

# Climate Resiliency Report

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 material subsidiary, Green Mountain Power (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 can reflect the intentions, initiatives, expectations and opinions of the Corporations’ management team (collectively, “**Management**”) and are designed to help stakeholders better understand the approach it 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 as well as the negative or conjugated forms.

This Report contains information or forward-looking 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 lower-carbon economy, and the role that different energy sources should play in this transition;
- quantitative scenarios issued by organizations forecasting several possible global GHG emission trajectories 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 models.

It should be noted that no climate scenario is perfect and, in this context, the Corporations have chosen those that best meet TCFD criteria (as defined in the Glossary). 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 and Green Mountain Power (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 models;
- 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 2030-2050 vision;
- Énergir’s plans to develop climate targets and indicators directly related to GHG emissions from its operations, as well as some of those from its entire value chain, both upstream and downstream at its clients’ sites;
- Green Mountain Power’s Climate Plan;
- GHG indicators and performance and targets for Green Mountain Power;
- Green Mountain Power’s roadmap in managing risks and opportunities related to climate change;
- 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 not limited to the general nature of the aforementioned, 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; the reliability or costs of 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 crisis; exchange rate and interest rate fluctuations; 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, 2020 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 that actual results will be consistent with these forward-looking statements. These forward-looking statements are made as of 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.

## About this Report

This Climate Resiliency Report follows the recommendations set by the Task Force on Climate-related Financial Disclosures (“TCFD”). It covers the two most material entities according to size and type of activities in relation to climate change, that is, Énergir with respect to its natural gas distribution activities in Quebec, and Green Mountain Power with respect to electricity distribution activities in Vermont.

The report covers Énergir and Green Mountain Power’s fiscal year ended on September 30, 2020, i.e. the period from October 1, 2019 to September 30, 2020.

To learn more about Énergir’s sustainable development performance according to various environmental, social and governance (ESG) indicators, please refer to its [Sustainability Performance Tracking Platform](#). As for Green Mountain Power’s performance, please refer to their [B Corp certification](#).

To learn more about Énergir or Green Mountain Power’s operations, please refer to Énergir Inc.’s 2020 MD&A (which must be read along with its 2020 financial statements) and annual information form, available online on SEDAR at [www.sedar.com](http://www.sedar.com) under Énergir inc.’s profile.

## Glossary

In this climate resiliency report:

**Carbon neutral OR Net Zero emissions** means an activity which has a net zero GHG emissions result. Carbon neutrality or Net zero emissions can be reached by reducing GHG emissions or by compensating GHG emissions that could not be reduced by various measures such as sequestration of GHG emissions or planting trees.

**Carbon price** 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 Interuniversity Research Centre for the Life Cycle of Products, Processes and Services.

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

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

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

**Delayed Action Scenario** means the Bank of Canada’s 2 degrees Celsius or less Scenario by 2100 compared to preindustrial levels through delayed action.

**Énergir** means Énergir L.P.

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

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

**GHG** means greenhouse gases.

**Green Mountain Power Board** means the Board of Directors of Green Mountain Power.

**Green Mountain Power** means Green Mountain Power Corporation.

**GWh** means gigawatt hours.

**IEA** means the International Energy Agency.

**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 – Modèle énergétique nord-américain TIMES.

**NDC** means nationally determined contributions pursuant to the Paris Agreement.

**NDC Scenario** means nationally determined contributions (NDC) scenario as more fully described in the GHG Emissions Scenarios section.

**RCP** means Representative Concentration Pathways.

**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 Renewable Energy Standard. Mandatory renewable energy requirement for Vermont utilities set out by the renewable energy statutes of Vermont.

**RNG** means renewable natural gas.

**Scope 1** means direct GHG emissions from fixed or mobile Énergir or Green Mountain Power 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 or Green Mountain Power, as the case may be.

**Scope 3** means GHG emissions other than the Scope 2 emissions indirectly produced by the operations of Énergir or Green Mountain Power, as the case may be, but that are nonetheless linked to their total value chain.

**Status Quo Scenario:** means *Status Quo* Scenario of the Bank of Canada as more fully described in the GHG Emissions Scenarios section.

**Sustainable Development Scenario (SDS)** means the International Energy Agency’s 2 degrees Celsius or less Scenario by 2100 compared to preindustrial levels.

**TCFD** means the 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.

**Vermont Gas Systems Inc.** means Vermont Gas

**Vision 2030-2050** means Énergir’s strategy, with respect to its natural gas distribution activities, on how it will adapt, from 2030 to 2050, to changing energy environments and impacts related to climate change.



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# President's Message



**Éric Lachance**

President and Chief Executive Officer

I attach great importance to this first climate resiliency report. It is symbolic, but it's being published a year after my appointment as President and Chief Executive Officer of Énergir. One year since I made a commitment to continue the transformation of the company and to take it even further in its decarbonization journey. A year in which we have developed a business vision for 2030 and 2050 that will allow us to become a supplier of varied and increasingly renewable energy solutions, notably through our subsidiaries.

This first year was also disrupted by the COVID-19 pandemic and all the resulting uncertainty. However, if the pandemic has derailed the global economy and upended the lives of billions of people, it has also clearly shown humanity that we have a duty to help one another. And that by working together we can accomplish great things. In addition to this health crisis, the climate crisis remains ever present. We are relaying the call for a green, fair and inclusive recovery. Faced with the need to rebuild itself, the world cannot pass up the opportunity to build better.

Over the past year, we have built our corporate strategy for the next ten years, and even beyond. This report presents the progress we have made in our thinking, the work done at Énergir and the actions we will undertake to contribute towards a low-carbon economy.

To do so, we have chosen to comply with the disclosure recommendations set by the Task Force on Climate-Related Financial Disclosures (TCFD) and thereby meet the demanding challenge it imposes, which is to project us into the future to discuss Énergir's longer-term resiliency. The importance of being able to do this was clear to us. This framework allows us to address the legitimate questions of our customers, investors and stakeholders regarding our role in reaching ambitious climate goals using compelling measures and indicators and targets for the future.

While this report was drafted under new leadership and in a context of upheaval, it remains consistent with Énergir's two long-standing commitments: to be part of the solution and to imagine energy differently.

## » Our changing business model

One of Énergir's great strengths has always been its positive impact on the communities it serves and its forward thinking.

Almost 20 years ago, Énergir became the pioneer of energy efficiency programs in Quebec. Since then, it has carried out over 130,000 energy-efficiency projects adapted to each customer's reality.

It is also with this in mind that Énergir evolved almost naturally and extended its activities to Vermont where, through its subsidiaries, it is the leading distributor of natural gas and electricity from different sources, notably from hydroelectric, wind and solar.

The distributor of natural gas from 60 years ago has become, through its subsidiaries, a provider of diversified energy solutions having assets now in the area of renewable energy.

This evolution stands as proof of our strong belief in the need to pivot our business model not to sell more but to sell better. Our long-term business model strives to think of energy not as a product, but as a service that must meet various needs as best possible, in particular with respect to reducing GHG emissions to steer us to a low-carbon economy. This is why we are committed to building long-term relationships with our customers and communities.

## » Vision for 2030-2050: A vision of renewed decarbonization

Energy distribution is central to decarbonization efforts. As business conditions evolve so does our business model.

In Vermont, our subsidiaries are constantly innovating and have already announced their intentions in the fight against climate change by setting ambitious targets. For Green Mountain Power, the ambition is to reach 100% carbon-free energy resources by 2025 and 100% renewables by 2030. For Vermont Gas, the ambition is to achieve a 30% GHG reduction in customers' homes and businesses by 2030 and to transform the company and eliminate greenhouse gas (GHG) emissions by 2050.

In Quebec, Énergir has updated its long-term planning to adopt a sharper vision which will increase its contribution to reducing GHG emissions. We have taken into consideration the uncertainty, physical risks and transition risks to which we will be exposed in the next few years to ensure the sustainability of our natural gas distribution activities. This vision is consistent with the climate policies and objectives set out by the Quebec government in its plan for a green economy 2030 and by the City of Montreal in its climate plan, including the decarbonization of the building sector. This new 2030-2050 Vision also reflects our wish to act on the business opportunities associated with climate change and participate in bringing about these needed changes in a sustainable manner.

We have often talked about using the right energy in the right place. This is still true. However, we believe we now have to think about using the right energy, in the right place, at the right time and at the lowest cost to society.

Our objective is to decarbonize our natural gas network and focus on high value-added activities for the Quebec energy system, for which we expect to have a sustainable competitive advantage.

First, to decarbonize our network, we must continue and even accelerate certain actions, such as increasing our customers' energy efficiency and injecting RNG in our network without increasing our customers' energy bills.

Second, we want to focus on high value-added activities such as the complementarity of energy networks in Quebec. Hydroelectricity is a tremendous asset in Quebec. Clearly, electrifying a part of the economy is desirable. Together, our gas network and electricity network ensure complementarity to decarbonize our economy better than anywhere else in North America, at the lowest cost to society.

Consequently, we want to focus on creating value rather than on distributing volumes, as we expect the quantities of natural gas distributed may remain stable or slightly decrease by 2030 and may decrease more sharply by 2050. At the same time, we anticipate a decrease in the amount of fossil-based natural gas that will be distributed in the future, which would be substituted by an increase in the quantities of RNG.

We are aiming to reduce by 30% the GHG emissions from buildings we serve by 2030. We are aiming to be carbon neutral in this sector by 2050.

Énergir believes its business model is resilient for 2030 according to a scenario in which global warming is limited to not more than 2 degrees Celsius above preindustrial levels. There is still work to be done to refine our strategies for 2050, but we are on the right track, and our intention is clear: we want to steer our operations to become completely carbon neutral.

The climate scenarios will continue to change, and we will adapt in accordance with our intention.

## » A business that is learning

Our way of thinking regarding our role in the march towards a low-carbon society by 2030 and 2050 did not come out of nowhere. Before drafting this report, we consulted our stakeholders. Our goal was to gather their comments, and sometimes their criticisms, in a citizen-to-citizen relationship, as members of the same community sharing the same future.

I would like to thank everyone, all the groups and organizations that helped us through this rigorous exercise in which we invested ourselves openly and humbly. I want to tell them that we share their concerns and that we hope to live up to their expectations.

This document is a report from a business in which all members are truly striving to do their best to help solve one of the greatest challenges humanity has ever faced.

This is the first, albeit imperfect, climate resiliency report from a company that is learning, that intends to improve, and especially, that is deeply committed to a longer-term approach.

I would like to give thanks to the entire Énergir team.



**Éric Lachance**  
President and Chief Executive Officer

# Presentation of the Corporate Group

As of September 30<sup>th</sup> 2020, the Corporate Group, which comprises Énergir and its subsidiaries including Green Mountain Power, is a diverse energy industry group whose mission is to meet the needs of its 530,000 customers and communities in an increasingly sustainable manner. Énergir is the leading natural gas distribution company in Quebec and also produces, through its subsidiaries, electricity from wind power. In the United States, the group generates electricity from hydro, wind and solar sources (including through Standard Solar, Inc.), in addition to being the leading distributor of electricity through Green Mountain Power and, through Vermont Gas, Vermont's only natural gas distributor. However, this first Climate Resiliency Report covers the two most material entities according to size and type of activities in relation to climate change, Énergir and Green Mountain Power. Énergir intends to gradually broaden the scope of climate reporting to include other subsidiaries in the future. In both Quebec for the distribution of natural gas and Vermont for the distribution of electricity, the distribution of energy is an activity that is regulated.

The Corporate Group's main operations are presented below as well as some of the locations of suppliers' RNG facilities.

A more complete description of Énergir and Green Mountain Power can be found below under the sections Énergir's Profile and Green Mountain Power's Profile.



# Énergir's Profile

With more than \$8 billion in assets, Énergir values energy efficiency and pursues its efforts in innovative energy projects such as RNG, LNG and compressed natural gas. Énergir strives to become the partner of choice for those seeking a better energy future. Énergir's mission is to meet the energy needs of the customers and the communities it serves in an increasingly sustainable way. Énergir offers competitive, varied and innovative solutions.

## » Natural gas distribution in Quebec

Through its 11,000-km network, Énergir distributes approximately 97% of the natural gas consumed in Quebec to some 209,000 customers in approximately 325 municipalities. Énergir has the storage capacity to manage fluctuations in its customers' use. Énergir provides natural gas service to the residential, commercial and industrial markets.

In all of these markets, it also offers its customers energy efficiency programs to help them consume less and better.

### Énergir Serves Nearly 209,000 Customers in Québec

	Residential		Commercial		Industrial	
	Data	%	Data	%	Data	%
Customers	144,726	69.1%	56,508	27.0%	8,305	4.0%
Volumes	623.0 Mm <sup>3</sup>	10.6%	1,615.8 Mm <sup>3</sup>	27.6%	3,624.4 Mm <sup>3</sup>	61.8%
Distribution revenues	\$120.3M	22.1%	\$243.6M	44.7%	\$180.8M	33.2%





## Natural gas distribution in Québec

Nearly  
**209,000 customers**  
in Québec

More than  
**325 municipalities**

More than  
**11,000 km**  
of underground pipes



### » Contribution to GHG emissions per component of the value chain<sup>1</sup>

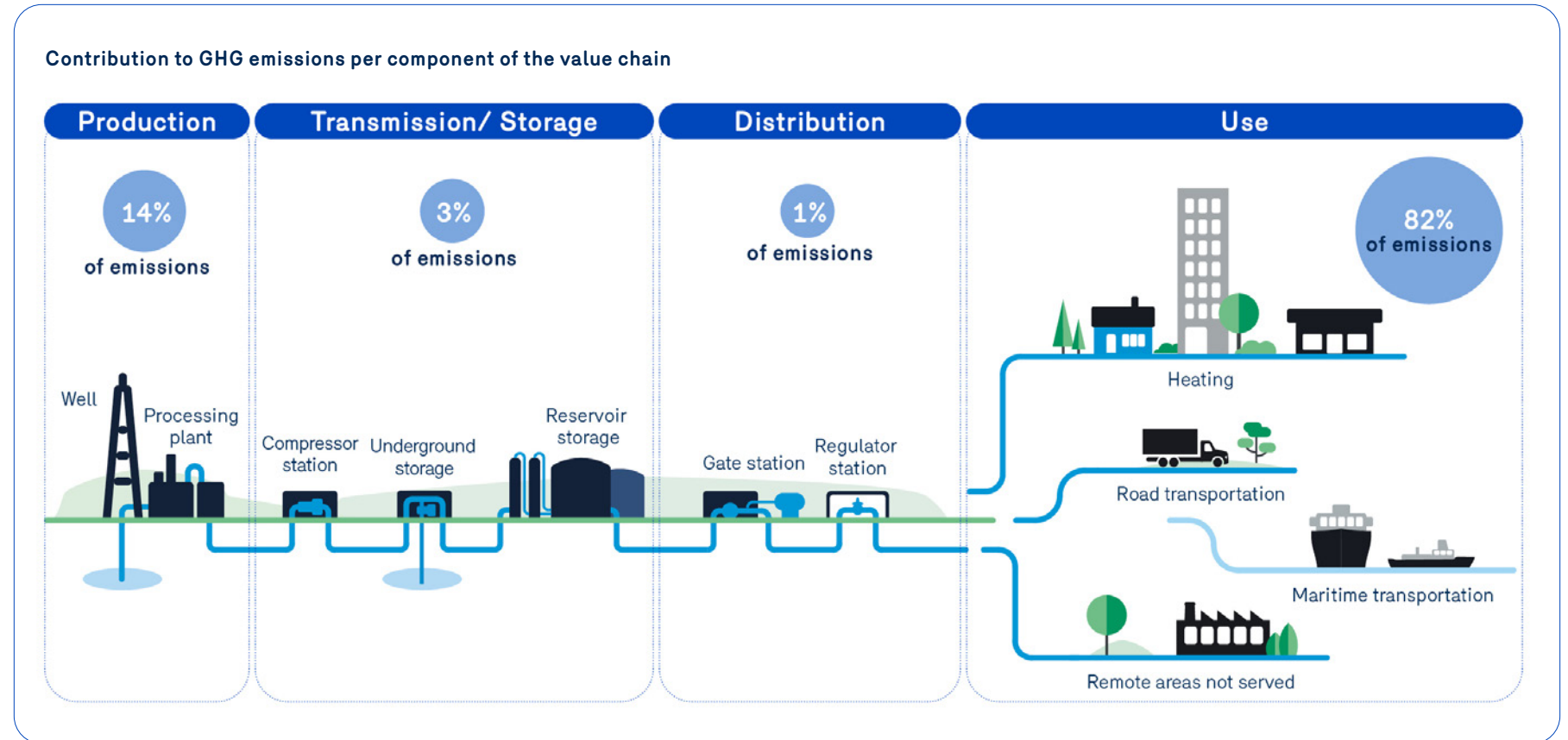
Life cycle analysis confirms that the distribution phase, the only phase over which Énergir has full control, accounts for 1% of the combined life cycle emissions of natural gas. The phase related to the use of natural gas accounts for 82% of GHG emissions.

### » Decarbonization initiatives

Changes to supply chain practices are already underway at Énergir through initiatives such as the Responsible Procurement of Natural Gas Initiative and Énergir's goal of distributing more RNG in its network.

Energy efficiency programs, which have already prevented the emission of more than one million tonnes of GHGs since 2001, also help reduce the environmental footprint of natural gas in its use phase.

In Quebec, emissions related to the use of natural gas amount to about 12 million tonnes of CO<sub>2</sub> eq., or approximately 15% of total emissions<sup>2</sup> in Quebec.



1. CIRAIQ (July 2020) *Environmental profile of natural gas distributed in Quebec*. Énergir commissioned the CIRAIQ to evaluate the environmental profile of natural gas distributed in Quebec based on a life-cycle approach.

2. Whitmore, J. and P.-O. Pineau, 2020. *State of Energy in Quebec 2020*, Chair of Energy Sector Management, HEC Montreal, prepared for Energy Transition Quebec, Montreal. [https://energie.hec.ca/wp-content/uploads/2020/03/EEQ2020\\_WEB.pdf](https://energie.hec.ca/wp-content/uploads/2020/03/EEQ2020_WEB.pdf)



## Distribution of Electricity in Vermont

Green Mountain Power, a subsidiary of Énergir, is the largest electricity distributor in Vermont, serving over 77% of the market and more than 266,000 customers. Green Mountain Power's core business includes the distribution, transportation, production, purchase and sale of electricity in Vermont and, to a lesser degree, electricity transportation in New Hampshire and hydroelectricity production in New York, Maine and Connecticut. Green Mountain Power's network comprises over 2,700 km of overhead transmission lines, 16,100 km of overhead distribution lines and 2,100 km of underground distribution lines, located mainly in Vermont but also extending to the States of New Hampshire and New York.

Green Mountain Power's supply portfolio comprises several sources of power generation: primarily hydroelectricity, and to a lesser extent, nuclear, wind and solar power along with other renewable sources.

More than  
**266,000 clients**  
in Vermont

More than  
**16,100 km**  
of overhead  
distribution lines

More than  
**2,100 km**  
of underground  
distribution lines

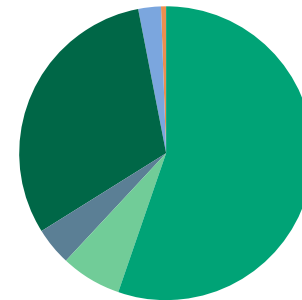


The following chart illustrates the breakdown of Green Mountain Power customers by deliveries in terms of GWh and revenues during fiscal year 2020:

<b>Deliveries and Revenues Generated</b>	<b>Deliveries (in GWh)</b>	<b>% of GWh delivered by client category</b>	<b>Revenue (\$M US)</b>	<b>% of revenues by client category</b>
Residential Clients	1,540.2	38.0	297.6	45.6
Small and Medium Consumption Commercial and Industrial Clients	1,392.2	34.3	230.5	35.3
High Consumption Commercial and Industrial Clients	1,121.1	27.6	122.6	18.8
Other Clients	3.8	0.1	2.5	0.3
<b>TOTAL</b>	<b>4,057.3</b>	<b>100.0</b>	<b>653.2</b>	<b>100.0</b>

### Green Mountain Power's Energy Supply Sources<sup>3</sup>

● Large Hydro	55.4%
● Existing VT Hydro	6.6%
● Market Purchases	4.2%
● Nuclear	30.8%
● Renewable - Other (includes Solar)	2.7%
● Fuel oil and Natural gas	0.3%



3. The data in this graph reflect the treatment of supply sources from which RECs and other carbon free-generation attributes were retained or retired. Accordingly, the amount of energy attributable to the various sources could be significantly lower or higher without consideration of the RECs or other attributes. Data for fiscal year 2020 are subject to further review under the Vermont Renewable Energy Standard program for renewability and carbon contribution from generation supply sources. This review is based upon calendar year 2020 reporting and will be completed in August 2021.

## Vermont Gas's profile

While this report covers the two most material entities according to size and type of activities in relation to climate change, we also wanted to present, albeit more succinctly, the natural gas distribution activities in Vermont, which bear similarities to Energir's natural gas distribution activities in Quebec.

Vermont Gas (Énergir's subsidiary) is the sole natural gas distributor in the state of Vermont in the United States and provides other energy related services, including in-home installation and service, energy auditing, and equipment rebates and financing. It serves more than 50,000 customers, primarily in the residential, commercial and industrial markets through its more than 1,500 km network. Vermont Gas obtains all of its natural gas supply from Canada. In all its market segments, it offers customers energy efficiency programs to help them consume better and less energy. Like Green Mountain Power, its operations are regulated by the Vermont Public Utility Commission.



more than  
**50,000 customers**  
in Vermont

and a network of more than  
**1,500 km**

Climate Change







# Risks and Opportunities





# Climate Change Risks and Opportunities for Énergir

In 2020, Énergir initiated, for its natural gas distribution activities, an exercise to consider risks and opportunities related to climate change structured according to the recommendations of the TCFD.

The tables below present these risks and opportunities and describe how they would manifest themselves and the potential financial impacts.

4. Carbon pricing is 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.

Risks		Potential financial impact	
Transition risks	<b>Political and legal</b> 	<ul style="list-style-type: none"> <li>• Increase in the price of carbon<sup>4</sup>;</li> <li>• More aggressive decarbonization goals;</li> <li>• More restrictive regulation of existing products and services;</li> <li>• Unfavourable decisions from the Régie de l'énergie (authorized rate of return and investment authorization);</li> <li>• Exposure to GHG emissions litigation or non-compliance with GHG emission reduction regulations.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease in demand for natural gas, resulting in particular from (a) an increase in compliance costs (e.g.: CATS), (b) an unfavourable change in the competitive position of natural gas, or (c) an increase in operating costs (implementation of specific measures to reduce the carbon footprint);</li> <li>• Decrease in revenues. Write-off or impairment of assets due to changes in legislation.</li> </ul>
	<b>Technological</b> 	<ul style="list-style-type: none"> <li>• Lesser efficiency of natural gas technologies compared to alternative energy solutions;</li> <li>• Cost of transitioning to low-emission technology;</li> <li>• Unsuccessful investments in new technology.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease in demand for natural gas (resulting from the use of comparatively more efficient equipment);</li> <li>• Write-off or impairment of assets (resulting from the use of other energy options);</li> <li>• Unprofitable investments.</li> </ul>
	<b>Market-related</b> 	<ul style="list-style-type: none"> <li>• Change in customer behaviour that favours energy sources with lower GHG emissions;</li> <li>• Increase in the cost of natural gas;</li> <li>• Decrease in the cost of less emission-intensive energy alternatives.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease in demand for natural gas;</li> <li>• Loss of certain markets that could have an impact on the distribution of revenues from Énergir.</li> </ul>
	<b>Reputational</b> 	<ul style="list-style-type: none"> <li>• Change in customer behaviour towards energy sources with lower GHG emissions;</li> <li>• Increased stakeholder concern about GHG emissions.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease in demand for natural gas;</li> <li>• Reduced or more difficult access to financing (resulting from the consideration of environmental (including GHG emissions), social and societal criteria in the financing of projects or businesses).</li> </ul>
Physical risks	<b>Acute</b> 	<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 the decrease in distribution capacity (resulting, for example, from breaks in the supply chain);</li> <li>• Increased operating costs (maintenance and repair, including labour, equipment and potential environmental damage).</li> </ul>
	<b>Chronic</b> 	<ul style="list-style-type: none"> <li>• Changes to precipitation regimes 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>• Increased operating costs (resulting from, amongst others, the increase in insurance premiums and costs related to the negative impacts on the workforce);</li> <li>• Reduced insurability of assets located in "high risk" areas;</li> <li>• Changes in demand for natural gas due to milder winters and hotter summers;</li> <li>• Write-off or impairment of assets (e.g., resulting from the presence of assets in "high risk" areas).</li> </ul>





Opportunities	Potential financial impact	
<b>Energy Sources</b> 	<ul style="list-style-type: none"> <li>• Increased responsible natural gas procurement<sup>5</sup>;</li> <li>• Policies, regulations and financing conducive to RNG development in Quebec;</li> <li>• Potential injection of hydrogen into the network;</li> <li>• New clean technologies to decarbonize the energy delivered.</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of GHG emissions from the natural gas value chain and reduced exposure to rising carbon prices;</li> <li>• Reduced exposure to carbon pricing mechanisms;</li> <li>• Perennity of assets;</li> <li>• Increased demand for natural gas and energy services;</li> <li>• Greater customer retention and market development.</li> </ul>
<b>Products and services</b> 	<ul style="list-style-type: none"> <li>• Energy efficiency programs;</li> <li>• Complementarity of electricity offering on targeted markets.</li> </ul>	<ul style="list-style-type: none"> <li>• Greater customer retention and development.</li> </ul>
<b>Responsible use of resources</b> <small>(specific to Énergir's own operations)</small> 	<ul style="list-style-type: none"> <li>• Control of emissions from Énergir's assets;</li> <li>• Sustainable mobility initiatives for personnel;</li> <li>• Reduction at source, re-use, recycle and repurpose.</li> </ul>	<ul style="list-style-type: none"> <li>• Process optimization and mobilization and retention of personnel (i.e., improvement of work health and safety conditions, worker satisfaction) resulting in lower costs.</li> </ul>
<b>Strengthened resilience</b> <small>(of Énergir's business model)</small> 	<ul style="list-style-type: none"> <li>• Development of complementary energy services (energy expertise, storage assets, fuel, green hydrogen);</li> <li>• Potential recourse to the gas network in the event of serious climate events (e.g., storms);</li> <li>• Regulatory mechanism that allows Énergir to recover operating costs and generate an authorized rate of return on deemed equity.</li> </ul>	<ul style="list-style-type: none"> <li>• Increase and diversification of revenues.</li> </ul>





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



# Climate Change Risks and Opportunities for Green Mountain Power

Climate change has already led to an increase in the frequency and severity of storms in Green Mountain Power's service territory, and those impacts are expected to intensify in the future, leading to the potential for increased costs and decreased reliability for customers, if not addressed proactively and aggressively.

Risks		Potential financial impacts	
Transition risks	<b>Regulatory and legal</b> 	<ul style="list-style-type: none"> <li>• Even stronger or faster decarbonization goals;</li> <li>• Unfavourable decisions from the Vermont Public Utility Commission (authorized rate of return and investment authorization).</li> </ul>	<ul style="list-style-type: none"> <li>• Increased operating costs to ensure compliance;</li> <li>• Decrease in revenues.</li> </ul>
	<b>Reputational</b> 	<ul style="list-style-type: none"> <li>• Missed decarbonization, resiliency or renewable energy objectives.</li> </ul>	<ul style="list-style-type: none"> <li>• Decrease in electricity demand or decreased investment for various programs.</li> </ul>
Physical risks	<b>Acute</b> 	<ul style="list-style-type: none"> <li>• Increased severity of extreme weather events (floods, wind, snow, ice storms).</li> </ul>	<ul style="list-style-type: none"> <li>• Higher operating costs (labour, insurance, vegetation management);</li> <li>• Lower revenues on loss of customer load.</li> </ul>
	<b>Chronic</b> 	<ul style="list-style-type: none"> <li>• Changes to precipitation regimes 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 particularly in generation assets;</li> <li>• Higher operating costs (availability and cost of insurance, tree trimming and infrastructure maintenance).</li> </ul>

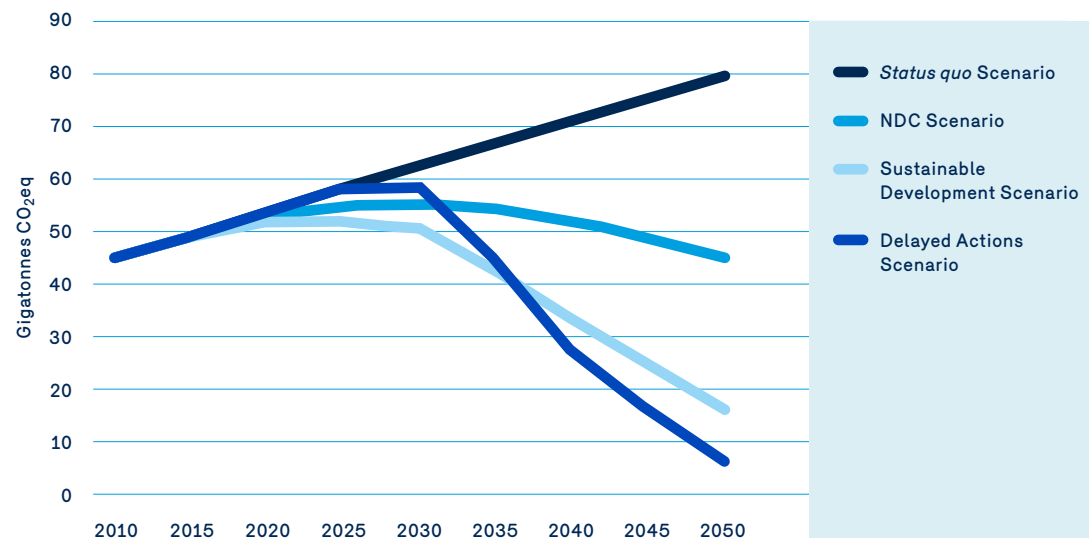
Opportunities	Potential impacts	
<b>Energy sources</b> 	<ul style="list-style-type: none"> <li>• Diversification of renewable sources including solar energy from varied production sites (from smaller residential rooftops to larger sites)</li> <li>• Hydro through Power Purchase Agreements and potential upgrade of existing facilities</li> <li>• Wind through Power Purchasing Agreements and potential upgrade of existing facilities</li> <li>• Continued investigation of innovative opportunities regarding farm energy</li> <li>• Paired utility scale renewable energy and electricity storage facilities, and usage of storage in multiple markets</li> </ul>	<ul style="list-style-type: none"> <li>• Reduction of GHG emissions from the power supply chain</li> <li>• Reduced exposure to carbon pricing</li> <li>• Increased demand for electricity and energy services</li> <li>• Increased investments</li> <li>• Greater customer retention and market development</li> <li>• Improved reliability and resilience of the network by shrinking the distance between generation and use</li> <li>• Improved load management and increased flexibility</li> </ul>
<b>Products and services</b> 	<ul style="list-style-type: none"> <li>• Energy efficiency programs</li> <li>• Energy storage for customers</li> <li>• Electric vehicle charging capability</li> <li>• Distributed generation</li> <li>• Management of distributed energy resources</li> </ul>	<ul style="list-style-type: none"> <li>• Greater customer retention and market development</li> <li>• Increased attractiveness of investment needs</li> <li>• Improved customer satisfaction</li> <li>• Lower electricity supply/transmission costs through use of storage and load management</li> <li>• Improved network reliability and resilience through load management</li> <li>• Reduction of customers' GHG emissions through electrification</li> </ul>
<b>Responsible use of resources</b> 	<ul style="list-style-type: none"> <li>• Fleet electrification</li> <li>• Energy efficiency in Green Mountain Power's various offices</li> <li>• Pension investments without fossil fuel companies</li> </ul>	<ul style="list-style-type: none"> <li>• Lower operating costs</li> <li>• Lower GHG emissions from vehicle fleet and heating needs</li> <li>• Greater support for decarbonization through pension investment strategy, coupled with lower risk</li> </ul>
<b>Strengthened resilience</b> 	<ul style="list-style-type: none"> <li>• Climate plan resiliency projects and carbon-saving innovation pilots and tariffs for customers</li> <li>• Assist Vermont efforts to deliver broadband Internet connections to more customers</li> </ul>	<ul style="list-style-type: none"> <li>• Increased investment</li> <li>• Lower operating costs</li> <li>• Improved customer satisfaction</li> <li>• Increased uptake of innovative services that require broadband and support decarbonization</li> </ul>

## GHG Emission Scenarios

As a result of identifying the potential risks and opportunities described above, Énergir and Green Mountain Power sought to better understand the potential impacts on their business by studying a number of scenarios of the future with different emission pathways.

Énergir and Green Mountain Power recognize that they have an important role to play in the transition to a lower-carbon economy and seek to better take into account the scope of potential impacts by assessing various future scenarios. In line with TCFD recommendations, Énergir and Green Mountain Power relied on four quantitative scenarios from independent agencies that describe several possible global GHG emission trajectories in the 2030-2050 timeframe, and then used recognized methods to scale them for Quebec (Canada) and for the state of Vermont (USA). The use of these scenarios allows for the consideration of the potential impacts of the previously identified climate risks and opportunities could have on the resiliency of Énergir and Green Mountain Power's business models. The scenarios chosen by Énergir, however, are not intended to be used as forecasts. While other scenarios are available, the selected scenarios have the advantage of proposing a range of possible futures that are fundamentally distinct from each other. Énergir will remain vigilant about monitoring climate scenarios, their potential impacts and their use in GHG emission trajectories.

Global GHG emissions according to the selected scenarios



 **GHG  
Emission Scenarios****1 Status Quo Scenario<sup>6</sup>**

This *Status Quo* Scenario is based on IPCC's RCP8.5<sup>7</sup> scenario. The *Status Quo* Scenario represents a future where few actions are taken to limit global warming. The physical risks for this scenario are greater than for other scenarios in the second half of this century, as no additional measures are taken to reduce GHG emissions.

**3 Sustainable Development Scenario**

This scenario represents a stabilization of energy demand whilst maintaining economic and population growth. This stabilization is supported by significant and internationally coordinated efforts to boost energy efficiency and shift away from fossil fuels for energy production. 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.

**2 Nationally Determined Contributions Scenario**

The NDCs embody the commitments of each Paris Agreement signatory country reduce their national GHG emissions and adapt to the effects of climate change. As presented in Appendix 2, each country that is a signatory to this agreement must establish, communicate and update, on a five-year basis, the successive determined contributions it plans to make at the national level. Canada is a signatory of the Paris Agreement and submitted an NDC plan that came into effect in 2016. The NDC plan was subsequently revised in 2017. As the U.S. commitment to the Paris Agreement has been called into question, it is less clear that the NDC scenario is equally relevant to the United States.

**4 Delayed Action Scenario**

This scenario represents a future where countries fail to meet their NDC commitments between 2020 and 2030, and then take more stringent mitigation measures to limit warming to 2 degrees or less by 2100 compared to preindustrial levels. In this scenario, measures are delayed until 2030 and require a significant catch-up between 2030 and 2050. As a result, GHG reductions after 2030 and the associated transition risks are much greater.

6. 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).

7. Among other things, the IPCC approves climate change impact scenarios that analyze the physical impacts of different atmospheric GHG concentration scenarios, called RCP - Representative Concentration Pathways. Each RCP scenario therefore provides a likely variation of the climate that will result from the GHG emission level chosen as a working hypothesis. The RCP8.5 scenario is the most pessimistic, i.e. it is the scenario where the earth and the atmosphere warm the most.

# Strategy

## Natural gas distribution in Quebec

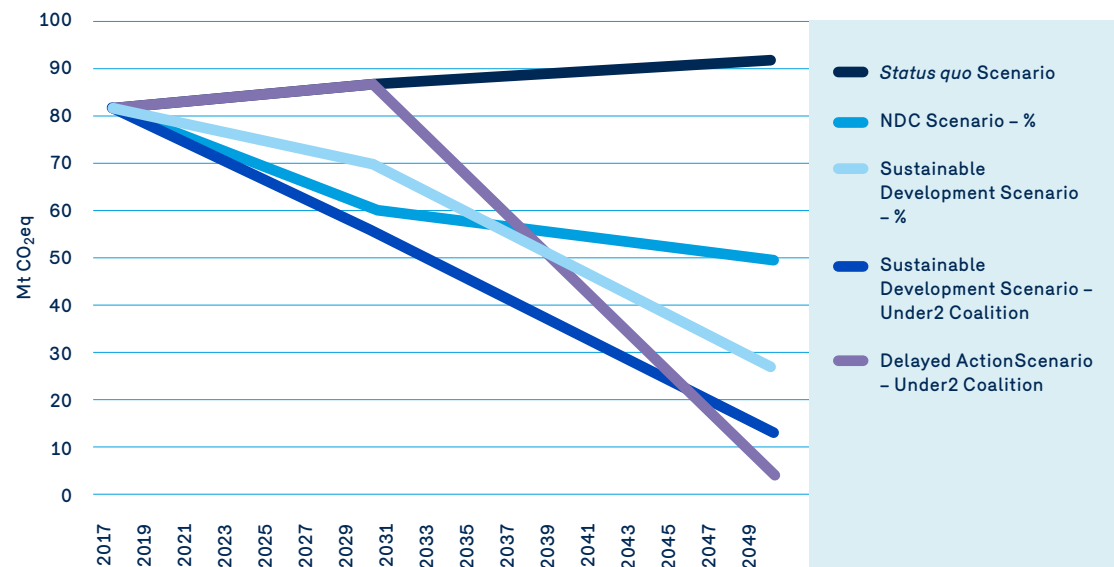
### » Quebec-wide scenarios

In order to interpret the meaning of the global scenarios presented above, they have been scaled to the jurisdiction of Quebec. Quebec has its own policies and regulations and has made political commitments to combat climate change (see Appendix 1) that influence possible future trajectories.

Énergir used the Under2 Coalition methodology in order to adapt the Sustainable Development Scenario and the Delayed Action Scenario to the Quebec context<sup>8</sup>. It should be noted that once this scale is carried out using the “Under2 Coalition” methodology, the GHG reduction trajectories in these scenarios become more important for Quebec.

This methodology is appropriate for Quebec, which is a partner of the Under2 Coalition (see Appendix 1).

Potential GHG emission trajectories according to the retained scenarios as they apply to Quebec<sup>9</sup>



8. This method is based on reaching the goal of limiting global warming to less than 2 degrees Celsius by 2100 compared to preindustrial levels and on the decrease of a percentage of GHG emissions comparable to 1990 levels in each jurisdiction by 2050.

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

Half of the scenarios chosen thus anticipate a reduction in GHG emissions and therefore a reduction in the use of more emitting energy sources over the 2030 and 2050 horizons. This necessarily leads to a certain transformation of the markets Énergir serves. However, the speed and intensity of emission reductions vary from scenario to scenario and Énergir will need to remain vigilant regarding the evolution of these scenarios in how they present future GHG emission trajectories.

As mentioned in the *GHG Emissions Scenarios* section above, the scenarios selected by Énergir are not projections but are used to review the risks and opportunities related to climate change from different angles.

For example, in the **Status Quo Scenario**, the growth in volumes distributed would continue beyond 2030. If the *Status Quo* Scenario would occur at a global scale, the rise in temperatures could reach 5 degrees Celsius, and it is therefore anticipated that climate change would have a greater impact on Énergir's physical assets.

In the **NDC Scenario**, achieving GHG emission reduction policies and targets would result in significant changes in Énergir's traditional economic model. Some of Énergir's markets would be greatly affected, such as the heating of buildings, where lower emission alternatives are available. As the physical consequences of climate change of the next decade will come about as a result of past emissions, some physical impacts will be felt though not to the extent felt under the *Status Quo* Scenario. A global warming of 3.5 degrees Celsius would still lead to significant physical impacts.

In the **Sustainable Development and Delayed Action Scenarios**, the physical consequences of climate change would be similar, but would affect Énergir at different times and in a more or less intensive way. In both scenarios, global warming is limited to 2 degrees Celsius or less by 2100 compared to the pre-industrial levels and, as a result, Énergir would be less affected by the physical impacts of climate change after 2040.

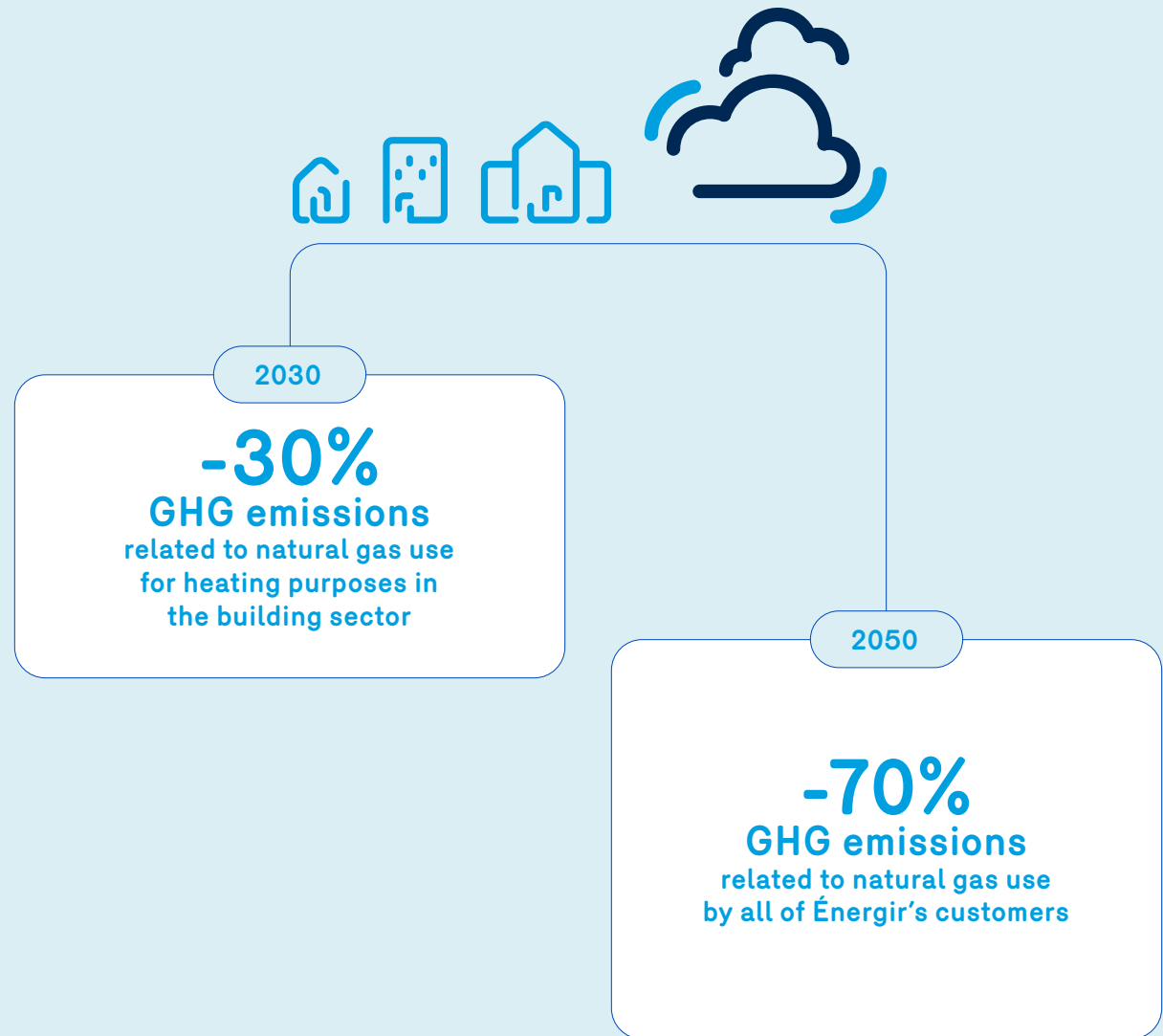
In the **Sustainable Development Scenario**, the energy transition would be underway and continuing gradually through to 2030 and 2050. In this scenario, Énergir would continually face ongoing transition risks.

In the **Delayed Action Scenario**, the possibility of a shock (an abrupt change in policies after 2030 affecting the operations of clients or Énergir directly) is described. In this case, the adaptation of Énergir's business model in order to manage the risks associated with this transition could represent a considerable challenge.

# Énergir's Vision 2030-2050

To address climate risks and opportunities, Énergir's Vision 2030-2050 should position the company as a central player in the transition to a lower-carbon economy.

Énergir's strategy focuses on our customers' emissions (Scope 3 type) related to natural gas use for heating purposes in the building sector (residential, commercial and institutional markets) with a reduction in GHG emissions of about 30% by 2030 compared to 2020. By 2050, the approach supporting this strategy is set to help achieve carbon neutrality<sup>10</sup> in buildings, resulting in a reduction of about 70% of GHG emissions related to the use of natural gas by all of Énergir's customers. In the meantime, Énergir will seek to identify other solutions to support customers in a transition to carbon neutrality by 2050.



10. Carbon neutrality indicates that an activity has a net GHG emissions result. Carbon neutrality can be reached by reducing GHG emissions or by compensating GHG emissions that could not be reduced by various measures such as sequestration of GHG emissions or planting trees.



Vision 2030-2050 is based on the five following orientations:



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

It is generally recognized that energy efficiency reduces GHG emissions at low cost to society<sup>11</sup>. Énergir has set the target of enabling its customers to reduce their emissions by one million tonnes CO<sub>2</sub> eq. between 2020 and 2030, through its various energy efficiency programs<sup>12</sup>.

With this ambition in sight, Énergir will prioritize the following actions:

- Enhance the current range of energy efficiency programs (refined calibration of financial aid, innovative financing tools);
- Promote ultra-efficient technologies (innovative demonstration projects, data analysis (artificial intelligence));
- Develop communication campaigns to maximize the participation of customers in energy efficiency programs offered by Energy and jointly promote efficient technologies;
- Analyze the development of new energy services for large business customers (expanded integration into the customer value chain).

These actions would make it possible to achieve in the next 10 years what Énergir has accomplished over the last 20 years. So far, since 2001, Énergir's energy efficiency programs have made it possible to finance more than 130,000 energy efficiency projects, which have led to more than 1.1 million tonnes of avoided CO<sub>2</sub> eq. emissions.

Énergir also aims to maintain this accelerated pace between 2030 and 2050, despite the fact that achieving these continued reductions could become progressively more difficult.

In the building sector, Énergir's efficiency efforts combined with third-party efforts are expected to contribute to a reduction of 0.9Mt CO<sub>2</sub> eq. by 2030, which is aligned with the government of Quebec's targets.

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

12. This target covers the period from October 1, 2020 to September 30, 2030 and covers all of the markets served by Énergir and takes into account the contribution of its Energy Efficiency Programs.

Vision 2030-2050 is based on the five following orientations:



## Increase the injection of RNG into the gas network

Energy efficiency, saves our customers money. These savings generated by the various energy efficiency programs provide an opportunity for customers to diversify their sources of supply to lower-carbon energy alternatives, such as RNG. Energy efficiency and RNG can thus be used particularly in the building sector in order to make it significantly less carbon intensive by 2030.

With the expected increase in carbon prices in the medium and long term, the establishment of a decarbonization path for customers that would involve energy efficiency and RNG, would allow them to significantly reduce their carbon footprint, while maintaining the competitiveness<sup>13</sup> of Énergir's solutions compared to other energy sources.

Énergir aims to inject more and more volumes of RNG into its network annually, reaching at least 10% of the distributed volume by 2030, which would equate to about 567 Mm<sup>3</sup> and an emissions reduction of 1 million tonnes CO<sub>2</sub> eq.

In the longer term, the technical and economic potential could be even greater with the arrival of new technologies, such as methanation<sup>14</sup> and the development of the green hydrogen sector. The quantity of RNG injected into the energy network is expected to grow significantly between 2030 and 2050 to about 2,550 Mm<sup>3</sup> annually.

Énergir predicts that by 2030 for the building sector, the volumes of RNG injected into its network could result in a reduction of 0.8 Mt CO<sub>2</sub> eq.

13. According to RNG prices as stipulated in Énergir's Conditions of Service and Tariff during fiscal year 2020.

14. Methanation is the reaction of carbon monoxide or carbon dioxide with hydrogen in the presence of a catalyst to produce methane. <https://www.afgaz.fr/sites/default/files/u3/methanation.pdf>.

Vision 2030-2050 is based on the five following orientations:



## Develop a strong complementarity with electricity

Electricity will have a key role to play in decarbonizing Quebec's economy, including in the building sector by 2030.

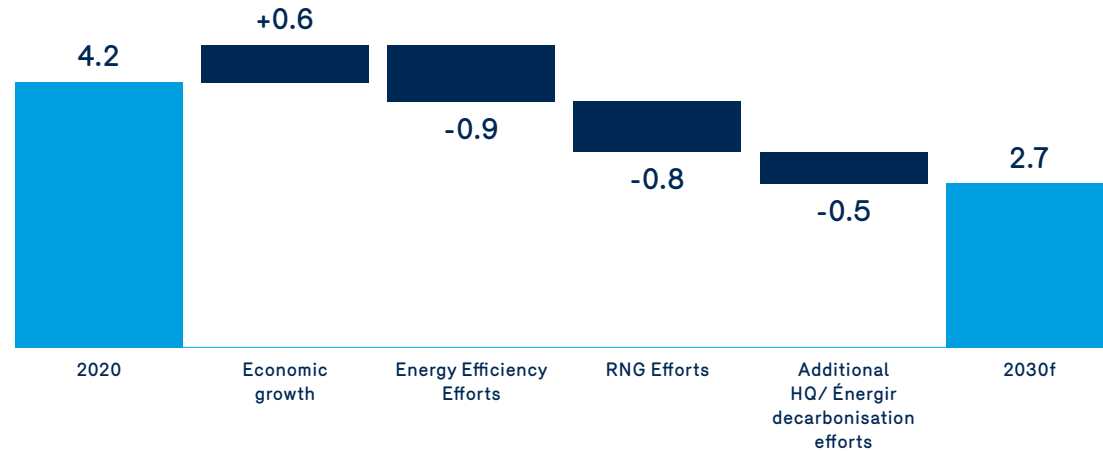
However, the conversion of hydrocarbon uses in Quebec to electricity presents significant challenges. Hydro-Quebec, Québec's electricity distributor, is forecasting a power deficit in the coming years<sup>15</sup>, because of increased demand from the electrification of transportation and the conversion of other uses currently using petroleum products.

Specifically, this electrification would cause a significant increase in power needs in peak periods for Hydro-Quebec and could lead to material increases in power infrastructure costs to meet that demand, resulting in a significant cost to society to achieve this decarbonization.

Therefore, greater complementarity between the electricity and gas networks would see a portion of certain natural gas uses being electrified, while natural gas would be used during peak electricity use periods, occurring during the year's cold spells, therefore reducing the building's carbon footprint in a much more cost-effective way in Quebec.

This complementarity could reduce GHG emissions by up to 0.5 million tonnes CO<sub>2</sub> eq. by 2030.

**Potential for reducing GHG emissions in the building sector served by Énergir**  
(Millions of t.eq.CO<sub>2</sub>)



15. Hydro-Quebec: Supply Plan 2020-2029: [http://publicsde.regie-energie.qc.ca/projets/529/DocPrj/R-4110-2019-B-0005-Demande-Piece-2019\\_11\\_01.pdf](http://publicsde.regie-energie.qc.ca/projets/529/DocPrj/R-4110-2019-B-0005-Demande-Piece-2019_11_01.pdf).

Vision 2030-2050 is based on the five following orientations:



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

Energy efficiency, RNG and complementarity with the electricity grid underpin our plans to maintain customers and revenues in a decarbonized context. The diversification of activities in Quebec would also allow Énergir to entertain medium- and long-term growth. For example, this diversification could lead to the development of new services and energy expertise with customers, to additional financial aid, to the installation of equipment or support services in energy optimization. This could also result in the development of the green hydrogen sector as a source of energy supply.

Vision 2030-2050 is based on the five following orientations:



## Continue to replace more polluting energy with natural gas, especially in the industrial and freight transportation sectors

In this sector, by 2030, volumes of natural gas distributed are expected to remain at levels similar to today. Subsequently, a decrease is expected on the 2050 horizon.

Énergir aims to continue replacing fuels that emit more GHGs in the industrial sector when electrification proves to be too expensive or impossible from a technological point of view. Énergir anticipates that conversions from coal and fuel oil to natural gas could help decarbonize this sector over the next few years and that industrial customers will step up their efforts in energy efficiency.

For the freight transportation sector, according to a study by the Chair in Energy Management at HEC Montréal<sup>16</sup>, it is anticipated that the electrification of light vehicles is rapidly becoming necessary. On the other hand, for medium and heavy vehicles, a mix of technological and energy approaches would be necessary. There would therefore be a role to play in hybrid natural gas and electricity to help reduce GHG emissions in transportation.

The potential for natural gas use in certain segments of heavy road transport, in which Énergir and some of its subsidiaries provide services, is currently estimated by Énergir to be in the range of 142 Mm<sup>3</sup> to 312 Mm<sup>3</sup> by 2030.

16. [https://energie.hec.ca/wp-content/uploads/2020/09/Rapport-d%C3%A9tude\\_2020-4\\_Pedinotti-Castelle.pdf](https://energie.hec.ca/wp-content/uploads/2020/09/Rapport-d%C3%A9tude_2020-4_Pedinotti-Castelle.pdf).

# Resilience of Énergir's Business Model

A business model  
that focuses on the  
**creation of value**  
rather than volumes  
distributed.



Vision 2030-2050 is consistent  
with GHG emissions reductions  
trajectories in scenarios that  
**limit global warming**  
to 2 degrees or less.



## » Resilience of Énergir's Business Model

The implementation of the five Vision 2030-2050 orientations described above is consistent with a GHG emission reduction trajectory as described in the Sustainable Development Scenario or the Delayed Action Scenario, as well as the other scenarios described in the Quebec-wide Scenarios section above. In addition to decarbonizing natural gas, this strategy aims to maximize the economic and environmental value of its use. For example, the use of natural gas for heating in peak periods, in support of the electricity grid, helps to meet energy needs, but at a much lower societal cost since significant environmental and financial costs can be avoided by Hydro-Quebec related to very specific peak energy needs. This approach, which focuses on volumes with the most economic value, compensates for a decline in off-peak volumes that could be electrified in some markets. As a result, this approach would ensure the viability of the business model by focusing on the creation of value rather than volumes sold, while the quantities of natural gas distributed could stay constant or decrease slightly by 2030 and then decrease more sharply by 2050. The Metrics and Targets section of this report outlines the targets set for each strategic orientation.

The combination of the orientations described above suggests a 30% total reduction in GHG emissions for the use of natural gas in the building sector by 2030 compared to 2020 could be achieved. Moreover this is consistent with the government targets for a 50% reduction in emissions in the building sector by 2030<sup>17</sup> as well as with the trajectories for reducing GHG emissions in the Sustainable Development Scenario adjusted with the Under2 Coalition scaling methodology more fully described under the "Quebec-wide scenarios". By 2050, it will take a sustained effort by Quebec society as a whole to achieve a carbon neutral economy. With the successful implementation of its Vision by 2030, Énergir will be able to consider a greater contribution to this collective goal in 2050.

Based on the Sustainable Development Scenario and the Delayed Action Scenario, Energir expects to see a reduction in the amount of natural gas it will distribute by 2050. Of this remaining amount of natural gas, more than half of the volumes distributed during this period would be renewable, reducing exposure to higher carbon taxation and achieving carbon neutrality in the building sector. Combined with energy efficiency efforts and the use of RNG, this would reduce the carbon footprint

of energy distributed to Energy customers by about 70% compared to 2020. This should allow Énergir to follow a trajectory consistent with that provided in the "Sustainable Development Scenario - Adjusted Under2 Coalition" scenario and to move closer to "Delayed Action Scenario - Adjusted Under2 Coalition," the more restrictive scenario in 2050. In the meantime, Énergir will seek to identify other solutions that will enable its customers to be carbon-neutral by 2050.

17. Taking into account that GHG emissions in the building sector also come from the use of other energy sources.



## Electricity Distribution in Vermont (Green Mountain Power)

### » Vermont-wide scenarios

In order to understand the implications of the global scenarios presented above, they have been scaled to the jurisdiction of Vermont. Vermont has its own policies and regulations and has made significant commitments to combat climate change (see Appendix 1) that influence possible future trajectories.

Green Mountain Power used the Under2 Coalition methodology as more fully described in the Québec-wide Scenarios section.

This methodology is appropriate for Vermont, which is a partner of the Under2 Coalition (see Appendix 1).

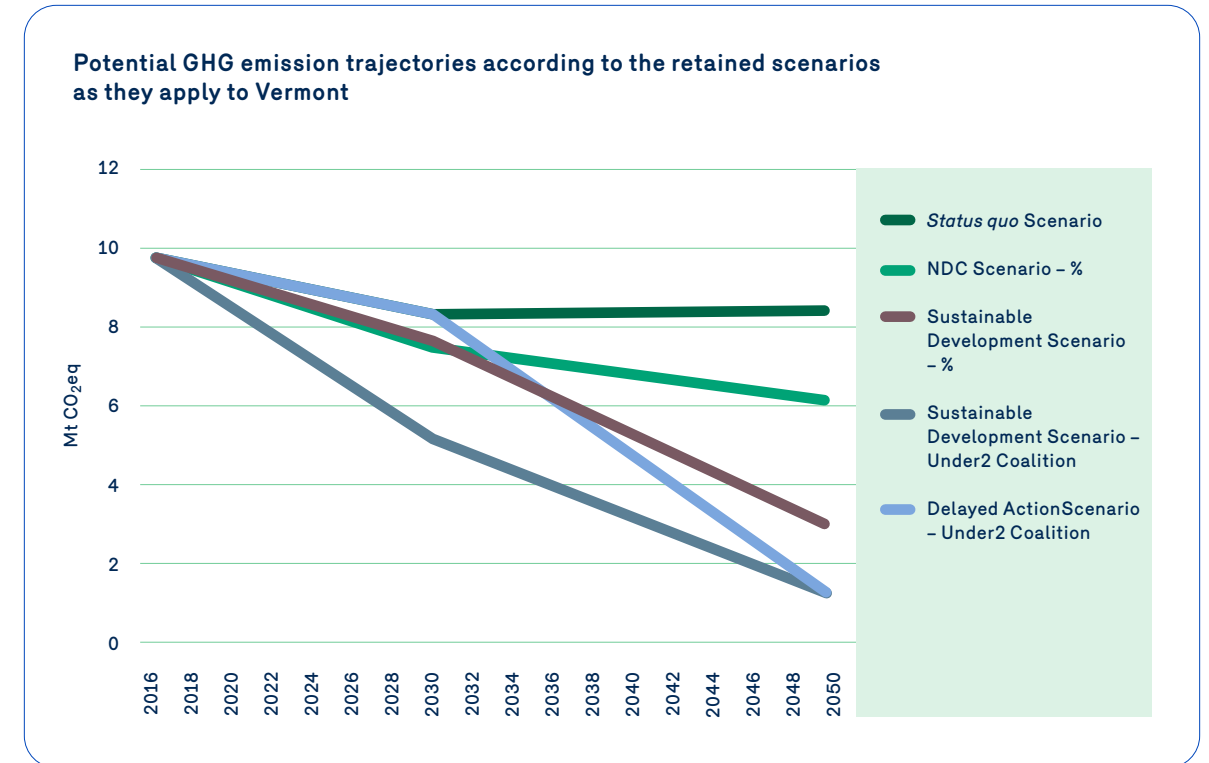
The above-mentioned scenarios could translate into the following impacts on Green Mountain Power:

In the **Status Quo Scenario**, quantities of distributed electricity would continue to stay relatively flat beyond 2030. In the *Status Quo* Scenario, global temperatures could increase 5 degrees Celsius; in that case, climate change would be expected to affect certain physical assets of Green Mountain Power such as hydroelectric (increased water levels and volumes, especially during high intensity precipitation events) transmission and distribution (faster vegetation growth rates, tree stress from increased temperature, isolated flooding events).

In the **NDC Scenario**, successfully achieving Vermont's GHG reduction policies and targets would likely entail significant changes to Green Mountain Power's current economic model. Some markets would be affected, such as the heating of buildings and transportation, both of which have lower emission alternatives through electrification that would benefit Green Mountain Power. As the climate impacts of the next decade will come about as a result of past emissions, at least some of the physical impacts noted above will be felt even if the NDC Scenario is achieved. A global warming of 3.5 degrees would still lead to significant physical impacts.

In the **Sustainable Development and Delayed Action Scenarios**, the physical consequences of climate change would be similar, but would affect Green Mountain Power at different times and in less severe ways. In both scenarios, global warming is limited to 2 degrees or less by 2100 and therefore Green Mountain Power's assets and customers would be subject to less changes in the climate after 2040.

In the **Sustainable Development Scenario**, the energy transition is underway and more rapid but steady over the 2030 and 2050 horizons. In this scenario Green Mountain Power's strategy will see its maximum benefits.



In **Delayed Action**, the action needed to limit global warming to 2 degrees or less by 2100 does not occur until a sudden change in policies after 2030. In this case, managing Green Mountain Power's portfolio and operations to maintain a clean, cost-effective and reliable power system would be key to helping its customers.



# GMP Path to 100%

To address climate risks and opportunities, Green Mountain Power's Path to 100% has one focus: customers. How to best serve them cost effectively and reliably in this time of climate change, and to offer them the latest available technologies. Green Mountain Power remains focused on how to provide clean, cost-effective, and reliable power, as more and more customers choose self-supply and strategic electrification. For these purposes, Green Mountain Power has adopted a detailed [Climate Plan](#), and ambitious goals, to achieve 100% carbon-free electricity supply by 2025 and 100% renewable electricity supply by 2030 (through direct sourcing, retirement of RECs or a combination of both). These goals exceed Vermont's regulatory requirements.



2025

**100%**  
carbon-free  
electricity supply

2030

**100%**  
renewable electricity  
supply



1

In order to achieve this, Green Mountain Power's roadmap is one of **innovation and change:**

- Change from the old energy system of centralized, fossil fuel-based generation transmitted through traditional poles and wires to customers far away, toward lower GHG emissions, renewable, distributed generation with new, complex local and regional grid management opportunities.
- Change from one-way electricity flowing from a central plant to a customer toward two-way energy information, storage, and delivery between customers and Green Mountain Power. Green Mountain Power is collaborating with its customers to deploy a significant fleet of batteries throughout the grid.
- Change from steady and increasing loads toward flat and declining loads, as customers choose self-generation and utilize beneficial energy efficiency programs.
- Change from separate fuels for and treatment of thermal, lighting, and transportation energy toward convergence through the strategic electrification of resources.



2

Green Mountain Power is investing in energy delivery models that **seek transformation in the following ways:**

- Reducing the distance between generation and consumption, to lower losses and reliance upon the bulk electrical delivery system. This would ultimately result in a lower cost and a more reliable and flexible local energy system that is greener and more resilient in the face of significant climate change impacts.
- 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-emitting generating sources.
- Offering a diverse portfolio of innovative energy programs that promote measures consistent with Vermont energy policy and appeal to the personal goals of each customer.



3

Green Mountain Power is investing in resiliency, reliability measures to **counter the effect of climate change on its system through its newly designed, and regulatory-supported Climate Plan by:**

- Permitting investments targeted at hardening Green Mountain Power's grid and restoration response in the face of increasing frequency of severe storms driven by the climate crisis to better serve customers;
- Better preparing Green Mountain Power's grid to serve as the backbone for Vermont's aggressive goals to cut GHG emissions and transition off fossil fuels.

Green Mountain Power is also working to help 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.

## Resilience of Green Mountain Power's Business Model

The implementation of the roadmap that Green Mountain Power has laid out is consistent with a GHG emission reduction trajectory as described in the Sustainable Development Scenario or the Delayed Action Scenario, as well as the other scenarios described in the *Vermont-wide Scenarios* section above. Green Mountain Power has set specific goals that are either greater than those set through the Under2 Coalition of which Vermont is a partner of, or in line with Vermont's stated objectives.

- Achieve a carbon-free power supply portfolio by 2025.
- Achieve a 100% renewable power supply portfolio by 2030, through direct sourcing, retirement of RECs or a combination of both. These goals exceed Vermont's requirements.
- Contribute to Vermont's goal of reducing GHG emissions by at least 26% below 2005 levels by 2025, and at least 40% below 1990 levels by 2030.

Green Mountain Power has set targets that are either **greater or aligned** than those set though the Under2 Coalition and by Vermont.



## Resilience of Vermont Gas's Business Model

For over 50 years, Vermont Gas has delivered its customers safe, reliable, and affordable energy in northwestern Vermont. In 2019, Vermont Gas announced an ambitious and comprehensive strategy to transform the company and target Net Zero emissions by 2050 in direct support of the State of Vermont's mid-century climate goal. To demonstrate its commitment to immediate action, Vermont Gas also set a goal of reducing GHG emissions in its customers' homes and businesses by 30% by 2030.

Vermont Gas' Climate Action Plan is a three-part strategy with key initiatives to:

- **Advance** Renewable Natural Gas: incorporate 20% RNG in the gas portfolio by 2030. As part of this initiative, Vermont Gas committed to invest in local renewables which have the additional benefits of removing methane from the atmosphere in Vermont, improving water quality to Vermont's waterways, helping provide a new revenue source for agriculture, and ultimately accomplishing Vermont Gas' decarbonization vision ([Goodrich Farm Anaerobic Digester project in Salisbury, Vermont](#));
- **Boost** Energy Efficiency: increase investments in energy efficiency by tripling home weatherizations by 2025 and expanding assistance with commercial and industrial customers;
- **Innovate** by Leveraging Partnerships: accelerate projects like district energy (network of underground pipes used to provide thermal or heat energy to buildings more efficiently than individual systems), Net Zero Home Pilot program<sup>18</sup>, hydrogen, and geothermal with key climate-forward partners.

Vermont Gas to target  
**Net Zero  
emissions  
by 2050**

18. In partnership with Burlington Electric, Vermont Gas will launch a Net Zero Home Pilot that will assist residents in achieving their GHG reduction goals. The pilot is intended to help residents make their entire home energy footprint "net zero" – meaning all of their electric, thermal, and transportation energy is from renewable sources.

# Risk Management

# Énergir's Risk Identification and Management Practices

Aware of the range of transition risks associated with a transition to the low carbon economy and physical risks associated with climate change (see also the Climate Change Risks and Opportunities section), Énergir is working diligently to systematically integrate climate risks (particularly physical) into its strategic and operational plans through risk management processes.

The financial impacts of short-, medium- and long-term transition risks are largely taken into account in strategic planning. These actions are expected to evolve and be refined over time, especially risk management practices aimed at better understanding the financial impacts of physical risks.

Several teams within Énergir and Green Mountain Power are collaborating on this effort.



Cross-sector management of the identification of Énergir's business risks, including some of its subsidiaries



Assessment of the relative significance of risks based on their impact and likelihood of occurrence using a multi-criteria approach that takes into account climate change-related impacts.

## Identification and management of significant environmental aspects in the ISO 14001-certified environmental management system.

This standard covers the identification of environmental risks and opportunities.

A similar management system addresses occupational health and safety risks.

Monitoring of changes to laws and regulations, representation, and sharing of information with the various departments concerned with regard to methane emissions or, more generally, the fight against climate change.

## Coordination of the asset management program

in line with best practices to ensure the integrity of the infrastructure and limit the network's GHG emissions. Threats, including climate change, are identified and assessed. Current or anticipated physical climate-related risks following climate events are recorded and analyzed. An in-depth approach for identifying the climate events that pose the most significant physical risks is being developed.

## Application of the cap-and-trade (CAT) system

integrated into business processes to comply with current regulations and analyze the impact on the competitive position of natural gas.

## Identification and management of climate issues related to stakeholder expectations

regarding the role of the company in Quebec's energy transition.

## Optimization of decisions regarding supply contracts

(cost, horizon, volume) to minimize costs and with respect to the competitive positioning of natural gas. Implementation of the Responsible Procurement of Natural Gas Initiative to purchase gas directly from producers that demonstrate transparency and have shown they are adopting best ESG practices.

# Green Mountain Power Risk Identification and Management Practices

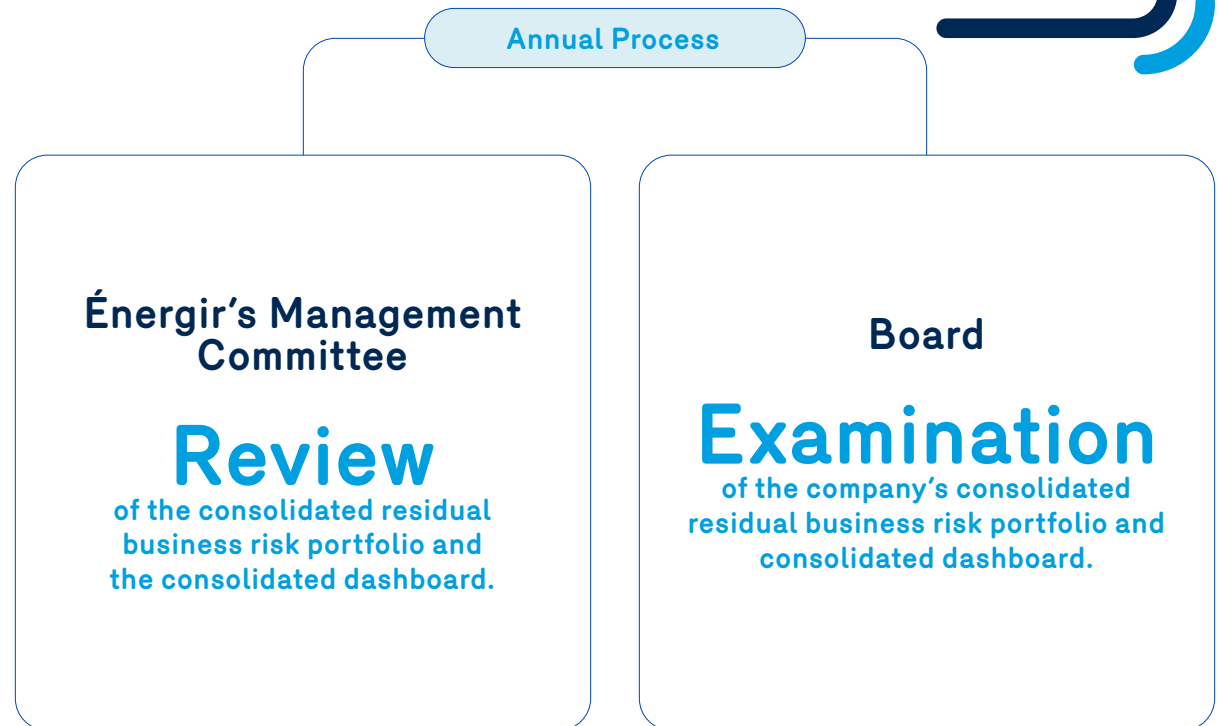
In addition to its work to meet Vermont goals and regulatory requirements, Green Mountain Power has implemented various processes through which it manages climate risks.

 Requirement or Standard	 Climate Resiliency Objective
<b>Vermont Climate Requirements including RES</b>	Decarbonization of power supply and increased electrification for customers. RES requires that Green Mountain Power’s portfolio meets the State of Vermont’s goals for lower GHG emissions and for renewable sources, by tiers and program type.
<b>Green Mountain Power B Corp Certification</b>	B Corp Certification is the only certification that measures a company’s entire social and environmental performance. The B Impact Assessment evaluates how Green Mountain Power’s operations and business model impact its workers, community, environment, and customers. From Green Mountain Power’s supply chain and input materials to its charitable giving and employee benefits, B Corp Certification attests that its business meets the highest standards of verified performance. The certification is voluntary.
<b>Green Mountain Power Climate Plan</b>	Allows annual investments in specific categories of resiliency projects in energy Generation, Transmission & Distribution, and Innovation including a process to identify and prioritize resiliency and hardening grid projects. The physical and transition risks that Green Mountain Power has identified are taken into consideration in this Climate Plan.
<b>Green Mountain Power Multi-Year Regulation Plan</b>	Sets several areas of annual performance tracking to best serve customers on goals, including climate-related goals.
<b>Green Mountain Power Service Quality and Reliability Performance, Monitoring, and Reporting Plan (SQRP)</b>	The SQRP incorporates minimum standards for key service measures linked to customer satisfaction. Green Mountain Power standards cover a wide variety of important performance categories, from call answering and meter reading to billing, grid reliability, safety, on-time performance, and customer satisfaction. Each category is tracked through specific performance measurement metrics.



## Incorporating Climate Risk into Integrated Risk Management

Énergir's existing integrated risk management process includes climate risks. Through a consolidated dashboard that takes into account Énergir and Green Mountain Power's operations, Énergir's major risks are presented to the Management Committee and the Board (see Governance section below for more details) as part of our annual process.





# Governance

Énergir's governance reflects its commitment to contribute to and support efforts to counter the impacts of climate change.

### » Oversight by the Board

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 the company'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 the corporate strategy, including strategic orientations 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.

The Board is supported by the following committees, which jointly oversee the effectiveness of Énergir's strategies and performance with respect to climate change risks and opportunities.

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

The **Occupational Health, Safety and Environment Committee** is responsible for the climate change component. It receives periodic reports from the reporting team in this regard. It monitors the implementation of Énergir's Environmental Policy.

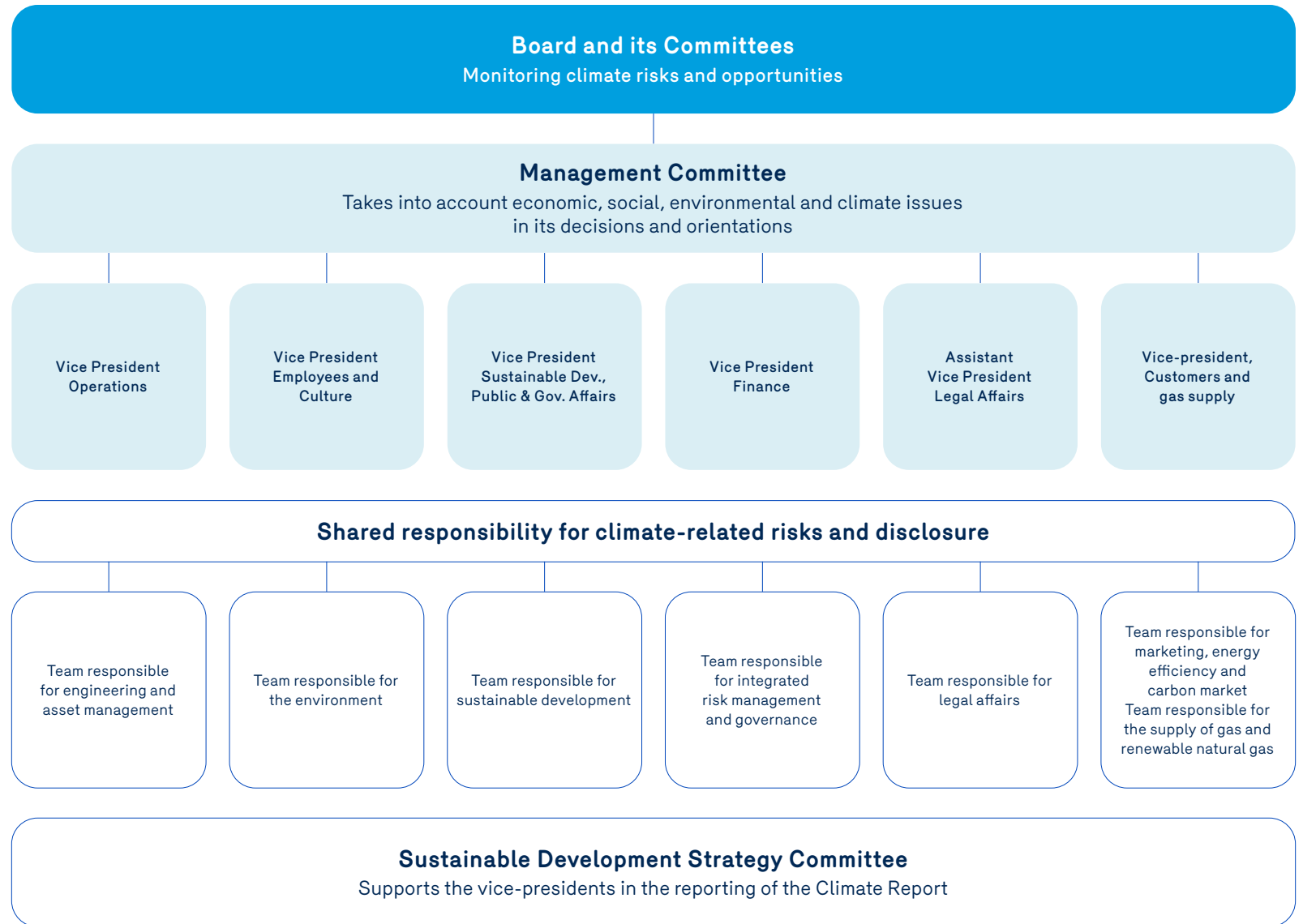
The **Audit Committee** ensures that Management takes appropriate steps to identify financial risks that could affect Énergir, including those stemming from climate change, and that it implements sufficient measures to manage those risks.

The **Human Resources and Corporate Governance Committee** develops Énergir's governance approach, including climate change governance, practices and procedures for applying the approach.

» **Management Oversight**

Énergir Inc.'s President and CEO manages the company's operations, supported by the Management Committee. He is ultimately responsible for strategic planning and ensuring that the company's orientations cover risks and opportunities related to climate change. Under his leadership, the Management Committee has developed a strategic plan to guide the company's development for 2030–2050. The plan's alignments are regularly reviewed to take into account 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.

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. For example, the offices of several vice presidents support the Management Committee in its reporting to the Board and the Board's Committees. They are assisted by their respective teams, the Sustainable Development Strategy Committee, and employees from different sectors of the company.



## » Oversight by the Board of Directors and Management of Green Mountain Power

Green Mountain Power is governed by its Board of Directors (the “Green Mountain Power Board”), which has power to oversee the management of the business in support of the strength and resilience of Green Mountain Power for its customers in the short, medium and long term. Green Mountain Power is managed by its President and Chief Executive Officer. Green Mountain Power’s corporate governance structure is comprised of its Board, two Board Committees and its Executive Leadership Team.

The Green Mountain Power Board reviews with management, Green Mountain Power’s strategic goals and provides general advice and guidance to Green Mountain Power’s management. The Green Mountain Power Board currently maintains an Audit Committee and a Compensation and Governance Committee and carries out many of its responsibilities through these two committees.

**Audit Committee:** assesses the steps management takes to minimize significant risks or exposures to Green Mountain Power, including climate-change related risk assessment and risk management policies.

**Compensation and Governance Committee:** reviews developments related to corporate governance matters and review’s management short- and long-term goals to achieve good outcomes at lower cost and lower carbon for customers.

Green Mountain Power is committed to environmental action, awareness and accountability in all its business practices and operations. Green Mountain Power has in effect certain procedures, plans, and guidelines applicable to climate-change related matters adopted in the normal course of business. Green Mountain Power’s by-laws include a requirement that the Green Mountain Power Board consider the environment and how to use energy as a force for the common good in the Green Mountain Power Board’s decision-making process. This is one of the requirements for Green Mountain Power 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 that voluntarily meet higher standards of social and environmental performance, transparency and accountability. Green Mountain Power successfully completed the certification process in 2017. The recertification process occurs every three years, but review of the application has been delayed due to COVID 19.

Regular reports on Green Mountain Power’s activities are provided to Énergir’s Board, including updates on Green Mountain Power’s strategic initiatives related to clean energy and climate change.

# Metrics and Targets

# Our Measures Aimed at Contributing to Decarbonization

Énergir uses climate metrics and targets to track the impact of its strategic decarbonization orientations. These metrics are made available on the [Sustainability Performance Tracking Platform](#).

These targets and indicators 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	2020 Performance	Énergir 2030 Targets
<p><b>1</b> Direct emissions from Énergir's activities:<sup>19</sup> e.g., fugitive emissions, combustion, fleet.</p> <p>Indirect emissions from Énergir's activities: e.g., electricity use</p>	<ul style="list-style-type: none"> <li>• <b>Direct Emissions (Scope 1):</b> 54,605.8 tonnes CO<sub>2</sub> eq. in 2019;</li> <li>• <b>Indirect Emissions (Scope 2):</b> 16.2 tonnes CO<sub>2</sub> eq. in 2019;</li> <li>• <b>Total Emissions:</b> 54,622 tonnes CO<sub>2</sub> eq. in 2019;</li> <li>• <b>GHG Reductions:</b> 22.1% reduction from 1990 levels.</li> </ul>	<p><b>-37.5%</b> by 2030, from 1990 levels.</p>
<b>2</b> Energy efficiency	<ul style="list-style-type: none"> <li>• Annual reduction of 82,062 tonnes of CO<sub>2</sub> eq. in 2020 resulting from energy efficiency.</li> <li>• Énergir's energy efficiency program results achieved savings of 42.7 million cubic metres in 2020.</li> </ul>	<p><b>1Mt in GHG reductions</b> between 2020 and 2030.</p>
<b>3</b> RNG	<ul style="list-style-type: none"> <li>• 0.1%: Percentage of RNG volumes injected into our gas network in 2020.</li> <li>• Annual reduction of 12,408 tonnes of CO<sub>2</sub> eq. for customers who consumed RNG in 2020.</li> </ul>	<p><b>10% of RNG injected by Énergir,</b> or 430 Mm<sup>3</sup> and 1Mt of reductions in 2030.</p>
<b>4</b> Responsible Procurement of Natural Gas Initiative	<ul style="list-style-type: none"> <li>• 15% of network gas in 2020 was purchased as part of this initiative.</li> </ul>	<p><b>100%</b> of fossil natural gas supplies contracted by Énergir as part of the Responsible Procurement of Natural Gas Initiative.</p>
<b>5</b> Complementarity/ Bi-energy <sup>20</sup>	<ul style="list-style-type: none"> <li>• GHG reductions related to bi-energy conversion efforts.</li> </ul>	<p><b>0.5 million tonnes of GHG reductions</b> by 2030.</p>
<b>6</b> Overall GHG reductions in the building sector <sup>20</sup>	<ul style="list-style-type: none"> <li>• Annual overall reductions in the building sector in 2020.</li> </ul>	<p><b>30% reduction in Énergir customers' GHG emissions</b> in the building sector by 2030 compared to 2020 levels.</p>

19. Direct Greenhouse Gas 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 2019 data are presented in this report.

20. The information expected to be released in a future report.

# Green Mountain Power Metrics, GHG Performance and Objectives

Green Mountain Power also reports annually on a variety of performance metrics relevant to its climate change work. GMP's Scope 1 and 2 metrics are not currently available and GMP could align its reporting on the GHG reporting protocol in the future. In response to the regulatory context, GMP provides information to the State of Vermont to develop the Vermont Greenhouse Gas Emissions Inventory and Forecast.

Metric	2020 Performance	GMP Targets
<b>1</b> Power supply emissions profile	<ul style="list-style-type: none"> <li>GMP's power supply emissions profile, expressed as lbs CO<sub>2</sub> eq. /kWh delivered.</li> <li>In 2020 Green Mountain Power was 94% CO<sub>2</sub> free, with 38 lbs of CO<sub>2</sub> eq. per MWh (17.2 kg CO<sub>2</sub> eq. per MWh).</li> </ul>	<b>100% by 2025</b> with progressively less carbon per MWh each year, managed through REC ownership and retirement.
<b>2</b> Power supply carbon-free percentage	<ul style="list-style-type: none"> <li>Percent of Green Mountain Power's power supply that is:               <ol style="list-style-type: none"> <li>1) carbon-free and</li> <li>2) renewable energy as defined under the RES.</li> </ol> </li> <li>In 2020, GMP's power supply is 94% carbon free and over 60% renewable.</li> </ul>	<b>100%</b> carbon-free by 2025. <b>75% renewable</b> with 10% distribution-level generation by 2032 (RES); 100% renewable by 2030.
<b>3</b> Electric Vehicle customers	<ul style="list-style-type: none"> <li>Number of customers currently enrolled in EV charging rates (if/when available) or other relevant incentives through tariffs, pilot program, or other incentive programs.</li> <li>In 2020, GMP's workplan included a target of 600, with a total of 747 customers enrolled this year.</li> </ul>	2021 Goal: <b>800 total customers</b> in the Green Mountain Power eV Home Charging programs, either controlled or self-managed.
<b>4</b> Tier III <sup>21</sup>	<ul style="list-style-type: none"> <li>Annual requirement for electrification for fossil fuel replacement.</li> <li>In 2020, Green Mountain Power has met or exceeded annual goals.</li> </ul>	Fossil fuel displacement must increase by 2% of annual retail kWh sales, reaching 12% by 2032. 2021 Target is <b>4.67%</b> .

21. Tier III is a part of the RES for Vermont. It requires utilities to displace fossil fuel through increased electrification equivalency of 2% of annual sales yearly, up to 12% by 2032, through a set of measures reviewed and approved by a Technical Advisory Group at the state level.



## Special Thanks

Énergir would like to thank the external stakeholders who have contributed to this report exercise by being generous with their ideas and suggestions to help us improve our practices. We would also like to thank the firms COPTICOM, Strategies and Public Relations, Dunsky Expertise energie and Ernst and Young, LLP. for their invaluable advice and their expertise, which helped improve our thinking and analyses:

- EY's contribution to support in implementing a work plan aligned with TCFD recommendations
- COPTICOM's contribution to the analysis of scenarios, trends and stakeholder audits
- Dunsky's contribution to the definition, quantification and scaling of scenarios and strategic analysis

We would also like to thank Énergir's employees involved in our approach to sustainability, the steering committee of this first report on climate resilience, and the disclosure committee for their commitment and involvement in this project. Finally, Énergir would like to thank all of its employees. We wouldn't be here without them, because it really is a collective effort.



# Appendix

# Appendix 1

## » Operational context – GHG emissions

Although several international agreements have been adopted in recent years to limit GHG emissions, Énergir and Green Mountain Power’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.

In addition to policies and regulations, these jurisdictions participate in initiatives or have made political commitments to address climate change. Although they are not legally binding for Énergir and Green Mountain Power’s activities, they guide government actions.

Jurisdiction	Policy or commitment	Objectives	
Canada	Policies and regulations	National contribution – Paris Agreement	Reduce its GHG emissions by <b>30% vs. 2005 levels by 2030</b> .
		<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.
	Political commitments	2050 commitment	<b>Net zero emissions by 2050.</b>
Quebec	Policies and regulations	2030 GHG emission reduction objectives	<b>Reduce its GHG emissions by 37.5%</b> under 1990 levels by 2030.
		Plan for a green economy	Plan to achieve the GHG emission reduction target set by the Government of Quebec for 2030, a reduction of 37.5% from 1990 and adapt to climate change.
		<i>Regulation respecting the cap-and-trade system for greenhouse gas emission allowances (Quebec) (CATS)</i>	Under this plan, Énergir is required to reports 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 it, 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 injected by a natural gas distributor at <b>1% of the total quantity of natural gas it distributes as of 2020 and at 5% as of 2025.</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 its activities, particularly programs and measures required to achieve energy efficiency targets set by the Government of Quebec.
	Political commitments	Under2 Coalition	<b>Reduce GHG emissions between 80% and 95% by 2050</b> in order to limit global warming to under 2 degrees Celsius by 2100.
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.
		Comprehensive Energy Plan	Aim to meet <b>90% of Vermont’s energy needs from renewable sources</b> by 2050.
		Vermont Renewable Energy Law	Require a minimum amount of renewable electricity in supply portfolios; 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 (RGGI) Under2 Coalition	Reduce regional GHG emissions by <b>30% vs. 2020 levels by 2030</b> <sup>22</sup> . <b>Reduce GHG emissions between 80% and 95% by 2050</b> in order to limit global warming to under 2 degrees Celsius by 2100.

22. The oil-fired turbine in Berlin, Vermont, is the only power facility of Green Mountain currently subject to RGGI compliance.

# Appendix 2

## » Scenarios and Scaling

Different possible trajectories based on global climate change scenarios are scaled up in Quebec to assess their local scope. To do so, Énergir and Green Mountain Power have chosen the global scenarios and scaling methodologies described in this table.

Scenario	Global scenario	Scaling
<b>Status Quo</b>	<p>The <i>Status Quo</i> Scenario represents a future in which emissions continue to increase since no additional action is taken to limit global warming.</p> <p>The scenario used for global NDC commitments is the one that was assessed by the Bank of Canada. The current policy scenario of the International Energy Agency is also consistent with this scenario.</p>	<p>The scenarios used for the Quebec-wide <i>Status Quo</i> come from the report carried out by Dunskey Energy Consulting for Quebec<sup>23</sup>, and are based on a modelling of the NATEM optimization model.</p> <p>This scenario was developed on a Quebec-wide basis and is consistent with a global <i>Status Quo</i> Scenario. In this <i>Status Quo</i> Scenario, only the actions and policies already in place or planned in the short term when the mandate is being carried out are included</p>
<b>NDC – %</b>	<p>The NDCs are those to which the signatory nations of the Paris Agreement have committed through a NDC submission to the secretariat of the United Nations Framework Convention on Climate Change (UNFCCC). The Agreement provides that the signatory countries submit new contributions every five years<sup>24</sup>.</p> <p>The scenario used for the 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 assume continuous action after 2030, by an implicit trend in emissions changes<sup>25</sup>.</p>	<p>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.</p>
<b>Sustainable Development Scenario – Under2 Coalition</b>	<p>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.</p> <p>The Sustainable Development Scenario represents stabilizing demand despite economic growth and a growing population. Fuel substitution and sustained efforts for decarbonation in this scenario are consistent with a world in which global warming is limited to 2 degrees Celsius or less by 2100 compared to the pre-industrial era.</p>	<p>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.</p> <p>The signatories of this agreement then committed to reducing their emissions by 80% to 95% with respect to 1990 levels, or at least by 2 metric tonnes per person, by 2050. Both Quebec and Vermont are signatories to the “Under2 Coalition” and their official GHG reduction targets are in line with the objectives of the coalition.</p> <p>As Quebec formulated its target based on a percentage reduction in 1990 emissions, Énergir uses this methodology rather than the GHG limit per person.</p>
<b>Delayed Action – Under2 Coalition</b>	<p>The Deferred Actions Scenario represents a future in which countries fail to meet their NDC commitments between 2020 and 2030, and then take subsequent mitigation actions to limit warming to 2 degrees Celsius or less by 2100 compared to the pre-industrial era.</p> <p>The scenario used for global NDC commitments is that which was assessed by the Bank of Canada.</p>	<p>To scale up the Deferred Actions Scenario using the Under2 Coalition methodology, Énergir considers that Quebec emissions in 2030 in are the same as those of the <i>Status Quo</i> Scenario (see methodology above).</p> <p>To catch up to 2030, Énergir assumes that Quebec is adjusting its 2050 target to the upper limit identified by the Under2 Coalition, i.e., that Quebec emissions in 2050 will be reduced to 95% compared to 1990 levels.</p>

23. See the Trajectoires de réduction d’émissions de GES du Quebec Report for more information: <http://www.environnement.gouv.qc.ca/changementsclimatiques/trajectoires-emissions-ges.pdf>.

24. Further information on Nationally Determined Contributions (NDCs) may be found on the secretariat website of the United Nations Framework Convention on Climate Change. <https://unfccc.int/process-and-meetings/the-paris-agreement/the-paris-agreement/nationally-determined-contributions-ndcs>.

25. More details on the NDC Scenario: <https://www.bankofcanada.ca/2020/05/staff-discussion-paper-2020-3/>.