided by our strong desire to step up our energy efficiency efforts, accelerate the injection of RNG, develop a strong complementarity with the electricity grid and develop new sustainable drivers. In Vermont, GMP and VGS have made green hydrogen, geothermics, storage as well as carbon neutral and renewable supply integral themes of our portfolio of decarbonization achievements, while creating value.

The goal of these initiatives is to make the energy we distribute carbon neutral by 2050. Electrifying our building heating systems and industrial processes must be encouraged whenever possible, while minimizing the resulting societal costs. Natural gas volumes will certainly fall, but the energy that will continue to be distributed will increasingly come from renewable sources. This is the challenge before us: generating value while placing our gas assets at the service of the transition. Adjusting initiatives will allow us to move increasingly toward a path that limits global warming to 1.5°C, but we are not there yet. Our current pathway still leads us to 2°C. We recognize that this is not enough, so we are implementing new initiatives to reduce this gap.

## » Taking action in Quebec

Significant improvement can't be achieved in a matter of months or a few years because the changes call for a profound transformation of our business model and activities. For this reason, several initiatives are being implemented simultaneously.

In Quebec, our primary focus has been on the buildings sector. The goal is to achieve a 30% reduction in this sector's consumption of fossil natural gas by 2030 and make it carbon neutral by 2040, and concrete action has been taken. For example, following the Régie's favourable decision regarding our dual-energy project with Hydro-Québec, we presented the residential offer to our customers. This strategic agreement should help reduce natural gas consumption by up to 70% for approximately 75% of our customers, while ensuring the effective management of winter energy peaks. Despite vigorous efforts to reduce GHG emissions in this sector, emissions have risen over the past year due to increased economic activities in the post-pandemic recovery. We will remain on the alert and are convinced that our GHG emission reduction targets will be reached in the buildings sector, regardless of demand changes beyond our control.

In May 2022, we achieved an important milestone: the commercialization of RNG across our customer base. Our customers, regardless of their business sector, can now choose to decarbonize their activities based on their needs and financial capacity. This milestone

reinforces our position on decarbonization. It allows us to demonstrate that RNG is a concrete solution for reducing GHG emissions and to invite our customers to join this responsible movement. Development cycles and the construction of RNG production projects can take years, which explains in part why the RNG volumes distributed are below target. Several new RNG production projects will be added to Énergir's supply in the upcoming months and years, which will help us pick up the pace.

Our industrial customers consume the largest share of the natural gas volumes distributed. We met with some of our customers to better understand their decarbonization needs, ambitions and challenges. So far, this exercise has allowed us to identify several decarbonization opportunities. We will continue to collaborate with them so we can align our offerings with their decarbonization strategy while allowing them to remain competitive on the international scene. These initiatives will help improve our decarbonization pathway.

Our energy efficiency efforts have borne fruit. In fiscal year 2022, the natural gas savings resulting from our energy efficiency programs reached 51.4 million cubic metres, which represents 98,728 tonnes of GHG emissions avoided, a record that hasn't been beaten to date. These results are attributable to major projects with large industrial and institutional customers that generated substantial savings of 28 million cubic meters of natural gas, or 58% of the annual target.

Finally, we pursued our efforts to reduce the environmental footprint of the fossil natural gas we distribute thanks to our initiative for the responsible procurement of natural gas. How? By fostering business relationships with proactive and responsible gas producers who are committed to transparency and have shown leadership in adopting the best ESG practices. This year, thanks to this initiative, we have acquired 33% of our fossil natural gas from suppliers who are certified under the Equitable Origin standard.

This is the spirit in which we announced in our last fiscal year that a portion of the compensation of our most senior executives would be tied to GHG emission reduction targets. This year, we are expanding this measure to include a large portion of personnel to demonstrate how committed we are to fighting climate change. It was with this in mind that we revised the role of our sales team, which is gradually becoming a team of decarbonization agents whose chief mission is to promote decarbonization solutions and support customers to that end.

The entire group shares the same ambition to achieve carbon neutrality by 2050, and each entity is taking concrete actions to achieve that goal.

**» Vermont activities****VGS**

In fiscal year 2021, following the successful launch of the largest RNG digester in the Northeastern United States, our VGS subsidiary pursued its efforts to develop an alternative and carbon-neutral supply in that state. In 2022, VGS participated in the launch of Vermont's first green hydrogen project. In 2023, the company will focus on geothermal systems and other means to produce clean heat.

**GMP**

Renewable energy now accounts for 78% of GMP's electricity production and distribution portfolio, the goal being to achieve the targeted 100% in 2030. The company continues to strengthen the resilience of its network by developing energy storage options, burying power lines and deploying rapid restoration systems in the event of a breakdown.

**» A determined and engaged business**

This year, we also launched the ESG approach that we use to integrate ESG factors into our corporate culture and business model.

Énergir is committed to playing an active role in a changing world. We are aware of our role, responsibilities, and limitations. We are constantly reviewing our strategies, experimenting with new ways of doing things, developing solutions to favour RNG and help our customers reduce their fossil natural gas consumption and emissions. This evolution is demanding, especially as the change must also come from within: our business is redefining and transforming itself. We are going as fast as we can, continually developing our knowledge to pick up the pace. We are making progress, but we admit that we do not have all of the answers. Énergir's commitment is unwavering, as is that of all members of its personnel. It is mainly their massive support and enthusiastic mobilization that gives us the energy to do better. Our thanks go out to all of them.



**Éric Lachance**  
President and Chief Executive Officer

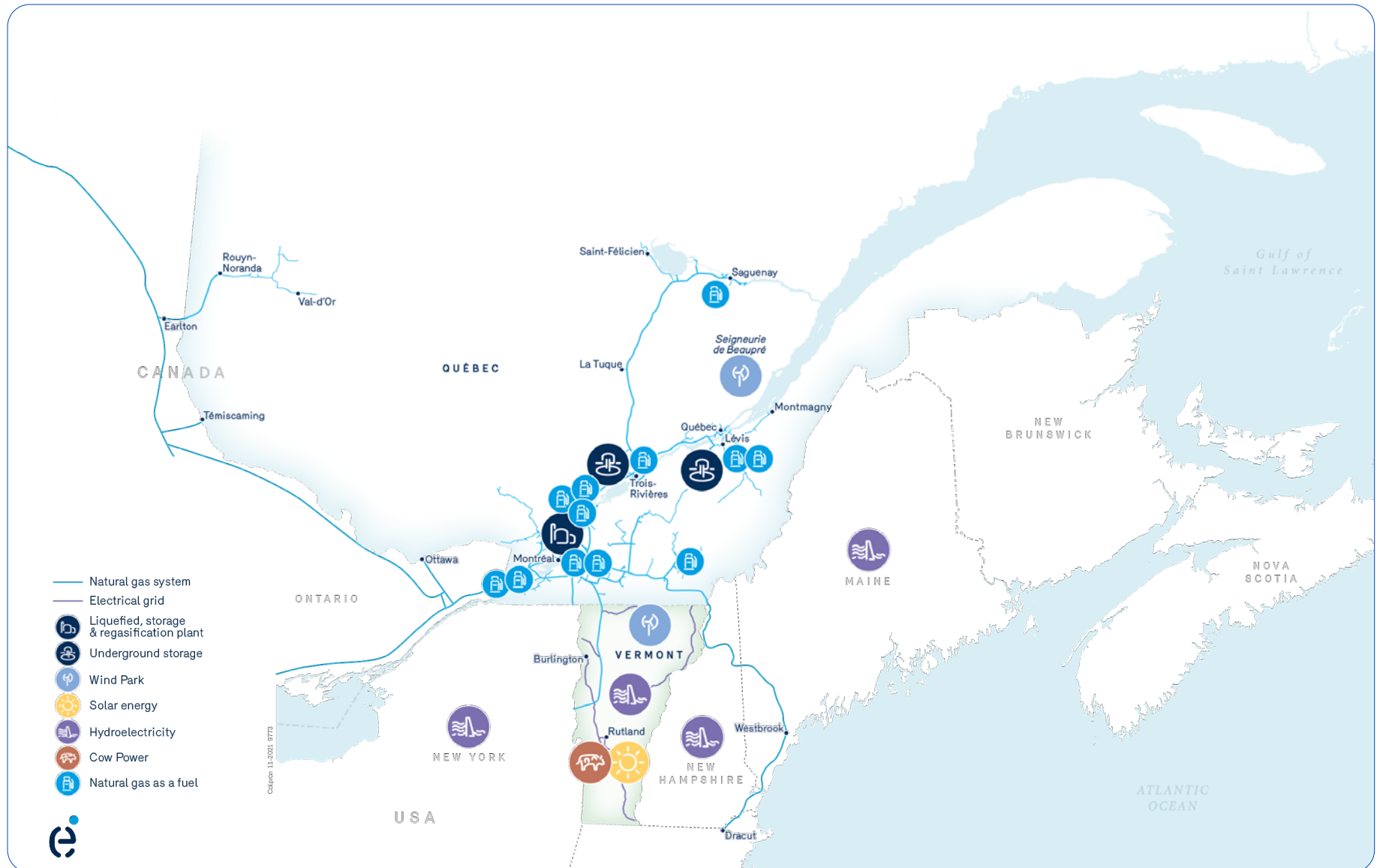
# Presentation of the Corporate Group

With more than \$9 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. Énergir is the largest natural gas distribution company in Quebec; through its joint ventures, it also generates electricity from wind power. And through its 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. Énergir strives to become the partner of choice for those seeking a better energy future.

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



### The Corporate Group's main activities





## Natural Gas Distribution in Quebec

energir

Some  
**210,000 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 210,000 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 2022 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.<sup>2</sup>

### Normalized Natural Gas<sup>3</sup> Distributed in Quebec and Revenues Generated

	Volumes distributed (Mm <sup>3</sup> )	Volumes distributed by market (%)	Revenues (Millions \$)	Revenues by market (%)
Industrial	3,951	63	673	37
Commercial	1,670	27	770	43
Residential	629	10	363	20
<b>Total</b>	<b>6,250</b>	<b>100</b>	<b>1,806</b>	<b>100</b>

2. The summary sheet is available (in French only) at [https://www.energir.com/-/media/Files/Corporatif/Dev%20durable/Fiche%20synthese\\_ACV\\_Energir\\_Versionsiteweb.pdf?la=fr](https://www.energir.com/-/media/Files/Corporatif/Dev%20durable/Fiche%20synthese_ACV_Energir_Versionsiteweb.pdf?la=fr).

3. Includes the volume of natural gas from fossil and renewable sources.



## Distribution of Electricity in Vermont

Over  
**270,000 customers**  
in Vermont

**16,600 km**  
of overhead  
distribution lines

**2,500 km**  
of underground  
distribution lines



## » Distribution of Electricity in Vermont

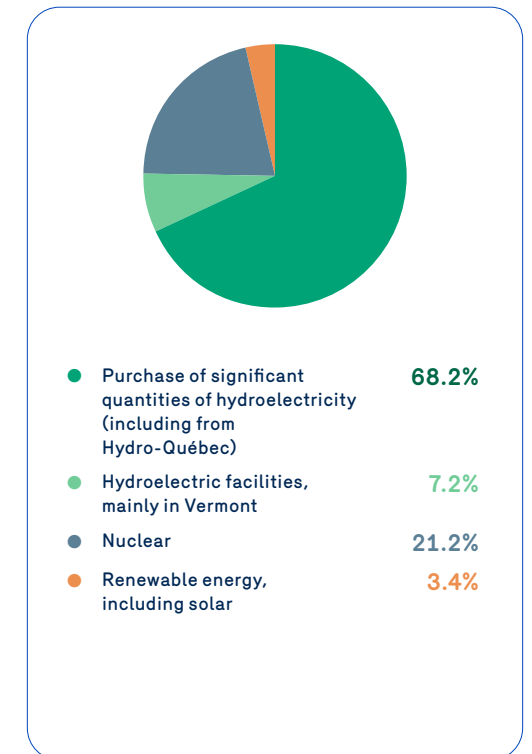
GMP distributes more than 77% of the electricity in the State of Vermont to over 270,000 customers. GMP's core business includes the production, purchase, and sale of electricity in Vermont and, to a much lesser degree, electricity transportation in New Hampshire and electricity production in New York, Maine, New Hampshire and Vermont. GMP's network comprises over 2,700 km of overhead transmission lines, 16,600 km of overhead distribution lines and 2,500 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% carbon free, 78% renewable and comprises several sources of power generation, including hydroelectricity and, to a lesser extent, nuclear, wind and solar power. GMP has 42 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 year 2022.

### Electricity Deliveries and Revenues Generated

	Deliveries (GWh)	GWh Delivered by market (%)	Revenues (Millions US\$)	Revenues bymarket (%)
Residential	1,568.3	37.9	317.7	45.4
Small and Medium Consumption Commercial and Industrial Customers	1,45.31	35.0	252.5	36.1
High Consumption Commercial and Industrial Customers	1,116.1	27.0	126.6	18.1
Other Customers	3.7	0.1	2.7	0.4
<b>Total</b>	<b>4,139.4</b>	<b>100.0</b>	<b>699.5</b>	<b>100.0</b>

### GMP's Energy Supply Sources<sup>4</sup>



4. The data in this graph 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.



## Distribution of Natural Gas in Vermont



Over  
**55,000** customers  
in Vermont

Transportation and  
distribution network of  
over  
**1,500** km

## » Distribution of Natural Gas in Vermont

VGS owns and operates a natural gas transportation and distribution network of over 1,500 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 volumes distributed by VGS and the total revenues for its 2022 fiscal year.

### Volume of Normalized Natural Gas Distributed in Vermont and Revenues Generated

	Volumes distributed (Mm <sup>3</sup> )	Volumes distributed by market (%)	Revenues (Millions US\$)	Revenues by market (%)
Residential	112	29	59	43
Commercial	275	71	77	57
<b>Total</b>	<b>387</b>	<b>100</b>	<b>136</b>	<b>100</b>

















# Climate Change Risks and Opportunities

To structure its understanding of the risks and opportunities related to climate change based on the recommendations of the TCFD, Énergir, GMP and VGS use a common methodology (for more information, see the *Risk Management* section).

The tables on the following pages therefore present these risks and opportunities for Énergir, GMP and VGS, specify how they would manifest themselves and what the potential financial repercussions would be. Considering that the risk manifestations mainly have economic repercussions favourably or unfavourably affecting 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 customers' rates. In order to assess the potential financial repercussions, an analysis was carried out based on one or more of these measures: the impact on net profit, the rate of return and the impact on rates. Three levels of impacts have been retained.



The perspective chosen is the 2030 horizon knowing that some of these risks could have different repercussions on a longer-term horizon.



Risks	Sensitivity	Potential Financial Impacts	Opportunities
<b>Political and legal</b> 	Increase in the Price of Carbon.		<ul style="list-style-type: none"> <li>Increased demand for RNG and energy services.</li> <li>Increased demand for the responsible procurement of natural gas.<sup>5</sup></li> <li>Policies, regulations and financing conducive to RNG and hydrogen development.</li> <li>Injection of green hydrogen in the gas network.</li> <li>Diversification of renewable energy sources.</li> <li>Energy efficiency in offices, electrification of certain vehicle fleets, reduction at the source, re-use, recycle and repurpose of resources used.</li> <li>Achievement of the 100% renewable supply targets (GMP's 2030 target).</li> <li>Reduction of emissions with a renewable electricity supply.</li> </ul>
	More aggressive decarbonization goals.		
	More restrictive regulation of existing products and services.		
	Inconsistency between the regulatory framework and our business objectives.		
	Exposure to GHG emissions litigation or non-compliance with GHG emission reduction regulations.		
<b>Technological</b> 	Lesser efficiency of natural gas technologies compared to alternative energy solutions.		<ul style="list-style-type: none"> <li>Development of complementary energy services (energy expertise, storage assets, fuel, green hydrogen).</li> <li>Increase in the offer of energy efficiency programs.</li> <li>New clean technologies to decarbonize the energy distributed.</li> </ul>
	Technological advances that facilitate decarbonization for customers.		
	Unsuccessful investments in new technology.		
<b>Market-related</b> 	Change in customer behaviour that favours energy sources with lower GHG emissions.		<ul style="list-style-type: none"> <li>Dual energy offer for Quebec customers.</li> <li>Diversification of renewable energy sources including solar energy from sites of varied sizes (from residential rooftops to those of larger sites).</li> <li>Sharing program for peak electricity periods with customers.</li> </ul>
	Increase in supply costs.		
<b>Reputational</b> 	Change in customer behaviour towards energy sources with lower GHG emissions.		<ul style="list-style-type: none"> <li>Greater demand for our carbon-neutral solutions.</li> </ul>
	Increased stakeholder concern about GHG emissions.		

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

● Limited Impact   
 ● Moderate Impact   
 ● Potentially Significant Impact

Risks	Sensitivity	Potential Financial Impacts	Opportunities
<p><b>Acute</b></p> 	<ul style="list-style-type: none"> <li>Increased severity of extreme weather events (floods, landslides, freeze/thaw cycles).</li> </ul>	<ul style="list-style-type: none"> <li>Lower revenues relating to a decreased energy distribution capacity (resulting, for example, from breaks in the supply chain).</li> <li>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).</li> </ul>	<ul style="list-style-type: none"> <li>Investment in network resilience projects.</li> <li>Recognition of the added value of carbon-neutral gas assets owing to their resiliency to climate changes.</li> </ul>
<p><b>Chronic</b></p> 	<ul style="list-style-type: none"> <li>Changes in precipitation patterns and extreme variations in meteorological profiles.</li> <li>Rise in average temperatures.</li> </ul>	<ul style="list-style-type: none"> <li>Increase in required investments (more resilient construction or more frequent repairs).</li> <li>Reduced insurability of assets located in "high risk" areas.</li> <li>Changes in demand due to milder winters and hotter summers.</li> </ul>	

» **Physical risks**

In 2022, Énergir, GMP and VGS launched a thought process to assess how sensitive their assets are to various climate change scenarios. They are currently considering a process for identifying and assessing climate risks, and responding thereto over a long-term time horizon to reduce their assets' exposure to the effects of climate change and identify which effects will have the greatest impact on their assets. This exercise comes in the wake of the summary assessment of physical risks presented below.

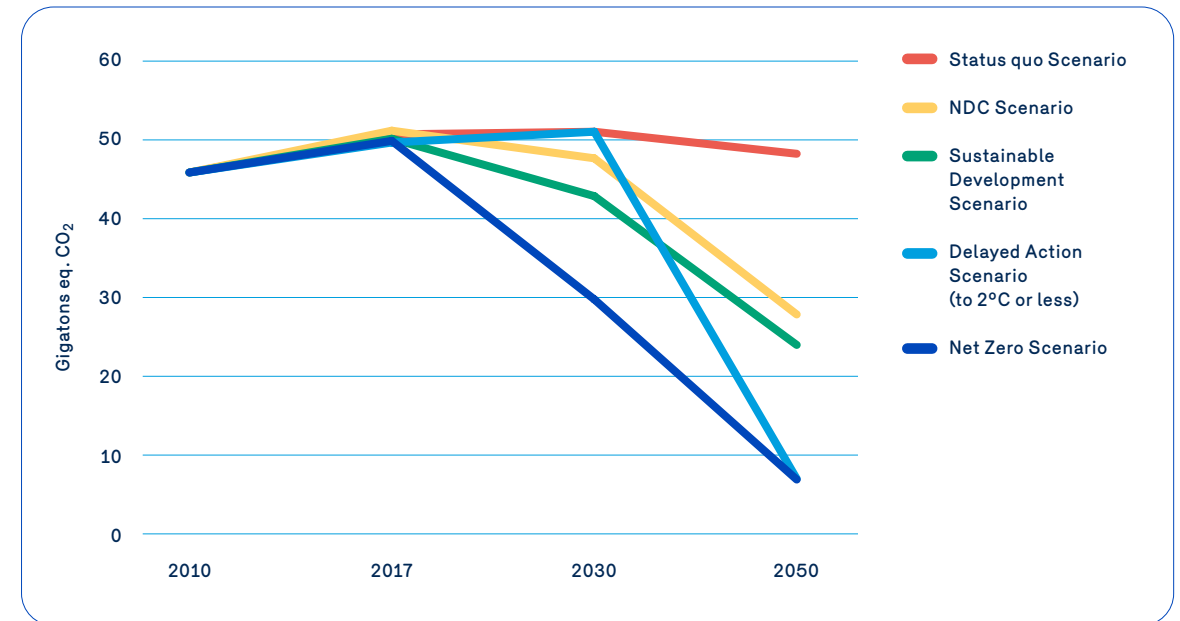
## » GHG Emission Scenarios

Since the scenarios were last scaled for fiscal year 2021, the Climate Action Tracker's<sup>6</sup> Nationally Determined Contributions (NDC) curve shows a 23% drop in emissions for 2050 compared to that previously used.<sup>7</sup> Consequently, the pathway of the NDC Scenario is becoming more and more similar to the Sustainable Development Scenario. GHG emission levels for 2030, however, remain unchanged. What is more, the NDC Scenario published in Énergir's 2021 Climate Resiliency Report already reflected the new NDCs for Canada and the United States announced alongside the COP 26 meeting held at the end of calendar year 2021. In October 2022, the International Energy Agency published the World Energy Outlook 2022.<sup>8</sup> This report presents an emissions pathway for the Net Zero Scenario that is virtually unchanged, though modifications have been made to this scenario's underlying assumptions. The main changes to the assumptions compared to those of the Net Zero Scenario published in the 2021 Climate Resiliency Report are:

- An additional 10% and 15% reduction by 2030 and 2050, respectively, in the global consumption of natural gas compared to 2020;
- A drop of approximately 20% in carbon emissions captured and removed from the atmosphere by 2030 and 2050 (capture and sequestration of bioenergy emissions and direct air capture);
- Continued investment in existing fossil energy projects to meet demand up to the 2030 horizon, but without new traditional investments. The assumption in 2021 only presumed that no new investment in conventional fossil fuels would be necessary.

Use of the GHG emission scenarios described in the schedule attached to this report allows Énergir, GMP and VGS to analyze the repercussions of climate change on the resiliency of their business model over various timelines. The scenarios used are not GHG emission projections. Rather, they represent a range of possible future GHG emissions.

GHG emissions on a global scale, depending on the scenarios used<sup>9</sup>



6. The Climate Action Tracker is an independent scientific analysis that tracks climate actions taken by governments and measures them against the target provided for in the Paris Agreement to limit warming to well under 2°C 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.

7. Global emissions under the NDC Scenario, [Climate Action Tracker](#).

8. Global emissions under the IEA Net Zero Scenario, the IEA's, [World Energy Outlook 2022](#).

9. The five scenarios used are defined in a schedule hereto.

# 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.

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;
- 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

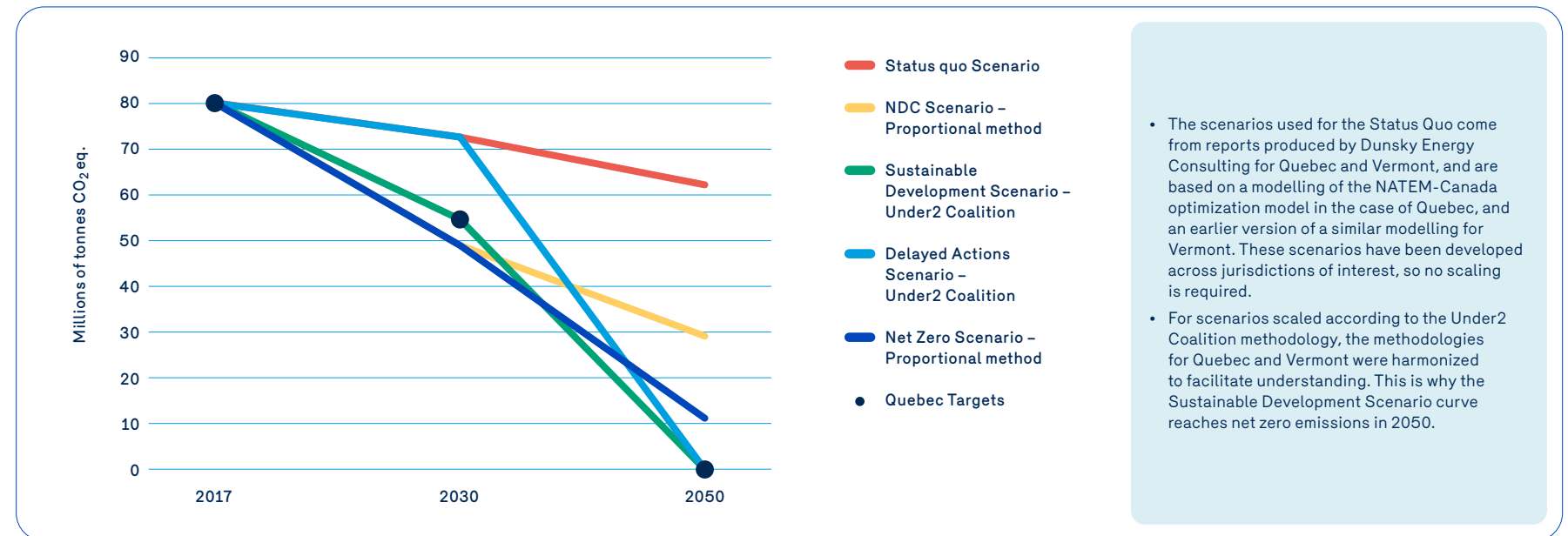
energir

## » Quebec-wide scenarios

The exercise of scaling global GHG emission reduction pathways to apply to Quebec reveals that the pathway of the NDC Scenario, when adapted to the Quebec context using the proportional methodology, will now reach nearly 30 million tonnes of CO<sub>2</sub> equivalent by 2050 (compared to nearly 40 million tonnes of CO<sub>2</sub> eq. in Énergir's 2021 Climate Resiliency Report). The 2030 pathway remains unchanged.

The following graph therefore 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.

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



## » Énergir's Vision 2030-2050



To address climate risks and opportunities associated with climate change, in the fall of 2020 Énergir announced its Vision 2030-2050, which aims to enable it to make the energy distributed to its customers carbon neutral by 2050.

To achieve this, Énergir's Vision 2030-2050 primarily targets, by 2030, the GHG emissions of its customers (Scope 3) that come from the use of natural gas for the heating of air and water in the buildings sector (residential, commercial and institutional markets).

The initiatives that are a part of Vision 2030-2050 are presented below. Énergir recognizes that additional initiatives would be required to achieve its carbon neutrality target and be part of a pathway limiting temperature rise to 1.5°C (for more details, see the *Resilience of Énergir's Business Model* section).

Concurrently, as was done in fiscal year 2021, Énergir used a range of possible GHG emission reductions in its quantification of the uncertainties associated with decarbonization.<sup>10</sup> The use of this type of range makes it possible to consider the uncertainties surrounding decarbonization, particularly the development of first, second and

third generation RNG production technologies. The low end of the range is based on the implementation of established technologies and reflects Quebec's current technical and economic potential for RNG production in 2021.<sup>11</sup> The high end of the range is based on the development of the technologies mentioned above.

The priority given to the decarbonization of the buildings sector by 2030 is based on the fact that the technologies to 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.

During fiscal year 2021, Énergir confirmed its interest in green hydrogen with the adoption of a "roadmap" dedicated to this sector. The objective is to guide the examination of the many strategic and operational options for green hydrogen. In November 2021, the Régie de l'énergie authorized Énergir to invest in a project to assess the interchangeability of hydrogen with natural gas in its distribution network. Nevertheless, at this stage, Énergir has not included hydrogen injection

or carbon capture in its projections, due to the great uncertainty surrounding the commercialization of these solutions. However, if the uncertainty over the technical and economic potential of these solutions drops, Énergir aims in the coming years to gradually integrate them into its projections as the uncertainty about their potential decreases.

The updated range of possible GHG emission reductions for fiscal year 2022 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. The main element that might cause variations in the long-term forecast is a downward revision of natural gas deliveries over the four-year horizon of its supply plan in both the buildings and industrial sectors.

These ranges in the potential GHG emission reductions, according to the solutions identified in Énergir's Vision 2030-2050, are illustrated in the following table:

Sector	Projected GHG emission reductions resulting from natural gas use compared to 2020
<b>Building in 2030</b> <ul style="list-style-type: none"> <li>• Residential</li> <li>• Commercial</li> <li>• Institutional</li> </ul>	<b>From 33 to 40%</b>
<b>All sectors in 2050</b>	<b>From 52 to 80%</b>

10. In its 2021 Climate Resiliency Report, Énergir presented a range of 31 to 38% GHG emission reductions in the buildings sector by 2030, and 51 to 80% for all of its customers by 2050.

11. [https://www.energir.com/-/media/Files/Corporatif/Publications/181120\\_Potentiel%20GNR\\_Rapport%20synth%C3%A8se\\_ANG.pdf?la=en](https://www.energir.com/-/media/Files/Corporatif/Publications/181120_Potentiel%20GNR_Rapport%20synth%C3%A8se_ANG.pdf?la=en).



### Projection of GHG emissions in the buildings sector in 2030

(Projection in Mt. CO<sub>2</sub> eq. and % of change compared to 2020 levels)

GHG emissions observed in 2020

4.3

	Low range		High range	
	Known technologies (Low-medium uncertainty)		Technological breakthroughs (Medium-high uncertainty)	
	Projected (Mt. CO <sub>2</sub> eq.)	Variation (%)	Projected (Mt. CO <sub>2</sub> eq.)	Variation (%)
<b>Decarbonization strategies</b>				
Comprehensive energy efficiency plan	- 0.4	- 10	- 0.5	- 11
Complementarity with electricity	- 0.5	- 12	- 0.6	- 14
Renewable natural gas	- 0.7	- 17	- 0.9	- 22
<b>Subtotal decarbonization strategies</b>	<b>- 1.7</b>	<b>- 39</b>	<b>- 2.0</b>	<b>- 46</b>
<b>Impact of the external context by 2030</b> (Economic growth, slowdown in development, energy efficiency outside Énergir, loss of customers and global warming, etc.)				
	+0.3	+6	+0.3	+6
<b>Projected GHGs emissions in 2030</b> GHG reductions compared to 2020	<b>2.9</b> -33%		<b>2.6</b> -40%	



### Projection of GHG emissions in all sectors in 2050

(Projection in Mt. CO<sub>2</sub> eq. and % of change compared to 2020 levels)

GHG emissions observed in 2020

11.2

	Low range		High range	
	Known technologies (Low-medium uncertainty)		Technological breakthroughs (Medium-high uncertainty)	
	Projected (Mt. CO <sub>2</sub> eq.)	Variation (%)	Projected (Mt. CO <sub>2</sub> eq.)	Variation (%)
<b>Decarbonization strategies</b>				
Comprehensive energy efficiency plan	-3.4	-30	-3.6	-32
Complementarity with electricity	-0.7	-6	-1.1	-10
Renewable natural gas	-2.6	-23	-5.2	-46
<b>Subtotal decarbonization strategies</b>	<b>-6.7</b>	<b>-59</b>	<b>-9.9</b>	<b>-88</b>
<b>Impact of the external context by 2050</b> (Economic growth, slowdown in development, energy efficiency outside Énergir, loss of customers and global warming, etc.)				
	+0.9	+8	+0.9	+8
<b>Projected GHG emissions in 2050</b> GHG reductions compared to 2020	<b>5.4</b> -52%		<b>2.2</b> -80%	

Énergir should continue its efforts to refine its solutions and identify new ones so as to achieve carbon neutrality by 2050 as regards the energy it distributes to all its customers.



## » Status on major decarbonization initiatives



### Accelerating the growth of long-term energy efficiency efforts

It is generally recognized that energy efficiency reduces GHG emissions at a low cost to society.<sup>12</sup> Énergir has set the target of helping its customers, through its various energy efficiency programs, to reduce their GHG emissions by one million tonnes of CO<sub>2</sub> eq. between 2020 and 2030,<sup>13</sup> which is the same reduction that Énergir has accumulated over the past 20 years. Since 2001, Énergir's energy efficiency programs have made it possible to finance more than 141,000 energy efficiency projects, which have led to more than 1.4 million tonnes of CO<sub>2</sub> eq.

Énergir aims to maintain this accelerated pace between 2030 and 2050, despite the fact that achieving these reductions could become progressively more difficult. Indeed, 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, allowing them to invest in the more expensive decarbonization solutions Énergir has to offer (such as RNG) and therefore contribute to the reduction of GHG emissions;

» **For society**, energy efficiency allows the reduction of GHG emissions at a lower cost;

» **For Énergir**, energy efficiency helps maintain customer loyalty and reduce the attrition rate.

To this end, Énergir should be launching several strategies to enhance its current offering while promoting new and increasingly efficient technologies and 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, Énergir's efficiency efforts would contribute to reducing GHG emissions in the range of 0.4 and 0.5 million tonnes of CO<sub>2</sub> eq. by 2030. These efforts, combined with those carried out by third-parties, are expected to contribute to a reduction of 1 million tonnes of CO<sub>2</sub> eq. by 2030, which is in line with the government of Quebec's targets. Since 2020, these efforts have allowed a total of 263,058 tonnes of CO<sub>2</sub> eq. to be avoided, which is the equivalent of removing over 57,000 cars from the road.

In 2022, the natural gas savings associated with Énergir's energy efficiency programs reached 51.4 million cubic meters, and GHG emissions dropped by 98,728 tonnes of CO<sub>2</sub> eq., a 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 28 million cubic meters of natural gas, or 58% of the annual target. The Efficient Construction and Renovation program<sup>14</sup> outstripped the projected net natural gas savings by 283% with 9.7 million cubic meters.

#### Climate metrics

##### 2030 target

Emission reduction of 1 million tonnes of CO<sub>2</sub> eq. for all markets served between 2020 and 2030 resulting from Énergir's energy efficiency efforts.

##### 2022 performance

Savings of 51.4 million cubic meters of natural gas and a GHG emission reduction of 98,728 tonnes of CO<sub>2</sub> eq. Énergir had another exceptional year in terms of energy efficiency projects completed with the achievement of 106% of the annual target due mainly to major projects with large industrial and institutional customers.

12. <https://www.scorecard.energycanada.org/wp-content/uploads/2019/11/Energy-Efficiency-At-A-Glance-Efficiency-Canada.pdf>.

13. 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.

14. 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.



## Thanks to new marketing approaches, ensure that the RNG's share rapidly increases to at least 10% of its customers' consumption by 2030

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 natural gas and maintain the competitiveness<sup>15</sup> of Énergir's solutions.

Increasing the injection of RNG for consumption in Quebec is a key initiative in terms of Énergir's resilience, 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;
- » **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, to capture and reduce GHG emissions from several sectors (such as the municipal and agricultural sectors) in a circular economy perspective. RNG is also a new sector of locally produced renewable energy that promotes regional economic development;
- » **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 deliver increasing volumes of RNG to its customers annually. Its goal is for RNG to represent at least 10% of the annual volumes it delivers by 2030, which in terms of today's volumes would equate to about 567 million cubic meters and an annual GHG emission reduction of 1 million tonnes of CO<sub>2</sub> eq.

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.<sup>16</sup> The quantities of RNG delivered to Énergir customers could grow significantly between 2030 and 2050 to between approximately 1,400 and 2,700 million cubic meters annually according to the ranges presented above. Énergir expects that by 2030, the volumes of RNG consumed in the buildings sector could result in a GHG emission reduction of between 0.7 and 0.9 million tonnes of CO<sub>2</sub> eq.<sup>17</sup>

However, several external factors could impact this increase in the delivery of RNG to its customers, 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.

In the course of its fiscal year 2022, Énergir launched the commercial offering of voluntary RNG consumption to its business and residential customers. This key step in the deployment of Énergir's decarbonization strategy should accelerate voluntary RNG consumption among its customers and therefore minimize the rate impact associated with achieving the regulatory targets for the volume of RNG to be delivered.

### Climate metrics

#### 2030 target

Reduction of 1 million tonnes of CO<sub>2</sub> eq. between 2020 and 2030, including 0.8 million tonnes in the buildings sector.

#### 2022 performance

**More than 27 million cubic meters of RNG consumed by customers (representing 0.44% of the total volume distributed), and a reduction of 52,265 tonnes of CO<sub>2</sub> eq., including 16,167 tonnes of CO<sub>2</sub> eq. in the buildings sector.**

These results are below expectations, but several new RNG production projects will be added to Énergir's supply in the coming months and years, subject to the Régie's approval of three contracts. Indeed, on September 30, 2022, Énergir entered into contracts with various suppliers under which these suppliers will deliver 142.3 million cubic meters of RNG to Énergir starting in 2024, a volume higher than the regulatory target of 2% for that same timeframe. Énergir is also still refining its RNG procurement and marketing strategy before the Régie.

15. Depending on RNG prices projected by Énergir during this period based on Énergir's RNG supply contracts until 2030.

16. Methanation is the reaction of carbon monoxide or carbon dioxide with hydrogen in the presence of a catalyst to produce methane.

17. This is the equivalent of the GHG emission reductions resulting from a distribution of 10% of RNG to its customers.



## 3 Develop a strong complementarity with electricity

In a May 2022 decision, 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. It provides that Hydro-Québec will pay Énergir a GHG contribution recognizing the gas network's value during winter peak demand periods. The Régie'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. With dual energy, the two leading energy distributors will therefore work to considerably reduce the volumes of natural gas consumed (and, consequently, GHG emitted) by over 100,000 customers for heating purposes by 2030. The principle is the following: a vast majority of the time (approximately 70%) electricity will be used for heating while, during peak periods (for example, periods of extreme cold), natural gas will take over (about 30% of the time), thereby relieving Hydro-Québec's network. The distributors will also offer all Énergir customers, including new buildings, a zero-emission solution thanks to dual-energy electricity-renewable natural gas. 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. By 2030, this solution should save close to \$1.7 billion compared to the full electrification of the markets targeted, limit the impacts on rates for the customers of both distributors, and eliminate up to 540,000 tonnes of GHG emissions.

An application to offer dual energy to the commercial and institutional sectors was filed before the Régie in October 2022. If the Régie approves the application, dual energy may be available to customers in these sectors as early as the summer of 2023.

### Climate metrics

#### 2030 target

Reduction of 500,000 tonnes of CO<sub>2</sub> eq. between 2020 and 2030.

#### 2022 performance

**The residential offer launched in June 2022 and the commercial and industrial offer is currently under development for launch in 2023. There was no GHG emission reduction in fiscal year 2022, as the first customer was enrolled in the fall. The first reductions will be accounted for in fiscal year 2023.**

4



## Diversify Énergir's activities to foster new sustainable growth drivers

Energy efficiency, RNG and complementarity with the electricity grid are vectors for maintaining customers and revenue for Énergir in a decarbonization context. The diversification of its operations in Quebec would also allow Énergir to achieve medium- and long-term growth. For example, Énergir is currently evaluating certain opportunities in the development of district 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.

### 2022 update

#### Hydrogen



The development of the green hydrogen industry is an opportunity to promote new growth vectors and decarbonize certain sectors of the economy. In this context, Énergir evaluated 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 on Énergir's network and its customers' equipment.

Énergir has therefore launched 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.

#### Industrial sector



In the past year, Énergir has taken steps to learn more about the intentions of its industrial customers to decarbonize their activities and what means they would prioritize to do this. The key findings of these steps are the following:

- The exercise has created more than 80 decarbonization opportunities (mainly the consumption of RNG and energy efficiency), and talks are currently underway, notably with customers whose decarbonization strategies are more advanced so as to realize projects that will be able to generate reductions by 2030;
- Énergir will need to develop innovative business models that complement existing solutions so as to accompany its industrial customers whose procedures are difficult to electrify, notably through the use of carbon capture, utilization and sequestration and green hydrogen technologies.

#### Energy loops



The market for new generation energy loops continues to grow in Quebec, and Énergir's proposal to partner up with an Énergir affiliate is well received by stakeholders met within the buildings sector (real estate developers, municipalities, businesses and industries). Owner of the subsidiary ÉCCU, 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 the business' 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. Several major opportunities are currently being developed; feasibility studies have confirmed the technical and economic viability of the business model and the first new generation energy loops could see the light of day in the coming years.

#### Carbon capture, utilization and sequestration (CCUS)



During fiscal year 2022, Énergir began 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<sub>2</sub> (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.

## » Resilience of Énergir's Business Model

In achieving the four initiatives, Énergir's Vision 2030-2050 is consistent with a GHG emission reduction pathway as provided for in the Sustainable Development Scenario, which is aligned with the Government of Quebec's targets. This pathway should help limit global warming to 2°C. To aim for a more ambitious pathway that would limit global warming to 1.5°C, new initiatives will need to be deployed, especially with Énergir's major industrial customers whose decarbonization strategies require specialized support.

Ensuring the resilience 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 expensive. Énergir is confident that its Vision 2030-2050 and its related initiatives will ensure this resilience.

The update in fiscal year 2022 reveals slight variations in the buildings sector, i.e. for typical cases in the residential, commercial and institutional markets. Several elements are considered when calculating a competitive position's evolution, especially the evolution of cost of service, including the Price of Carbon under the regulations in effect at the time of this calculation. These elements are updated on an ongoing basis. These projections show that the energy solutions Énergir offers remain globally competitive even though the economic advantage will deteriorate over time due to electrification.

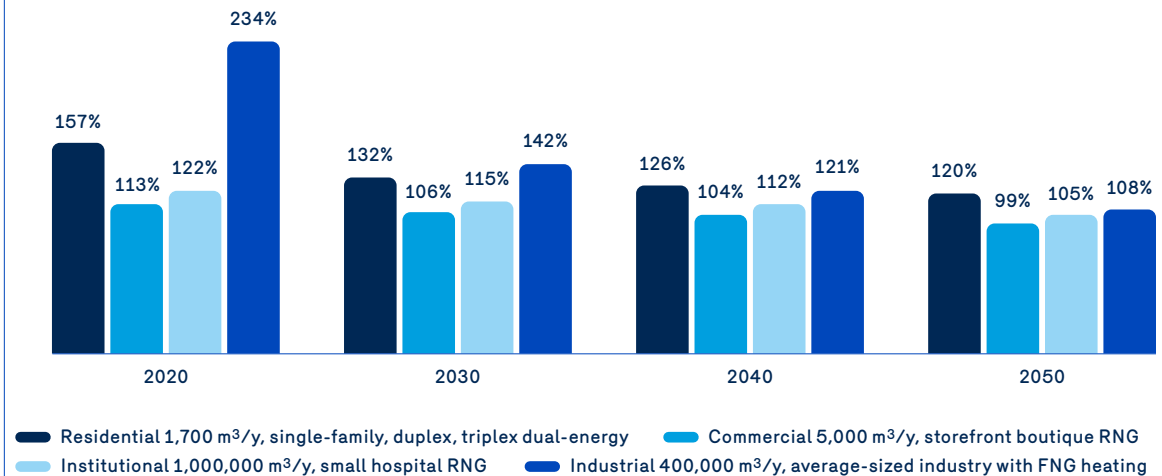
The measures to ensure Énergir's resilience by 2050 are based mainly on the following premises, as shown in the following graph:

1	In most markets, Énergir expects that until 2050, RNG will remain competitive with respect to electricity. RNG, moreover, is still less expensive from a societal point of view than several electricity solutions: RNG draws its main value from being interchangeable with fossil natural gas, which means existing infrastructures can be upgraded and offer 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	Fossil natural gas has a significant competitive advantage and should remain stable in the industrial market until 2050, giving Énergir enough flexibility to integrate more decarbonization opportunities. Note that energy bills are one of the financial elements taken into consideration by industrial customers, as switching from natural gas to electrical processes requires considerable investments, if such a switch is technically possible.
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 <i>Vision 2030-2050</i> section).

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 2020-2050

(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.

- The data used for fossil natural gas, electricity and inflation price projections come from the following sources: Platts, McGraw Hill Financial, Intercontinental Exchange, Inc. (ICE), Bank of Canada.
- RNG forecasts are based on Énergir's supply contracts until 2030.
- Projections for the evolution in Quebec's cap-and-trade system come from the following sources: ClearBlue Markets and California Carbon until 2030, then Wood MacKenzie (2021) to achieve carbon neutrality by 2050.

## » » 2023 Climate Action Plan

For the energy that Énergir distributes to achieve carbon neutrality by 2050, additional solutions to those presented in Vision 2030-2050 will be needed. During fiscal 2023, Énergir intends to continue working to refine its decarbonization roadmap and further align its strategy with a pathway compatible with limiting temperature rise to 1.5°C or less. This will involve a series of actions that should enable it to achieve its goal and reduce uncertainties, including the following:

- |   |   |
|---|---|
| 1 | <b>Accompany</b> 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 in fiscal year 2022. |
| 2 | <b>Continue</b> commercializing the residential dual-energy offering, as well as developing and implementing the commercial and institutional dual-energy offer.                                      |
| 3 | <b>Continue</b> stepping up energy-efficiency efforts over the long term.   |
| 4 | <b>Increase</b> its customers' RNG consumption and support the development of its ecosystem.  |
| 5 | <b>Pursue</b> a roadmap for hydrogen and CCUS, in addition to other potential decarbonization solutions.  |
| 6 | <b>Improve</b> knowledge of the life cycle of natural gas and the impact of methane, and pursue the initiative for the responsible procurement of natural gas.  |
| 7 | <b>Assess</b> the potential of geothermal technologies.   |



# Activities in Vermont



Electricity Distribution  
in Vermont



Distribution of  
Natural Gas in Vermont

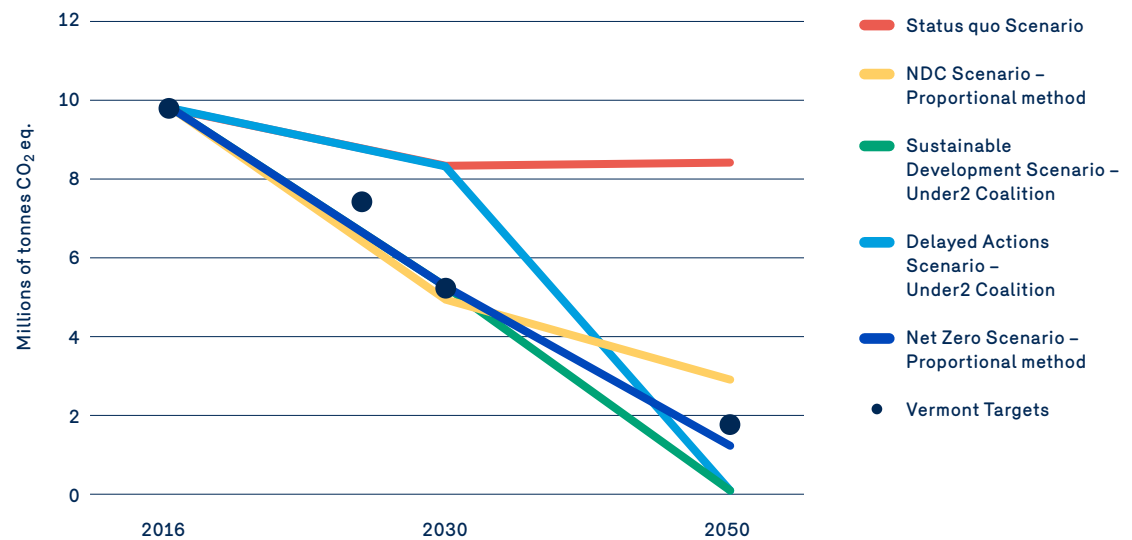




## » Vermont-wide scenarios

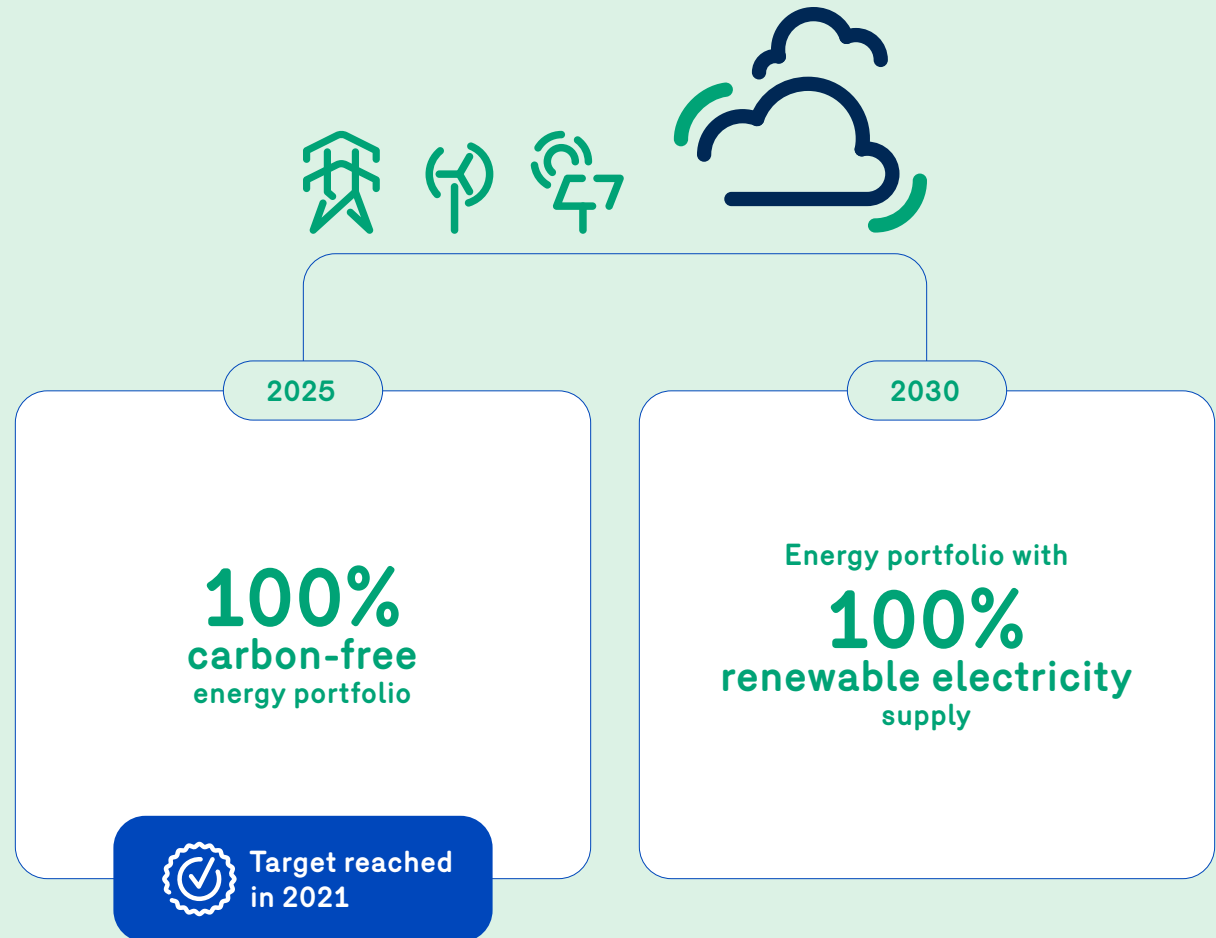
As seen in the Quebec-wide scenarios, the scaling of the NDC Scenario for Vermont reveals a net drop of GHG emissions in 2050. These emissions should reach nearly 3 million tonnes of CO<sub>2</sub> eq. in 2050, though they were estimated at close to 4 million tonnes in 2021. Once again, the pathway by 2030 remains unchanged.


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





## » GMP's "Path to 100% Renewable"

To address climate risks and opportunities, GMP's "Path to 100% Renewable" has one priority: customers – how best to serve them cost effectively and reliably in this time of climate change, and 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 that exceed Vermont's regulatory requirements, to achieve 100% carbon-free electricity supply on an annual basis by 2025 and 100% renewable by 2030. In fact, GMP has exceeded the goal of getting to 100% carbon free by four years (through direct sourcing, the retirement of carbon-free generation attributes or a combination of both). As of 2022, GMP's annual electricity supply portfolio is 100% carbon free and 78% renewable.



	<p>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 resilience risks to develop an energy system where generation is closer to end users, interconnected and empowering for customers, which requires:</p>
<p>1</p>	<p>Switching from a one-way energy system of centralized, fossil fuel-based generation transmitted to far away customers through traditional 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;</p>
<p>2</p>	<p>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 the network to reduce costs and carbon emissions and increase resiliency for customers;</p>
<p>3</p>	<p>Leveraging growing demand associated with strategic electrification to decarbonize the transportation and thermal power sectors, major sources of carbon pollution in Vermont;</p>
<p>4</p>	<p>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.</p>

	<p>GMP to invest in energy distribution models that seek transformation to adapt to the evolving energy generation context in the following ways:</p>
<p>1</p>	<p>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;</p>
<p>2</p>	<p>Establishing communities of distributed energy resources that are communications enabled to optimize the operating cost of the electrical system and the use of renewable and non-GHG-emitting generating sources;</p>
<p>3</p>	<p>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.</p>

	<p>GMP invests in resiliency and reliability measures to counter the effects of climate changes on its system through its Climate Plan by:</p>
<p>1</p>	<p>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;</p>
<p>2</p>	<p>Better preparing GMP's grid to serve as the backbone for Vermont's aggressive goals to cut GHG emissions and transition off fossil fuels;</p>
<p>3</p>	<p>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.</p> <p>GMP successfully launched a broadband internet service deployment program to quickly help more Vermonters get connected at a lower cost. GMP is in the midst of a federally funded major rollout.</p>

## » Resilience of GMP's Business Model

The implementation of GMP's roadmap set out in "Path to 100% Renewable" is consistent with a GHG emission reduction pathway as described in the Sustainable Development Scenario or the Delayed Action Scenario described in the *Vermont-Wide Scenarios* section. GMP uses a scenario to assess its climate resilience in a pathway to limit the temperature rise to 1.5°C or less. 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 there are additional emission reductions that 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. 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.

1	<b>Achieve</b> a carbon-free annual power supply portfolio by 2025 which was completed four years earlier than GMP had anticipated. <sup>18</sup>
2	<b>Achieve</b> 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	<b>Contribute</b> 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, as set forth in the <i>Global Warming Solutions Act</i> which came into force in 2020.
4	<b>Leveraging</b> Vermont's <u>Tier III – Renewable Energy Standard</u> by delivering solutions directly to customers that eliminate or reduce fossil fuel consumption and help reduce their bill.

18. 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 transform its operations so as 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 in-home services, and is establishing a portfolio of low- and no-carbon alternative fuels to transform how its customers warm their homes and businesses.

To achieve its Climate Plan benchmarks, VGS’s innovation is focused on three key areas:



1	<b>Expanding weatherization and energy efficiency accelerating access to affordable weatherization services</b>	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	<b>Launching Renewable In-Home Solutions</b>	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. VGS is testing the installation of hybrid heating systems that integrate forced air furnaces with centrally ducted heat pump technology. VGS is also testing geothermal energy systems for commercial and multi-family housing applications.
3	<b>Growing the Alternative Energy Supply</b>	VGS is steadily increasing the renewable energy supply of its system. It develops biomethane RNG projects in Vermont, and oversees the development of green hydrogen, district energy loops, and networked geothermal energy for commercial purposes.

## » Resilience of VGS's Business Model

Achieving VGS's Climate Plan outlined in the VGS's "Path to Net Zero" section above is consistent with a GHG emission reduction pathway as described in the Sustainable Development Scenario or the Delayed Action Scenario, described in the *Vermont-Wide Scenarios* section above. VGS has set specific goals that are equal or greater than those set through the *Global Warming Solutions Act* that came into force 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 that climate changes will have on Vermont's landscape.

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;
- 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 resilience. 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.

VGS is revisiting even more aggressive targets to accomplish 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

## » Identification, evaluation and management of climate risks and opportunities

Énergir, GMP and VGS have adopted a risk governance framework to facilitate the achievement of business objectives and strategies while favouring an organizational culture committed to managing risks in a proactive and efficient way. Risks are an integral part of the activities and decisions of Énergir, GMP and VGS.

The existing integrated risk management process includes risks related to climate change. Indeed, the process to identify, assess and manage climate risks is integrated into the business risk management process and asset management processes.



### Identification of risks and opportunities

Employees and management are jointly committed to the continuous management of risks and opportunities based on experience and expertise. Risks are an integral part of management discussions and operational committees. Emerging risks are identified and integrated into the respective risk universe of Énergir, GMP and VGS and are subject to an assessment by the management of the entities.



### Risks and opportunities assessment process

Énergir, GMP and VGS have implemented risk assessment methodologies that consider the probability of occurrence and potential impact of each risk. The controls in place and mitigation measures are considered and management ensures that the risks are prioritized and addressed according to their relative impact.



### Reporting and follow-up

Each entity periodically monitors the development of risks during the fiscal year. In addition, through a consolidated dashboard that takes into account the activities of Énergir, GMP and VGS, major risks are presented semi-annually to the Management Committee, to the Audit Committee and to the Board.

Énergir, GMP and VGS are aware of the range of risks of transitioning to a low-carbon economy and of the physical risks associated with climate change. This being the case, the processes that were put in place are meant to evolve over time and to be refined, in particular the risk management processes which aim to better understand the consequences of physical risks.

Thus, Énergir, GMP and VGS intend to continue to develop this risk assessment and identification process with quantifications of risk scenarios including climate scenarios in order to properly determine the short, medium and long term consequences of these risks and the financial, societal or environmental impacts of the occurrence of these risks.

Risk management practices will continue to evolve in a process of continuous improvement within the entities.



# 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 Board of Énergir

Risks and opportunities related to climate change are monitored by the Board and by management. The 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 2022, the 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 Occupational Health and Safety and Environment Committee, the Audit Committee, and the Human Resources and Corporate Governance Committee.



### Reporting on climate-related risks and opportunities to the Board

**The Occupational Health and Safety and Environment Committee** was responsible, among other things, for the climate change component. It received periodic reports from management in this regard, including a follow-up report on the achievement of GHG reduction targets. As part of the preparation of the Climate Resiliency Report, this committee examined the action plan in this regard and discussed with management the initiatives that Énergir proposed for the fiscal year, in order to pursue its climate ambition. It also made its recommendations to the Board for approval of the report. On the other hand, this committee monitored the implementation of Énergir's Environmental Policy.

**The Audit Committee** ensured that management takes appropriate steps to identify financial risks that could affect Énergir, including those stemming from climate change, and that it implements sufficient measures to manage those risks.

**The Human Resources and Corporate Governance Committee** developed Énergir's corporate governance approach, including the governance regarding overseeing climate-related risks and opportunities, as well as practices and procedures for applying this approach.

The Board's mandate was amended on October 18, 2022 and December 15, 2022, so as to reflect changes to the committees' structure, as described below. The Board's mandate explicitly sets out the Board's oversight responsibility for environmental, social and governance factors. Since October 18, 2022, the Board committees are the Corporate Governance, Ethics and Environment Committee, the Human Resources and Social Responsibility Committee and the Audit Committee. In order to ensure that the members of the committees described below have the expertise and knowledge required to support the 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 that were previously assumed by the Occupational Health and Safety and Environment Committee. This committee also assume the corporate governance responsibilities that were previously assumed by the Human Resources and Corporate Governance Committee, including those described in the above table entitled Reporting on climate-related risks and opportunities to the Board. 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 Board, as appropriate;
- Reviewing and periodically monitoring actions, targets, performance indicators and environmental objectives included in Énergir's ESG approach<sup>19</sup> 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 Cap-and-Trade System (CATS) 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 Board;
- Presenting periodic reports and making recommendations on significant environmental matters; and
- Reviewing Énergir's environmental policy and recommending the approval thereof to the Board.

### » The Human Resources and Social Responsibility Committee

The Human Resources and Social Responsibility Committee has the environmental responsibilities that previously belonged to the Human Resources and Corporate Governance Committee. The main environmental and climate change responsibilities of the Human Resources and Social Responsibility Committee are as follows:

- Recommending to the 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's environmental responsibilities pertaining to financial risks, as described in the table entitled Reporting on climate-related risks and opportunities to the Board, are still assumed by the Audit Committee following the amendments made to the committee mandates.

19. In fiscal year 2022, Énergir actively implemented an approach to integrate ESG factors into its corporate culture and business model.

## » Oversight by 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 President and Chief Executive Officer of Énergir, L.P., the Management Committee (in which all sectors of the company are represented) has developed Vision 2030-2050 to guide Énergir's development. The vision's alignments are regularly reviewed to take into account in particular emerging and new 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 Sustainable Development Strategy Committee, and employees from different sectors of Énergir.

### » Sustainable Development Strategy Committee

The objective of the Sustainable Development Strategy Committee is to further develop the sustainable development approach and align it with Énergir's strategy.

Various work teams were mobilized during fiscal year 2022, notably the Climate Resiliency Report steering committee, the GHG Emission Reduction Strategy Committee and the ESG Task Force. The work of these committees consists of developing a better understanding of ESG topics at Énergir.



## » Oversight by the Board and Management of GMP

GMP is regulated by the State of Vermont Public Utility Commission and is 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 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, which certifies companies who voluntarily meet higher standards of social and environmental performance, transparency and accountability.

GMP successfully completed the certification three times (in 2014, 2017 and 2021).

Regular updates on GMP's activities are provided to the 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 Board and Management of VGS

VGS is regulated by the State of Vermont Public Utility Commission, and governed by the VGS Board, which exerts strategic influence on the business to ensure its resilience and maintenance of the foundational values of safety and economic accessibility 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 VGS' 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. VGS's executive team manages strategic matters and presents key matters to the VGS Board for review and, as needed, for approval. Updates to VGS's Climate Plan are presented and reviewed in depth by the VGS Board.

VGS is committed to climate change action, awareness, and accountability in all its business practices and operations. In November 2019, with the support of the VGS Board, it 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 three 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.

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



### VGS Board

**Audit Committee:** The Audit Committee is responsible for providing guidance to 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 members 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.

Members 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 of an agreement in principle with the Syndicat des employés et employés professionnels-les et de bureau – Énergir (SEPB-463)'s executive, the sales representatives, who are already promoting the energy efficiency programs, now have objectives to induce customers to consume less and opt for renewable energy. They therefore adopt the attitude of decarbonization agents and will now be compensated 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 has also created a parity committee on just transition with the FTQ and the SEPB-463's executive; in partnership with the Confederation des syndicats nationaux (CSN)'s executive, it is working alongside the CSN's executive to examine the impact that implementing its strategy will have on Énergir's workers.

### » Short-term incentive program

Starting on October 1, 2022, the short-term incentive compensation for Énergir's managerial personnel will be aligned with the ESG priorities and the company's main strategic objectives, including decarbonization. A portion of the short-term incentive compensation for executives will also be influenced by decarbonization indicators affecting the three entities (Énergir, GMP and VGS).

### » Long-term incentive program

Énergir's 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



## » Our measures 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 Énergir's 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	2022 Performance	Énergir 2030 Targets
1 Initiative for the responsible procurement of natural gas	<ul style="list-style-type: none"> <li>Purchase of 33% of system gas as part of this initiative in 2022.</li> </ul>	<b>Purchase of 100%</b> of fossil system gas by Énergir as part of the initiative for responsible procurement of natural gas.
2 Direct emissions from Énergir's activities <sup>20</sup> (e.g. leaks, combustion, fleet)	<ul style="list-style-type: none"> <li>Direct emissions (Scope 1): 63,531.7 tonnes of CO<sub>2</sub> eq. in 2021<sup>21</sup>;</li> <li>Indirect emissions (Scope 2): 17.1 tonnes CO<sub>2</sub> eq. in 2021;</li> <li>Total direct and indirect emissions: 63,548.8 tonnes CO<sub>2</sub> eq. in 2021;</li> </ul> <p><b>These measures represent a 21.1% reduction from 1990 levels.</b></p>	<b>GHG emission reduction of 37.5%</b> by 2030, from 1990 levels.
Indirect emissions from Énergir's activities (e.g., electricity consumption)		
3 Energy efficiency	<ul style="list-style-type: none"> <li>Cumulative reduction of 263,058 tonnes CO<sub>2</sub> eq. resulting from energy efficiency in fiscal years 2020, 2021 and 2022;</li> <li>Reduction of 98,728 tonnes CO<sub>2</sub> eq. resulting from energy efficiency in fiscal 2022 (including a reduction of 38,927 tonnes CO<sub>2</sub> eq. for customers in the buildings sector);</li> <li>Énergir's energy efficiency programs have allowed for savings of 51.4 million cubic metres of natural gas during fiscal year 2022.</li> </ul> <p>☑ Target for 2022 exceeded (48.5 Mm<sup>3</sup>).</p>	<b>GHG emission reduction of 1 million tonnes CO<sub>2</sub> eq.</b> between 2020 and 2030.
4 RNG	<ul style="list-style-type: none"> <li>Consumption of a volume of over 27 million cubic metres of RNG (0.44% of total) by Énergir's customers in fiscal year 2022;</li> <li>GHG emission reduction of 52,265 tonnes CO<sub>2</sub> eq. for customers who consumed RNG in fiscal year 2022 (including a reduction of 16,167 tonnes CO<sub>2</sub> eq. for customers in the buildings sector);</li> <li>Below the target for 2022 (1% of total consumed).</li> </ul>	<b>Consumption of 10% of RNG by Énergir's customers,</b> namely 567 Mm <sup>3</sup> and GHG emission reduction of 1 million tonnes CO <sub>2</sub> eq. by 2030.
5 Complementarity / Dual-energy <sup>22</sup>	<ul style="list-style-type: none"> <li>Approval of application for residential offering by the Régie. No GHG emission reduction in fiscal year 2022, as the first customer agreements were entered into in the fall. The first reductions will be recorded in fiscal year 2023.</li> </ul>	<b>GHG emission reduction of 0.5 million tonnes CO<sub>2</sub> eq.</b> by 2030.
6 Total reduction of GHG emissions in the buildings sector	<ul style="list-style-type: none"> <li>GHG emissions increase of 2.6% since fiscal year 2020, namely 110,585 tonnes CO<sub>2</sub> eq. due to increased economic activities in the post-pandemic recovery and despite all efforts to reduce GHG emissions. However, Énergir remains convinced that its GHG emission reduction targets will be reached regardless of demand changes beyond its control.</li> </ul>	<b>GHG emission reduction of 30%</b> for Énergir's customers in the buildings sector compared to 2020 levels by 2030.

20. 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) is available in the annual sustainable development report at <https://energir.metrio.net/?locale=fr>.

21. In fiscal year 2021, Énergir emitted 63,532 tonnes of CO<sub>2</sub> eq., representing a 14.5% rise in GHG emissions compared to 2020. This increase is due mainly to the fact that in calendar year 2021, the *Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere* required a global warming potential of 25 to be used for methane emissions instead of a global warming potential of 21. This amendment had the effect of increasing the GHG emissions emitted into the atmosphere for the same quantity of natural gas. Had a global warming potential of 25 been used to calculate Énergir's GHG emissions for calendar year 2020, those emissions would have been 63,372 tonnes of CO<sub>2</sub> eq.

22. 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	2022 Performance	GMP Targets
1 <b>Carbon-free electricity supply</b>	<ul style="list-style-type: none"> <li>Percentage of GMP's power supply which is: 1) carbon neutral; and 2) is made up of renewable energy in accordance with the RES;</li> <li>GMP's power supply is 100% carbon neutral and made up of over 78% renewable energy;</li> <li>In calendar year 2020, GMP's power supply was 0 lbs of CO<sub>2</sub> eq. per MWh (0 kg CO<sub>2</sub> eq. per MWh) on an annualized basis.</li> </ul>	<p>✔ <b>100% carbon neutral by 2025</b> (achieved in 2021).</p> <p><b>100% renewable energy</b> by 2030. (75% renewable with 10% decentralized generation by 2032 (RES)).</p>
2 <b>Customers – electric vehicles</b>	<p>✔ 1,700 customers (2,900 total) currently subscribing to electric vehicle charging rates (where applicable) or other incentive programs by means of rates, pilot projects or other.</p>	<p>Fiscal Year 2022: <b>800 customers subscribed</b> to GMP's program for home electric vehicle charging programs, either controlled or self-directed.</p>
3 <b>Heat pumps</b>	<p>✔ 6,696 heat pumps deployed.</p>	<p>Fiscal Year 2022: <b>5,000 heat pumps</b> deployed.</p>
4 <b>Tier III<sup>23</sup></b>	<p>✔ GMP added over 25,000 MWh and met its annual target.</p>	<p>Fossil fuel substitution must increase by 2/3% of retail sales in kWh, to reach 12% by 2032.</p> <p>The 2022 target is <b>5.33%</b>.</p>

23. 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*.

Metric	2022 Performance	VGS 2030 Targets
1 Responsible procurement of natural gas	<ul style="list-style-type: none"> <li>20% of system gas was purchased under this initiative in 2022.</li> </ul>	100% of fossil natural gas supplies were contracted by VGS under the <b>responsible procurement initiative</b>
2 Direct emissions from VGS	<ul style="list-style-type: none"> <li>Scope 1 emissions: 3,308.49 tonnes CO<sub>2</sub> eq.</li> <li>VGS did not have Scope 2 emissions (all electricity consumed came from carbon neutral sources)</li> <li>In 2022, VGS established a plan to meet the objective for public service operations (fleet of vehicles and corporate buildings).</li> </ul>	<b>GHG emission reduction of 50%</b> by 2030, compared to 2020 levels, for public service operations
3 Energy efficiency	<ul style="list-style-type: none"> <li>Additional annual savings of 1.5 million cubic meters, equivalent to a GHG reduction of 2,979.21 tonnes of CO<sub>2</sub> eq.</li> <li>On track to meet the objective of 6.8 million cubic meters saved over three years, which represents a GHG reduction of 13,214 tonnes of CO<sub>2</sub> eq., or 119 million cubic meters over the entire useful life of the equipment.</li> </ul>	<b>GHG reduction of 43,000 Mt</b> by 2030
4 Renewable energy	<ul style="list-style-type: none"> <li>Volumes consumed by VGS customers in 2022: 3.9 million cubic meters (1.3%)</li> <li>GHG emission reduction of 15,362 tonnes of CO<sub>2</sub> eq.</li> <li>Long-term supply agreement to bring RNG up to 13% of retail consumption by 2030.</li> </ul>	<b>20% of energy consumed</b> by VGS customers will come from alternative supply by 2030.
5 Home energy innovation	<ul style="list-style-type: none"> <li>Launch of the electric heat pump water heater (HPWH) program.</li> <li>Geothermal and hybrid heating pilot projects should be starting in 2023.</li> </ul>	10% of customers will have a <b>non-fossil thermal energy system</b> installed by VGS by 2030

# Appendix

# 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 <b>40 to 45% vs. 2005 levels</b> by 2030.
		<i>Regulations Respecting Reduction in the Release of Methane and Certain Volatile Organic Compounds</i>	Reduce methane emissions in the oil and gas sector by 40% to 45% vs. 2012 levels by 2025.
		<i>Canadian Net-Zero Emissions Accountability Act</i>	Establish a national GHG emissions target for 2035, 2040 and 2045 to achieve carbon neutrality by 2050.
		<i>Clean Fuel Regulations</i>	Establish a carbon intensity target for fuels produced and sold for use in Canada, and implement a greater number of incentives favouring the development and adoption of clean fuels, technologies and processes.
Quebec	Policies and regulations	2030 GHG emission reduction objectives	<b>Reduce GHG emissions by 37.5%</b> under 1990 levels.
		Plan for a green economy (2030)	Plan to, among other things, (i) achieve the GHG emission reduction target set by the Government of Quebec 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.
		<i>Regulation respecting the cap-and-trade system for greenhouse gas emission allowances (Quebec) (CATS)</i>	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.
		<i>Regulation respecting the quantity of renewable natural gas to be delivered by a distributor</i>	Set the minimum quantity of RNG to be delivered by a natural gas distributor at <b>1% of the total quantity of natural gas it delivers as of its fiscal year 2020, at 5% in 2025, at 7% in 2028 and at 10% in 2030.</b>
	<i>Act respecting the Ministère des Ressources naturelles et de la Faune</i>	Payment of 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 Government of Quebec.	
	Political commitments	Under2 Coalition	<b>Reduce GHG emissions by 80% by 2050</b> in order to limit global warming to under 2°C.
Montréal	Policies and regulations	<i>City of Montréal's Climate Plan</i>	55% reduction in GHG emissions by 2030, with a view to achieving carbon neutrality in 2050.
		<i>Roadmap for zero-emission buildings in Montréal</i>	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).
Vermont	Policies and regulations	<i>Global Warming Solutions Act of 2020</i>	Reduce Vermont's GHG emissions by at least <b>26% below 2005 levels by 2025</b> , at least 40% below 1990 levels by 2030, and at least 80% below 1990 levels by 2050.
		<i>Comprehensive Energy Plan</i>	Ensure that <b>90% of Vermont's energy needs are met by renewable sources</b> by 2050.
		<i>Vermont Renewable Energy Law</i>	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 <b>30% vs. 2020 levels by 2030</b> <sup>24</sup> .

24. 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
<b>Status Quo</b>	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 for all of Quebec come from the report carried out by Dunsky Energy Consulting for Quebec, <sup>25</sup> 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.
<b>NDC – proportional method</b>	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 Agreement provides that the signatory countries must submit new contributions every five years. <sup>26</sup>  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. <sup>27</sup>	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.
<b>Sustainable Development Scenario – Under2 Coalition</b>	The International Energy Agency 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 preindustrial levels.	The Under2 Coalition brings together infranational governments that are committed to reducing emissions in their jurisdictions. This coalition was created before the Conference of Parties (COP) which led to the Paris Agreement.  The signatories of this agreement committed then 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.
<b>Delayed Action – Under2 Coalition</b>	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 2°C or less by 2100 compared to preindustrial 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 was used.
<b>Net Zero – Proportional method</b>	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 was used.

25. See the *Trajectoires de réduction d’émissions de GES du Québec* report for more information: <https://www.environnement.gouv.qc.ca/changementsclimatiques/trajectoires-emissions-ges.pdf>.

26. Further information on NDCs may be found on the secretariat website of the United Nations Framework Convention on Climate Change. [Determined Contributions \(NDCs\) | UNFCCC](#).

27. 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
<b>Status Quo</b>	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 <b>further affect Énergir's physical assets.</b>	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.	
<b>NCD</b>	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.
<b>Sustainable Development and Delayed Action</b>	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.	
	<p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p>	<p>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.</p> <p>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.</p> <p>These scenarios are consistent with limiting the temperature rise to 2°C or less by 2100 compared to pre-industrial levels.</p>
<b>Net zero</b>	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

<p><b>Scenario Status Quo<sup>28</sup></b> <b>1</b></p> <p>The Status Quo Scenario is aligned with the IPCC RCP 7.0.<sup>29</sup> 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.</p>	<p><b>Scenario NCD</b> <b>2</b></p> <p>NDCs embody the commitments of each Paris Agreement country to reduce its national GHG emissions and adapt to the effects of climate change.</p> <p>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 26th annual United Nations Climate Conference (also known as COP26) held during November 2021, 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.</p>	<p><b>Scenario Sustainable Development</b> <b>3</b></p> <p>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.</p>	<p><b>Scenario Delayed Action</b> <b>4</b></p> <p>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.</p>	<p><b>Scenario Net zero</b> <b>5</b></p> <p>The Net Zero Scenario is based on the IPCC SR 1.5 P2 scenario. 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.</p> <p>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<sub>2</sub> 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.</p> <p>Current and announced policies to date do not allow the Net Zero Scenario to be achieved.<sup>30</sup></p>
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28. 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](https://www.bankofcanada.ca/2020/05/staff-discussion-paper-2020-3/?page_moved=1).

29. 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.

30. 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

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
<b>Status Quo</b>	<ul style="list-style-type: none"> <li>2030: 120 USD/tonnes</li> <li>2050: 462 USD/tonnes<sup>31</sup></li> </ul>	<ul style="list-style-type: none"> <li>2030: 6.3 USD (2020)/MBtu – 0.23 USD/m<sup>3</sup></li> <li>2050: 24.3 USD (2020)/MBtu – 0.87 USD/m<sup>3</sup></li> </ul>	<ul style="list-style-type: none"> <li>2050: practically no capture and sequestration</li> </ul>	<ul style="list-style-type: none"> <li>CCUS:<sup>32</sup> future technologies</li> </ul>	<ul style="list-style-type: none"> <li>2030: 5% less compared to 2020</li> <li>2040: 3% less compared to 2020</li> <li>2050: 5% less compared to 2020</li> </ul>	Quebec: <ul style="list-style-type: none"> <li>2030: 22% less natural gas compared to 2020</li> <li>2050: 77% less natural gas compared to 2020<sup>33</sup></li> </ul>	7.0	3.6 °C
<b>NDC</b>	<ul style="list-style-type: none"> <li>Canada 2030: 135 USD/tonnes</li> <li>Global in 2050: 200 USD/tonnes<sup>34</sup></li> </ul>	<ul style="list-style-type: none"> <li>2030: 7.1 USD (2020)/MBtu – 0.26 USD/m<sup>3</sup></li> <li>2050: 10.5 USD (2020)/MBtu – 0.38 USD/m<sup>3</sup></li> <li>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</li> </ul>	<ul style="list-style-type: none"> <li>2030: 0.35 Gt/year</li> <li>2035: 2.5 Gt/year</li> <li>2050: 3.8 Gt/year</li> </ul>	<ul style="list-style-type: none"> <li>Hydrogen electrolysis, CCUS whose technologies are to come.</li> <li>CCUS 4 times lower than in the Net Zero Scenario. More than 90% of CCUS projects in advanced economies.</li> </ul>	<ul style="list-style-type: none"> <li>2030: 15% more compared to 2020</li> <li>2040: 16% more compared to 2020</li> <li>2050: 16% more compared to 2020</li> </ul>	<ul style="list-style-type: none"> <li>2030: 9% more natural gas compared to 2020</li> <li>2040: 1% more natural gas compared to 2020</li> <li>2050: 8% less natural gas compared to 2020</li> <li>All new buildings reach zero carbon emissions in 2030.<sup>35</sup></li> </ul>	4.5	More than 2 °C
<b>Sustainable Development</b>	<ul style="list-style-type: none"> <li>2030: 100 USD/tonnes</li> <li>2050: 160 USD/tonnes<sup>34</sup></li> </ul>	<ul style="list-style-type: none"> <li>2030: 5.3 USD (2020)/MBtu – 0.19 USD/m<sup>3</sup></li> <li>2050: 8.4 USD (2020)/MBtu – 0.30 USD/m<sup>3</sup></li> <li>Drop in price in 2030 due to a more significant reduction of the demand for natural gas from major importers.</li> </ul>	<ul style="list-style-type: none"> <li>2030: 0.9 Gt/year</li> <li>2035: 3.5 Gt/year</li> <li>2050: 5.4 Gt/year</li> </ul>	<ul style="list-style-type: none"> <li>CCUS: future technologies</li> </ul>	<ul style="list-style-type: none"> <li>2030: 5% more compared to 2020</li> <li>2040: the same as 2020</li> <li>2050: 5% less compared to 2020</li> </ul>	<ul style="list-style-type: none"> <li>2030: 2% more natural gas compared to 2020</li> <li>2040: 18% less natural gas compared to 2020</li> <li>2050: 41% less natural gas compared to 2020<sup>35</sup></li> </ul>	2.6	2 °C
<b>Delayed Action</b>	<ul style="list-style-type: none"> <li>2035: 200 USD/tonnes</li> <li>2050: 800 USD/tonnes<sup>36</sup></li> </ul>	<ul style="list-style-type: none"> <li>2030: 6.3 USD (2020)/MBtu – 0.23 USD/m<sup>3</sup></li> <li>2050: 42.1 USD (2020)/MBtu – 1.51 USD/m<sup>3</sup></li> </ul>	N.A.	<ul style="list-style-type: none"> <li>CCUS from natural gas and coal combined cycle</li> </ul>	N.A.	<ul style="list-style-type: none"> <li>2030: global status quo (increase around 19%)<sup>37</sup></li> <li>2050: 72% less production of natural gas compared to the global status quo<sup>38</sup></li> </ul>	4.5 (2030) 2.6 (2050)	2 °C
<b>Net zero</b>	<ul style="list-style-type: none"> <li>2030: 140 USD/tonnes</li> <li>2050: 250 USD/tonnes<sup>34</sup></li> </ul>	<ul style="list-style-type: none"> <li>2030: 1.9 USD (2020)/MBtu – 0.25 USD/m<sup>3</sup></li> <li>2050: 1.8 USD (2020)/MBtu – 0.47 USD/m<sup>3</sup></li> <li>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.<sup>39</sup></li> </ul>	<ul style="list-style-type: none"> <li>2030: 1.23 Gt/year</li> <li>2050: 6.15 Gt/year</li> </ul>	<ul style="list-style-type: none"> <li>2030: 20% of future technologies</li> <li>2050: 50% new technologies</li> <li>+85% carbon-neutral buildings.</li> <li>60% of CCUS projects in developing countries.</li> </ul>	<ul style="list-style-type: none"> <li>2030: 5% less compared to 2020</li> <li>2040: 15% less compared to 2020</li> <li>2050: 19% less compared to 2020</li> </ul>	<ul style="list-style-type: none"> <li>Demand for fossil fuels met by continued investments in existing assets, but no new conventional projects</li> <li>2030: 15% less natural gas compared to 2020</li> <li>2050: 71% less natural gas compared to 2020<sup>35</sup></li> </ul>	1.9	1.5 °C

31. Modeling undertaken by Dunsky based on the annual increase of 5% plus inflation of the price of CATS observed since 2013, Source: <https://www.environnement.gouv.qc.ca/changements/carbone/documents-spede/questions-reponses-en.pdf>, p. 11.

32. Carbon Capture, Utilization and Sequestration.

33. Source: Dunsky and ESMIA, Trajectoires de réduction d'émissions de GES du Québec – horizons 2030 and 2050 (updated 2021) (French only), p. 42, [https://www.dunsky.com/wp-content/uploads/2021/09/Rapport\\_Final\\_Trajectoires\\_QC\\_2021.pdf](https://www.dunsky.com/wp-content/uploads/2021/09/Rapport_Final_Trajectoires_QC_2021.pdf).

34. Source : World Energy Outlook 2022, Table B.2: CO<sub>2</sub> Prices, p. 465, <https://iea.blob.core.windows.net/assets/c282400e-00b0-4edf-9a8e-6f2ca6536ec8/WorldEnergyOutlook2022.pdf>.

35. Source : World Energy Outlook 2022, Table A.2c : World final consumption, p. 446, <https://iea.blob.core.windows.net/assets/c282400e-00b0-4edf-9a8e-6f2ca6536ec8/WorldEnergyOutlook2022.pdf>.

36. Source: Bank of Canada – Scenario Analysis and the Economic and Financial Risks from Climate Change, Chart 3, p. 16 (price estimated according to the IPCC rule: \$75/t CO<sub>2</sub> reduces emissions by 20-30% by 2030).

37. Increase of 18.9% between 2020 and 2030 for the Stated Policies scenario IEA, Source: World Energy Outlook 2021, Table A.2a: World final consumption – Stated Policies, p. 296.

38. Source : Bank of Canada – Scenario Analysis and the Economic and Financial Risks from Climate Change, Table 3, p. 21, <https://www.bankofcanada.ca/wp-content/uploads/2020/05/sdp2020-3.pdf>.

39. Source : World Energy Outlook 2022, Table 2.2 : Fossil fuel prices by scenario , p. 110, <https://iea.blob.core.windows.net/assets/c282400e-00b0-4edf-9a8e-6f2ca6536ec8/WorldEnergyOutlook2022.pdf>.



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