

THE
2030

ENERGY POLICY

ENERGY IN QUÉBEC

A SOURCE OF GROWTH

ENSEMBLE  
on fait avancer le Québec

Québec 

Legal deposit

Bibliothèque et Archives nationales du Québec, 2016

Library and Archives Canada, 2016

ISBN 978-2-550-75528-9 (PDF)

© Gouvernement du Québec, 2016

Cover photos:

Left and centre: Hydro-Québec

Right: Wind farms in the Seigneurie de Beaupré



Message from the Premier

PHILIPPE COUILLARD

Québec is fortunate in that it can rely on diversified, abundant energy resources, which assure our quality of life and afford us business opportunities throughout the continent and even beyond. They also enable us to pursue our concrete commitment to combat climate change, a question that is mobilizing Quebecers and the international community. Moreover, as indicated at the Québec City summit on climate change, all of the Canadian provinces and the federal government are collaborating to successfully achieve a genuine energy transition in the country.

To meet these challenges and build on this potential, we must alter our energy consumption habits, rely less on hydrocarbons, and ensure that the renewable energy that we produce is sufficient to fully take advantage of the transition.

Using Energy to Build the Québec of Tomorrow, the energy policy adopted in 2006, taught us a great deal. It enabled us to face unforeseen events on energy markets and support enlightened decision-making concerning new options or technologies that were little known in 2006 but that now seem decisive for the future of the energy sector.

Ten years later, it is time to review our priorities in light of the current global context. Québec possesses all of the tools necessary to become a leader in renewable energies, energy efficiency and innovation. The responsible development of our energy resources is essential for Québec's economic vitality but also to reduce our carbon dioxide footprint. *The 2030 Energy Policy* specifically targets these objectives and proposes the means to attain them.

Our energy potential is huge. We must now set the stage in order to increase investments and enjoy the benefits that our energy resources and know-how offer us. The time has come to propose new ideas. We will not move beyond the age of hydrocarbons for want of oil but because we will have invented innovative technologies and relied in our territory on cleaner energy sources. The government's determination alone cannot initiate this trend. We need you to make this shift and commit Québec to an eco-efficient, prosperous future.

Energy in Québec is a source of growth. Together, we must be forward-looking and alter energy consumption habits. Such is our perspective, one that will make Québec prosperous, now and in the future. That is why I am inviting you to participate in this new energy pact.





Message from the Minister

PIERRE ARCAND

Minister of Energy and
Natural Resources

A handwritten signature in white ink, appearing to read 'Pierre A.' followed by a stylized flourish.

Québec can be justifiably proud of its energy resources. Power generation using renewable energies has always been one of our strengths. Hydroelectricity, biomass and wind power, in particular, come to mind. Reliance on them is central to our economic development and we master them better than anyone. Renewable energy sources now account for nearly half of Québec's energy balance. We have the boldness to venture even further.

With *The 2030 Energy Policy*, our government is banking on Québec's strengths and putting consumers at the forefront of impending initiatives. Our determination is clear and our objectives are ambitious: to make Québec by 2030 a North American leader in the realms of energy efficiency and renewable energy and thus build a new, strong, low-carbon economy.

The objective that we wish to attain is to ensure that consumers benefit from the potential offered by the transition to a green, more eco-efficient economy. To this end, the energy policy puts forward a model that relies on the development of the full economic potential of our regions. It reflects the government's priorities and uses energy resources as a lever to create wealth and ensure social development while promoting innovation.

The *2030 Energy Policy* is also the outcome of extensive reflection and debate through a broad consultative process. Today, I am proud to present a policy that stems from an open, transparent, constructive approach that hinges on receptiveness and collaboration.

Through this energy pact, Québec is bolstering its leadership and proving that it is possible to instigate the genuine decarbonization of the Québec economy. Let us be more efficient, greener and bank on an economy that creates prosperity, well-being, social cohesion and jobs for the benefit of our families and businesses and for future generations.





Message from the Minister

DOMINIQUE ANGLADE

Minister of the Economy, Science and
Innovation and Minister responsible for
the Digital Strategy

A handwritten signature in white ink, appearing to read 'D. Anglade', located at the bottom left of the page.

Québec is an ideal partner on the international scene, in particular because of its energy sector's vitality and ability to innovate. We are privileged in being able to rely on numerous advantages such as our diversified energy potential, the sustainable development of our resources and synergy between the stakeholders in the sector, to further develop our economy and create new areas of expertise in Québec. By encouraging investments in the energy sector, we are bolstering our position as a leader in this field.

The energy policy proposes an innovative new consumption and economic development model that will engender considerable spinoff for Québec. It will allow for more extensive support for businesses and all Quebecers in their efforts and initiatives aimed at reducing energy consumption in order to collectively build a strong, low-carbon economy.

To give concrete expression to this perspective, we are proud to be able to rely on the know-how and determination of Québec firms and organizations that are committed to ensuring that our energy sector prospers. Together, let us think big for our future.





Message from the Minister

GEOFFREY KELLEY

Minister responsible
for Native Affairs

A handwritten signature in white ink that reads "Geoffrey Kelley".

Québec's expertise in the energy sector and the development of its vast hydroelectric power potential are essential to Québec's economic vitality. This success hinges, in particular, on our sound relations with local and regional communities and the Aboriginal communities concerned by energy development projects.

Today more than ever, the Aboriginal communities are displaying a growing interest in participating in economic development projects within a framework that targets the development of their communities and environmental protection. *The 2030 Energy Policy* is no exception.

Accordingly, the Québec government asked all of the Aboriginal communities to assemble in order to reflect on and discuss Québec's energy future. The constructive discussions that took place reflect the importance of their participation in the elaboration of such policies. We are convinced that this formula is productive and have committed ourselves to continuing to work in partnership with the Aboriginal communities.

In my capacity as Minister responsible for Native Affairs, I am proud to participate in Québec's energy pact stemming from a unifying, mobilizing consultation process, which is ensuring that it is Québec as a whole that can take pride in and benefit from it.

INTRODUCTION

The government is making public its energy transition policy by the year 2030, which puts consumers at the forefront of impending initiatives. The policy seeks to:

- ➔ **favour a low-carbon economy;**
- ➔ **optimally develop our energy resources;**
- ➔ **foster responsible consumption;**
- ➔ **capitalize on energy efficiency potential;**
- ➔ **promote the entire technological and social innovation chain.**

Québec is one of the world's biggest per-capita energy consumers. This is attributable to its high standard of living, North American lifestyle, harsh climate, vast territory, low-density urban planning, well-developed, energy-intensive industrial sector, and the availability continent-wide of abundant, diversified and relatively inexpensive energy resources.

Fortunately, Quebecers can rely on renewable energies to satisfy nearly half (45%) of their energy needs, a proportion that exceeds that of the vast majority of countries. On the other hand, the good practices observed elsewhere with respect to the consumption and use of renewable energy resources show that we can do much more in terms of energy efficiency, sustainable transportation and reduced consumption of petroleum products in our daily lives. That is the policy's ambition.

The 2030 Energy Policy proposes a perspective and targets that illustrate the advances that all types of consumers, from individuals to businesses, are encouraged to achieve and from which they will directly benefit. It indicates how the government will guide consumers at all stages in the energy transition that it is announcing.

Here, then, is the energy pact that the government is proposing to significantly alter Québec's energy profile by the year 2030.

A unifying vision

Make Québec by the year 2030 a North American leader in the realms of renewable energy and energy efficiency and thus build a new, strong, low-carbon economy.

This perspective will become a reality by putting consumers at the forefront of initiatives.

TWO OPPORTUNITIES FOR CONSULTATION

The Commission on Energy Issues in Québec (Mousseau-Lanoue) – 2013

- 468 briefs
- 300 presentations
- 47 public consultation sessions
- 250 interventions online or in person
- three workshops with the Aboriginal communities
- five expert panels held in camera

The process to elaborate a new energy policy – 2015

- four thematic round-table forums
- 586 participants: 40 experts, 225 partners and 321 individuals
- three public consultation sessions
- one meeting with the Aboriginal communities
- 200 interventions online or in person
- 135 open letters received



The government has adopted ambitious, demanding targets to be achieved by 2030

1. **ENHANCE** energy efficiency by 15%
2. **REDUCE by 40%** the amount of petroleum products consumed
3. **ELIMINATE** the use of thermal coal
4. **INCREASE by 25%** overall renewable energy output
5. **INCREASE by 50%** bioenergy production

The targets are based on data for 2013, the most recent available.

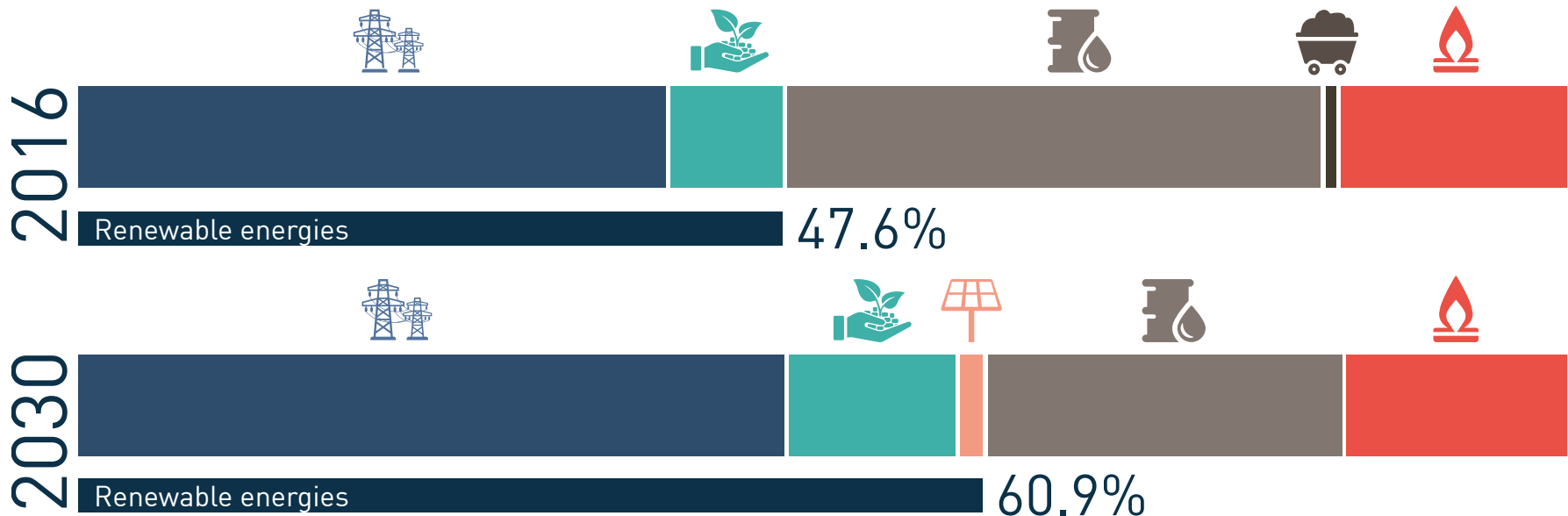
The 2030 Energy Policy's contribution to greenhouse gas emission reduction

The production, transportation and consumption of energy account for 70% of overall greenhouse gas (GHG) emissions in Québec. The targets proposed in *The 2030 Energy Policy* alone will reduce GHG emissions by 16 million tonnes of CO₂ equivalent, i.e. 18% of such emissions in 1990. Such reductions will be added to those already achieved to date (8.5%) and other GHG reductions from non-energy sources.

Progress to be achieved

Québec consumers—individuals, households, industries, institutions and businesses—rely on electricity, oil, natural gas, biomass, coal and decentralized energies such as geothermal and solar energy to satisfy some of their needs. Such needs can be broken down as follows:

- ▶ travel
- ▶ transport/deliver
- ▶ produce/distribute/export
- ▶ connect/recharge/store
- ▶ heat/air-condition/ventilate



 Electricity
  Biomass
  Decentralized energies (such as geothermal and solar energy)
  Petroleum products
  Coal
  Natural gas

Key directions

Energy is central to Quebecers' quality of life. It is an integral part of our government's targets pertaining to combating climate change, economic prosperity, intergenerational fairness and sound public finances.

As never before, we must intervene strategically and make choices that will contribute to enhancing Quebecers' quality of life and reduce fossil energy consumption, which accounts for roughly 70% of Québec's GHG emissions.

Energy efficiency, energy substitution and behavioural change are the three linchpins of a successful energy transition. The linchpins are present, for example, when a public transit company decides simultaneously to enhance its services to reach a new clientele, replace its diesel vehicles with electric buses and support the continuous improvement of the energy performance of its new vehicles in order to consume less electricity.

Here are the four key strategic thrusts that will guide Québec's energy transition over the next 15 years:

- 1. Ensure integrated governance of the energy transition**
- 2. Promote the transition to a low-carbon economy**
- 3. Offer consumers a renewed, diversified energy supply**
- 4. Define a new approach to fossil energies**

The new energy pact

Québec, like the rest of the world, is facing significant energy-related challenges to combat climate change and we have a responsibility to deal with them. To this end, consumers must undertake an energy transition and adapt their behaviour to reduce their energy needs and choose renewable energies or low-carbon energy sources.

The government will guide consumers in their choices and support the technological advances that are essential to the implementation of widespread offerings of low-carbon fuels. These initiatives will profoundly alter Québec's energy profile.

Conditions for success

To attain its targets, the Québec government will take into account in its decisions public safety, economic, environmental, cultural, territorial and social factors. In so doing, it undertakes to:

➤ **PROPOSE MODEL ENERGY CHOICES** BY EMPHASIZING THE EXEMPLARINESS OF ITS ESTABLISHMENTS

➤ **MOBILIZE INDIVIDUALS AND BUSINESSES** TO ACHIEVE GENUINE CHANGE

➤ **SUPPORT RESEARCH AND DEVELOPMENT** TO SPUR INNOVATIVE TECHNOLOGIES

➤ **MAINTAIN A COHERENT OVERALL PERSPECTIVE** THROUGH MODERN, RESPONSIBLE, INTEGRATED GOVERNANCE

➤ **INCREASE INVESTMENTS** IN RENEWABLE ENERGIES

➤ **RELY ON THE STRENGTH OF PARTNERSHIP** THROUGH SUSTAINED PARTICIPATION AT HOME AND ABROAD

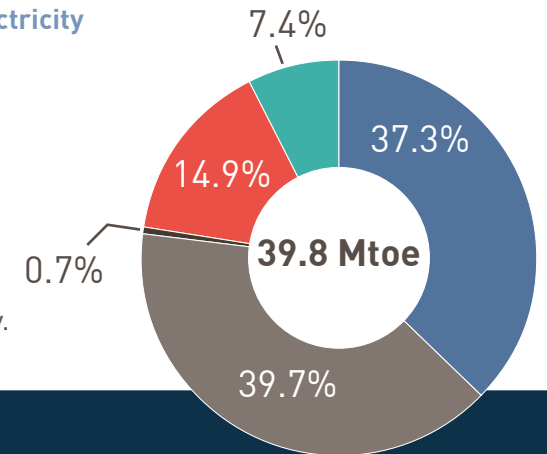
Energy's role in Quebecers' lives

Total energy consumption

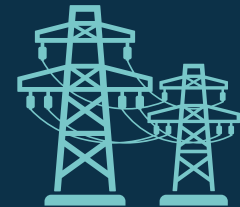
In 2013, Québec's total energy consumption broke down as follows:

- 172.5 billion kilowatt-hours (kWh) of electricity
- 18.2 billion litres of petroleum products
- 6.4 billion m³ of natural gas
- 3.0 million tonnes of oil equivalent (toe) of bioenergy
- 0.4 million tonnes of coal

All told, this represents 39.8 mtoe of energy.



Electricity satisfies **37%** of Québec's energy needs, **99%** of which is generated from renewable sources. Electricity from renewable sources worldwide accounts for less than **5%** of energy needs.



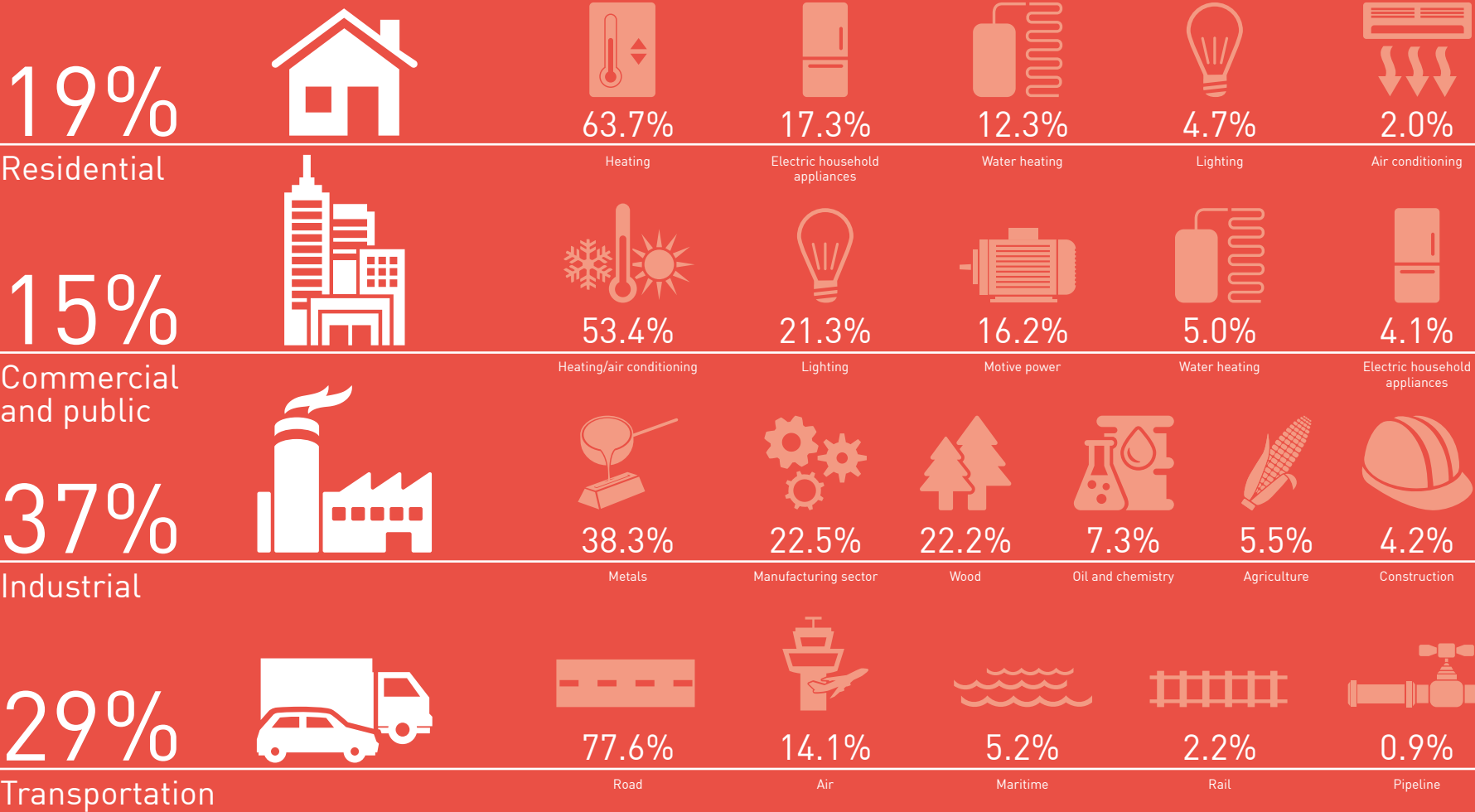
Québec society uses the energy equivalent of **35 barrels** of oil per person per year.





Consumption by area of activity

Energy consumption by use (2013)



Energy consumption by form (2013)



Electricity



Petroleum products



Coal



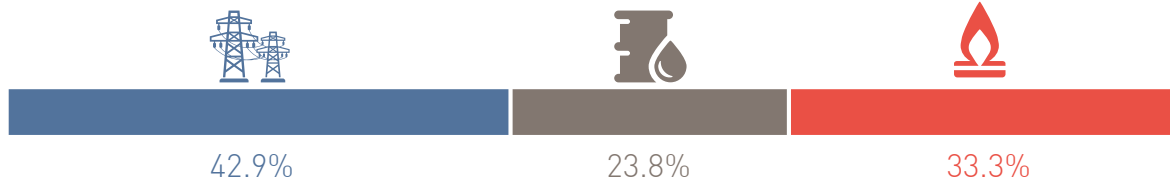
Gas



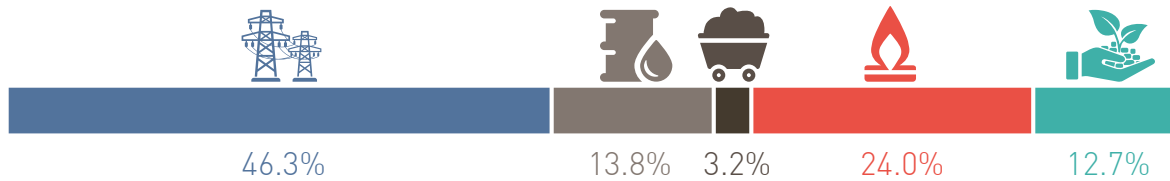
Biomass



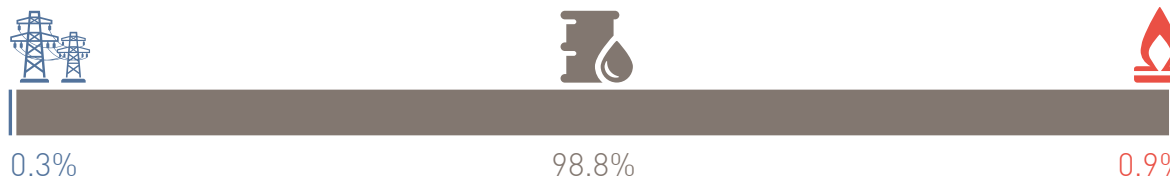
Québec households devote roughly 8% of their disposable income to energy. In 2014, an average household comprising 2.3 individuals spent \$4 000 on energy for heating, lighting and travel.



The Québec government's building inventory comprises roughly 14 900 buildings totalling 43.5 million m². Between 2002 and 2012, energy intensity (energy consumption by floor area) was reduced by 11.2% through energy efficiency measures.



Energy is a factor of production that is essential to economic activity. By way of an example, it can account for more than one-third of production costs in the cement manufacturing sector.

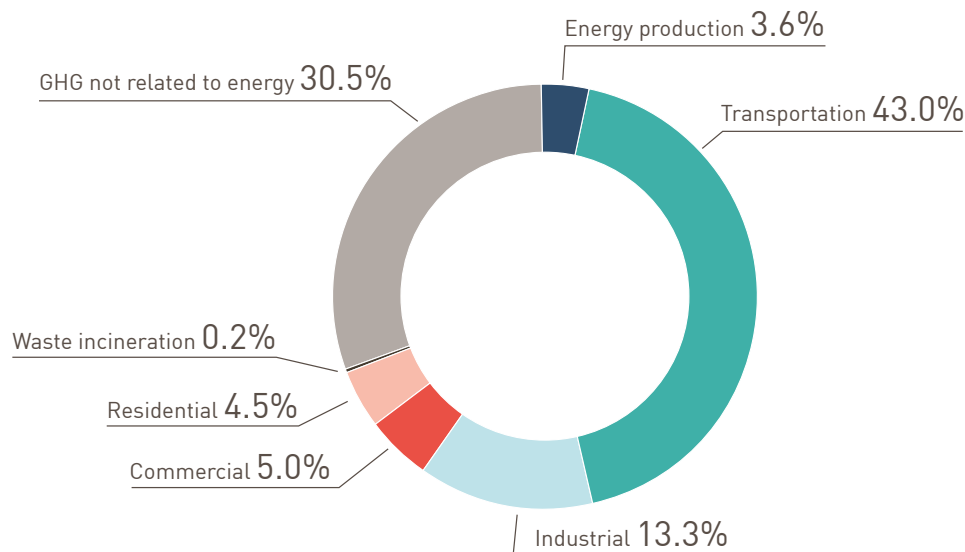


The transportation sector alone consumes 75% of all of the petroleum products used in Québec for energy purposes.

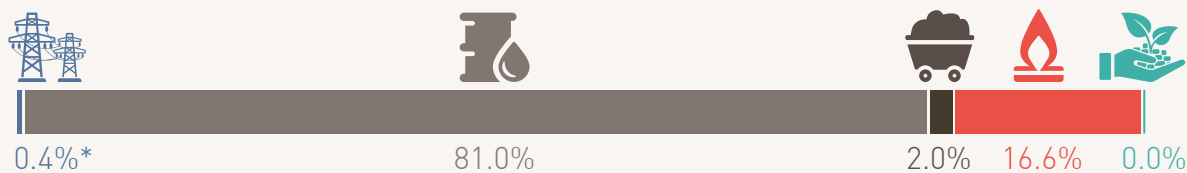
Greenhouse gas emissions

In 2013, total greenhouse gas (GHG) emissions in Québec stood at 81.2 million tonnes of CO₂ equivalent, i.e. 10.1 tonnes of CO₂ equivalent per capita. Nearly 70% of this figure (56.4 million tonnes of CO₂ equivalent) stemmed from the production, transformation and consumption of energy, mainly in the form of petroleum products used for transportation, heating buildings and industrial processes.

GHG EMISSIONS BY AREA OF ACTIVITY (2013)



GHG EMISSIONS BY FORM OF ENERGY (2013)



* Emissions stemming from the use of petroleum products to generate electricity.

The use of fuel oil to heat dwellings and domestic hot water emits, on average, **4.0 tonnes of CO₂** equivalent annually.

Roughly 200 000 households still use fuel oil as the main energy source for heating.

A light-duty vehicle emits **3.4 tonnes of CO₂** equivalent annually.

There are more than **4.7 million light-duty vehicles** on Québec roads.

Energy's contribution to the economic development of all of Québec's regions

- ▶ The energy sector contributes, through its investments in capital and expenditures, to the vitality of other economic sectors. In 2014, it accounted for nearly 4.2% of Québec's gross domestic product (GDP), i.e. \$13 billion.
- ▶ The same year, Hydro-Québec paid the Québec government more than \$2.3 billion in the form of dividends and more than \$0.9 billion in taxes on public services and water-power royalties. Hydro-Québec's investments totalled \$3.4 billion, making the government corporation Québec's biggest investor.
- ▶ To date, total investments carried out or under way to develop Québec's wind farms stand at roughly \$8 billion. The invitations to tender stipulate that at least 60% of this amount must be spent in Québec.
- ▶ For several decades, the development in Québec of energy-intensive industries has hinged, to a large extent, on hydroelectricity. Québec's renewable electricity has thus contributed markedly to the development of its regional industrial fabric.
- ▶ Aside from refineries, Québec benefits from a significant petrochemical sector comprising 20 businesses that account for nearly 1 000 jobs.
- ▶ Through the energy available to it, Québec can develop new manufacturing sectors, in particular the electric vehicle and vehicle components industry, and renewable energy production technologies, in addition to maintaining well-established promising industries such as the aeronautics and the information technologies sectors.
- ▶ The cellulosic biofuels option is facilitating the emergence of technology enterprises, some of them in the biorefining sector. This sphere of activity produces biofuels from biomass and, simultaneously, extracts value-added molecules that can be used in solvents, bioplastics, food, raw materials for textiles, and so on.

By supporting large-scale renewable electricity generation and innovation in the green energies sector and technologies devoted to the reduction or the sequestration of industrial GHG emissions, *The 2030 Energy Policy* will act as a decisive lever among industrial investors, in particular in sectors that rely on significant supplies of reliable electricity.

HYDRO- QUÉBEC IS THE FOCAL POINT OF QUÉBEC'S ECONOMIC DEVELOPMENT

The abundance of Québec's natural resources, in particular its hydraulic resources, has fostered its social, industrial and economic development for more than a century. The establishment in 1944 of Hydro-Québec facilitated the launching of major energy projects such as the Manic-Outardes and La Grande complexes. More recently, the development of interutility tielines with Ontario and the United States has enabled us to sell clean, renewable energy beyond our borders.

Since 2011, Hydro-Québec has participated in the decarbonization of transportation through its membership in the Electric Circuit, a key component of Québec's transportation electrification strategy. The Electric Circuit continues to expand and offers electromotorists access to quick-charge terminals in most regions.

Hydro-Québec will examine new possibilities for growth abroad in the coming years. The government corporation possesses very valuable know-how and can contemplate the acquisition and development of energy infrastructure outside Québec to increase its revenues.

In addition to its own business activities, Hydro-Québec can thus enable greater numbers of Québec manufacturing firms or enterprises with cutting-edge expertise to seize business opportunities in high-growth markets. Among new growth potential stemming from the commercialization of its research and development activities, mention should be made of promising fields linked to more efficient electricity use and GHG emission reduction such as heavy duty batteries and efficient engine technologies aimed at vehicle manufacturers.

Hydro-Québec also intends to increase its electricity exports at a time when several neighbouring markets have set GHG reduction targets. Some 99.8% of the electricity that Hydro-Québec generates is renewable, low-carbon power and the utility's exports are contributing to significantly reducing reliance on polluting thermal power plants.

Lastly, Hydro-Québec's industrial electricity rates are unquestionably attractive, which makes Québec an ideal location for firms that are large electricity consumers and concerned about their environmental footprint in a highly competitive international environment.

Since the establishment of Hydro-Québec, the government corporation's major hydroelectric and electricity transmission projects have contributed to its international reputation and to that of the Québec engineering and project management sectors. Consequently, as it has done since its inception, Hydro-Québec will continue to play a leading role as a driving force in Québec's economic development.

Hydro-Québec's new strategic plan

The government has mandated Hydro-Québec to engage in strategic planning.

The government corporation has a mandate to:

- achieve efficiencies that ensure that changes in electricity rates fall below the inflation rate;
- promote its contribution to the Northern Plan and to transportation electrification;
- take stock of the development of wind power in Québec and its energy efficiency initiatives;
- provide details of its contribution to the government's declaration on its commitment to transparency.

Hydro-Québec intends to double its revenues over the next 15 years, among other things through growth potential outside Québec.



ENSURE INTEGRATED GOVERNANCE OF THE ENERGY TRANSITION

The energy transition implies coherent, concerted action by numerous stakeholders concerned with the delivery of services related to energy efficiency, energy substitution and energy innovation and, more generally, the fight against climate change.

In order to coordinate and manage all of the measures aimed at the attainment of our ambitious targets, the Québec government undertakes to:

- establish a new agency devoted to energy conservation and the energy transition;
- review the role of the Régie de l'énergie;
- modernize the process to authorize energy projects.

Establish an agency devoted to energy conservation and the energy transition

The government proposes to establish a new agency that will present a flexible, efficient oversight and service delivery model with respect to energy innovation, energy efficiency and energy substitution. It will coordinate through a single administration the services and programs that government departments and bodies offer and will be responsible for all components of the energy transition.

The new agency draws inspiration from structures established by States that have already successfully undertaken the energy transition. Under its mandate, it will:

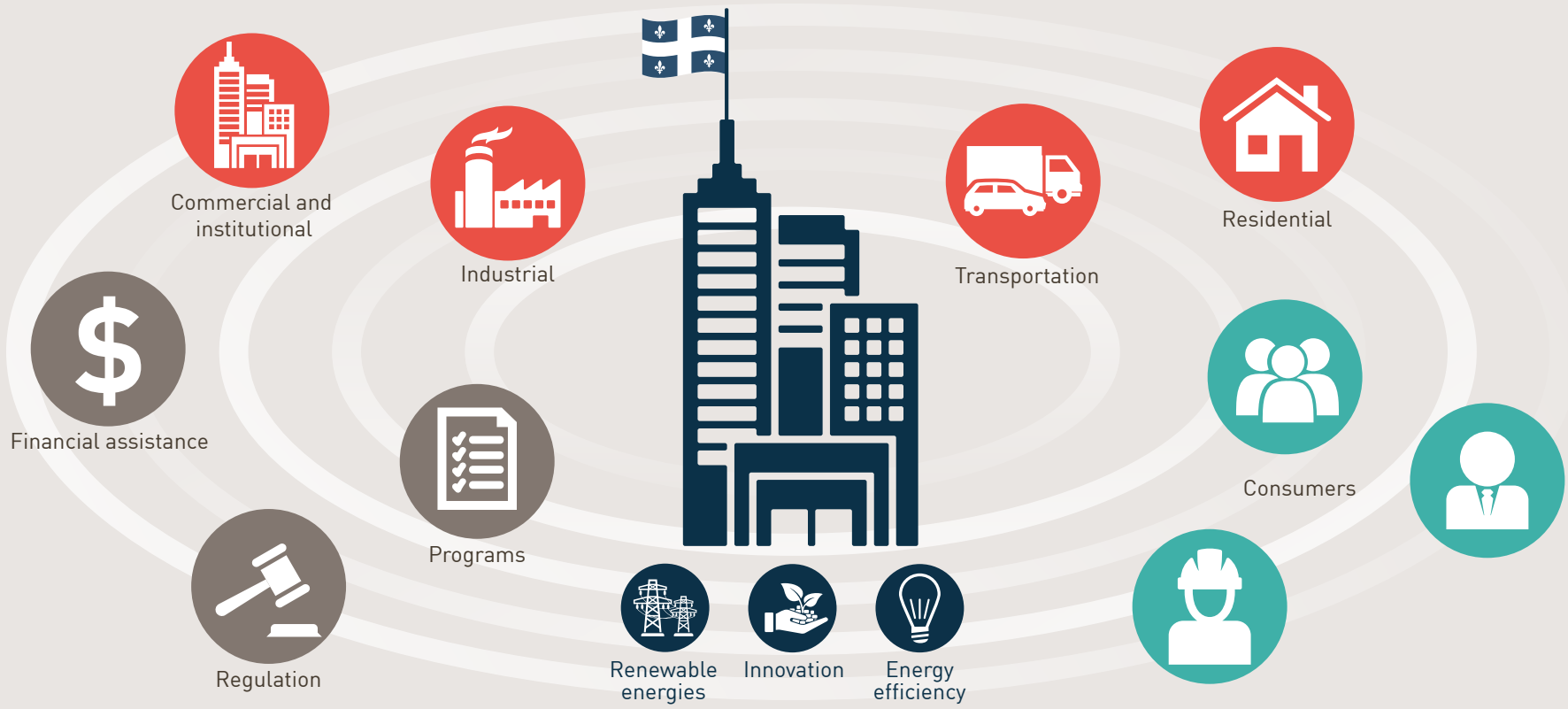
- ▶ coordinate the implementation of all energy efficiency, energy substitution and energy innovation programs, in particular by funding green technology enterprises;
- ▶ offer direct services such as financing services for consumers and businesses, loan guarantees and financing at low interest rates, as well as public information services;
- ▶ advise the government in a proactive manner on standards and regulations, eco-taxation measures and factors that affect the energy consumption of households, businesses and the government;
- ▶ ensure the attainment of the government's minimal targets from the standpoint of energy efficiency and propose additional targets if need be;
- ▶ coordinate the implementation of the programs that the government attributes to it;
- ▶ seek to reduce the carbon footprint of public infrastructure in the education and health sectors, in collaboration with the sectors concerned;
- ▶ observe and analyze the state of Québec's energy situation and advancement toward the transition from the standpoint of the government's objectives;
- ▶ monitor accountability through the compilation, validation and dissemination of data on the outcomes observed in relation to the targets set.

Through the new entity, the government wishes to encourage the elaboration of innovative catalyst projects geared to the Québec economy that can directly affect the energy transition. The entity will also offer numerous advantages:

- ▶ The establishment of a single gateway and the grouping and improvement of the services offered will enhance consumers' experience.
- ▶ To ensure that initiatives achieve greater coherence and broader synergy, a master plan will be elaborated to replace the individual plans that energy distributors now propose. The plan will also include the entire array of government measures.
- ▶ The new agency will be able to take advantage of the proximity of experts in all fields such as energy distributors and partners to propose new ideas to promote the energy transition.

The future agency will pinpoint regulatory or normative barriers to private or public initiatives that are in keeping with the objectives of this energy policy and propose the appropriate changes to the government departments responsible. Energy distributors will also be asked to disseminate information and promote energy efficiency programs among their clientele.

The agency's implementation reflects the current worldwide trend to rely on a highly flexible tool pertaining to the energy transition. Québec is already a leader in the realm of energy efficiency. If it wishes to maintain its position and influence behavioural change, it must promptly adopt the means to do so.



A comprehensive, integrated governance structure

The Minister of Energy and Natural Resources will be responsible for the new agency. Beyond the day-to-day management of the new agency, under its president and chief executive officer, a board of directors and the Régie de l'énergie, assisted by a stakeholders' steering committee, will oversee the agency.

The board of directors will, in particular, comprise professionals recommended by an independent committee. The agency will set up and support the stakeholders' steering committee. It will simplify the process of approving its master plan by the Régie de l'énergie by seeking active upstream participation by the stakeholders in the agency's activities.

Broader support for research and development

Québec is already recognized the world over for its expertise in the realm of hydroelectricity. It must pursue its investments in research and innovation in the fields of energy efficiency, electric vehicles and processes, electricity use and storage, and renewable energy output, against a backdrop of the fight against climate change.

In order to succeed, the government, through the new agency, will rely on:

- ▶ carefully targeted research infrastructure;
- ▶ the establishment, every five years, of a list of priority topics, agreed upon with the key stakeholders in the research sector and industry;
- ▶ the realization of research and development projects in recognized industrial clusters or in partnership with establishments and research centres at home and abroad;
- ▶ the coordination of public programs and budgets devoted to research and innovation that affect all facets of energy consumption and production.

THE GOVERNMENT INTENDS TO MAKE AVAILABLE TO HOUSEHOLDS, BUSINESSES AND PUBLIC ESTABLISHMENTS **MORE THAN \$4 BILLION** OVER A PERIOD OF 15 YEARS TO COVER ENERGY EFFICIENCY AND ENERGY SUBSTITUTION MEASURES.

40 \$

Review the role of the Régie de l'énergie

The Régie de l'énergie is a public economic regulator that has a mandate to reconcile the public interest, consumer protection and the fair treatment of the electric power carrier and energy distributors. In particular, it sets electricity and natural gas rates and determines the funds earmarked by the distributors of such forms of energy for energy efficiency and energy innovation.

The Régie de l'énergie will have a new mandate to give an opinion on the master plan proposed by the new agency and the relevance of the budgets requested to this end to achieve the government's targets. The Régie must also submit to the government an annual auditor's report on the completion status of the plan and targets in which it may request the evaluation of additional targets.

In this context, the government is undertaking to make several significant amendments to the *Act respecting the Régie de l'énergie* that will seek, among other things, to broaden its powers and simplify processes.

Adapt the electricity and natural gas rate-setting rules

To better respond to the economic, social and environmental challenges facing consumers, producers and energy distributors, the government is proposing to introduce greater flexibility and proactivity in the rate-setting rules stipulated in the *Act respecting the Régie de l'énergie*. Accordingly, the Régie must:

- ▶ produce an advisory opinion that proposes rate solutions that draw inspiration from the best practices of other States and territories and seek, in particular, to simplify the options offered to customers;
- ▶ simplify its public notices and promote the organization of public meetings to facilitate discussions with concerned individuals in a flexible, convivial framework;
- ▶ regulate the expenses of interveners who appear before it with a view to controlling costs, with the establishment of a ceiling on each case;
- ▶ demand the establishment of natural gas transportation reserve capacity for industrial customers;
- ▶ propose and produce advisory opinions on economic spinoff from energy options when doing so is deemed necessary to evaluate certain requests;
- ▶ establish a distribution mechanism that fosters mediation between consumers and energy distributors and avoids a proliferation of proceedings by consumers.

Modernize the process to authorize energy projects

The Minister of Energy and Natural Resources is responsible for the stability and quality of energy supplies and responsible energy resource development for the benefit of Québec society. On the other hand, numerous interveners are responsible for authorizing projects, which makes the process cumbersome.

Accordingly, the government undertakes to reorganize the evaluation process governing energy projects to make it more efficient and ensure broader coherence between organizations.

Close coordination will be established between the Régie de l'énergie, the Bureau d'audiences publiques sur l'environnement (BAPE), the Commission de protection du territoire agricole du Québec (CPTAQ) and all other government authorities that are called upon to give an opinion on the environmental, social and economic facets of a project. The Régie de l'énergie will examine the recommendations and opinions of such authorities in its decision-making process.

This modernization will make it possible to coordinate and synchronize the issuing of the requisite authorizations to carry out an energy transportation or supply project, in particular electricity transmission lines, in a spirit of respect for the powers of the government departments and bodies concerned and without encumbering the decision-making process. It does not apply to projects for which Hydro-Québec Production is responsible.



Photo: Ministère des Transports du Québec

PROMOTE THE TRANSITION TO A LOW-CARBON ECONOMY

By 2030, the government will bank on the development of a low-carbon economy. To this end, it intends to influence:

- the energy consumption of households and commercial concerns;
- the energy choices of industrial enterprises;
- the travel patterns of individuals and freight transportation; and
- set an example as regards energy consumption.

Influence the energy consumption of households and commercial concerns

Québec has more than 3.4 million households. Of this number, roughly 6% still use fuel oil as the main energy source to heat their homes and water, while an even greater number of households use it as a form of supplemental energy.

To encourage households to consume less energy, better consume it and convert their dwellings to other forms of energy, the government will:

- ▶ heighten awareness among Quebecers by informing them of the numerous means available to them;

- ▶ provide possible solutions to optimize the use of energy in the home, heating equipment and electric household appliances, which underpins household energy choices;
- ▶ update construction norms, which date from 1983, for new commercial, institutional and residential buildings of more than four storeys;
- ▶ implement initiatives aimed at reducing energy consumption in the built heritage;
- ▶ engage in reflection on obstacles to the adoption by individuals and businesses of best practices in the realms of urban planning, the orientation of buildings, architecture and landscaping likely to significantly reduce energy demand for all types of buildings;
- ▶ establish an advisory panel in collaboration with the Association des professionnels de la construction et de l'habitation du Québec (APCHQ) and other partners in the construction sector.

How can we improve our energy consumption?

- The replacement of 10 100-W incandescent lightbulbs with LED or compact fluorescent lightbulbs represents an **annual saving of \$150**.
- The use of ENERGY STAR certified electric household appliances instead of non-certified models can **reduce the energy consumed by up to 50%**.
- **Up to 6% of the energy consumed** to heat a home can be saved by lowering the temperature by 3°C at night.
- Reliance on home automation and reducing the standby power drawn by electrical products are also **worthwhile avenues**.

Influence the energy choices of industrial enterprises

Québec industry has developed owing to accessible, inexpensive energy. Moreover, the Québec government uses advantageous electricity rates to attract new businesses and consolidate jobs, which explains why a number of energy-intensive concerns have set up operations in Québec. Energy-intensive industry offers enormous potential from the standpoint of energy efficiency and substitution. It has everything to gain: optimized systems, significant energy gains, and lower operating costs.

The government intends to take advantage of this considerable potential to encourage businesses to make new choices. To this end it:

- ▶ undertakes to offer them broader support to convert their processes and industrial boilers and bolster their energy efficiency;
- ▶ will encourage ecoenergetic behaviour, especially in the choice and use of agricultural machinery and fishing equipment and reduced recourse to diesel or gasoline generators.

To do so, the government will:

- ▶ ensure that rural regions have broader access to three-phase electric power;
- ▶ ensure access to eco-efficient technologies and cleaner forms of energy to replace petroleum products;
- ▶ evaluate and support local pilot projects devoted to biomethanization of agrifood residual materials;
- ▶ maintain risk-sharing formulas for large electricity consumers;
- ▶ continue to support electricity autogenerators through the allocation of hydropower in the Québec public domain when they contribute to Québec's economic development;
- ▶ intervene from time to time among businesses that are temporarily unsettled by cyclical conditions;
- ▶ maintain its receptiveness to heavy energy-using industries that engage in exemplary GHG reduction practices.

“Zero coal” legislation

The government intends to adopt “zero coal” legislation aimed at completely eliminating by 2030 thermal coal as an energy source. The use of coal will be prohibited unless the GHG emitted by this type of fuel are sequestered by means of proven technologies.

Influence the travel patterns of individuals and freight transportation

Urban sprawl is advancing at an accelerated pace in Québec, thereby increasing our transportation needs, 99% of which are satisfied by petroleum products. Widespread use of automobiles has extensive adverse impacts on the environment both from the standpoint of climate and air quality, which automatically engenders public health problems. A radical reduction in dependency on oil inevitably depends on a reduction in its use in the transportation sector. To do so, the government will combine measures focusing simultaneously on several themes.

Urban land-use planning

- ▶ Ensure the development of territories by planning workplaces, living environments and places of consumption so as to take into account the energy dimension.

The efficiency of freight transportation

- ▶ Promote short cycles, industrial ecology and the application of new transport logistics practices in order to reduce freight transportation needs.
- ▶ Support the conversion of transportation vehicles already on the road to fuels with lower carbon content, in particular liquefied natural gas (LNG), compressed natural gas (CNG) and propane.
- ▶ Support the decarbonization of transportation in the industrial sector by promoting therein forms of energy with lower GHG emissions.
- ▶ Enhance the eco-trucking program to promote conversion to natural gas for heavy-duty vehicles.

The availability of public, collaborative and active transportation

- ▶ Encourage the development of public, collaborative and active transportation.
- ▶ Broaden the availability of mass transit and increase tenfold the advantages linked to the use of such modes of transportation, for example by establishing reserved lanes.
- ▶ Support consumers in the transition to public, collaborative and active transportation.
- ▶ Give Hydro-Québec a mandate to participate technically and financially in the establishment of the necessary infrastructure and equipment for the electrification of these modes of transportation.
- ▶ Promote sharing economy initiatives that contribute to accelerating market penetration by vehicles with very low GHG emissions.
- ▶ Develop incentives for the conversion or establishment of commercial fleets that rely neither on diesel nor on gasoline.
- ▶ Support public transit companies in their efforts to enhance their energy balance.

The energy efficiency of new vehicles

- ▶ Support households and businesses that acquire new electric vehicles or vehicles with a low carbon footprint, including hydrogen-powered vehicles that will be marketed in the future.
- ▶ Work in association with the States and provinces already committed to supporting the “zero-emission vehicles” market, in particular by tabling zero-emission legislation, so that automakers and dealers promptly offer Québec consumers a range of models in sufficient numbers that meet their expectations.
- ▶ Make representations to the Canadian and American governments so that they maintain and rigorously apply standards that compel automakers to market vehicles whose average fuel consumption declines steadily.

An innovative business model

The government recently established an innovative business model to ensure the realization of major new mass transit projects. The model hinges on a commercial agreement with the Caisse de dépôt et placement du Québec, which can carry out, manage and finance major mass transit infrastructure projects. Two major projects are under study, i.e. the mass transit system on the future Champlain Bridge and a link to the West Island and Montréal-Trudeau Airport.

A mass transit fund

Two-thirds of the annual revenues stemming from the carbon market (the Green Fund) are used to fund sustainable transportation measures, especially mass transit, through the Fonds pour le réseau de transport terrestre (FORT).

The distribution of alternative fuels

- ▶ Ensure that households that opt for electric and low-GHG-emitting vehicles can rely on low-carbon fuel distribution networks and sufficient numbers of charging stations in public venues and along main roads throughout the territory.
- ▶ Establish within the coming year a network of multi-fuel service stations offering gasoline, biofuels, natural gas, propane, electricity and hydrogen and extend it by 2030 throughout Québec. The service stations will first be installed in regions with high potential for use. After 2030, all government authorizations for new facilities or the modernization of service stations must be accompanied by multi-fuel offerings.
- ▶ Support Gaz Métro's objective of increasing by 15% by 2030 the heavy-duty vehicle fleet powered by LNG or CNG. To ensure supplies, the government will collaborate with Gaz Métro to evaluate the possibility of extending along the north-south axis the Blue Corridor, a network of LNG fuelling stations for heavy-duty vehicles, which would ensure complete coverage of Québec.

Number of electric recharging stations and fuelling stations offering low-carbon fuels in Québec

- **More than 770 public electric charging stations** installed on 501 sites, including 30 400-V fast-charge stations
- **19 CNG fuelling sites**, including two public stations
- **Three LNG fuelling stations** along Autoroute 20, including two public stations that constitute the Québec section of the **Blue Corridor**, which also includes two stations along Highway 410 in Ontario
- **250 specialized distributors and gasoline service stations** that distribute propane
- **One hydrogen fuelling station** on the site of the Université du Québec à Trois-Rivières



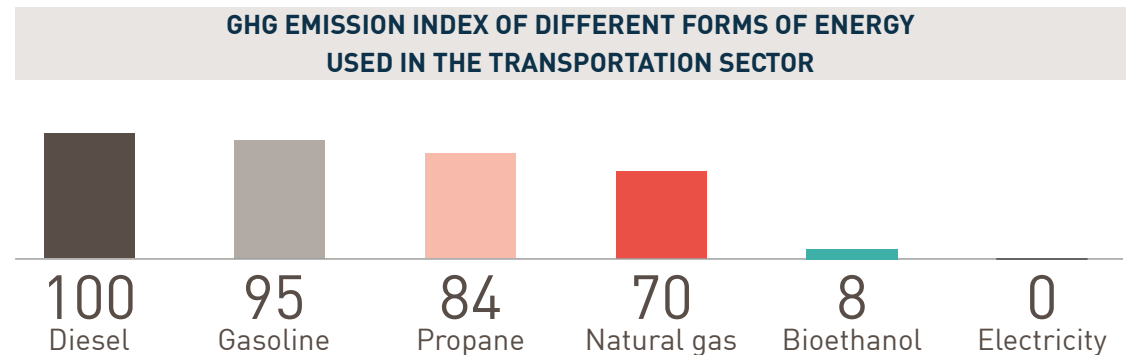
TM4 at the vanguard of electric motors

TM4, a wholly-owned subsidiary of Hydro-Québec, markets electric motor technologies developed by the Institut de recherche d'Hydro-Québec (IREQ). It offers its customers in more than 25 countries its expertise and patented electric motor, generator, wind turbine and turbogenerator unit technologies. It has established with a global Chinese partner a joint venture, Prestolite Electric Propulsion Systems, to ensure the development, automated manufacturing and sale in Asia of electric motorization systems for trucks, buses, heavy machinery and maritime transport. This project, like the other partnerships concluded by TM4, makes it possible to commercially develop research findings on transportation electrification and renewable energies conducted in Québec.

The carbon content of fuels

In Canada, Environment Canada has adopted a regulation that obliges motor fuel importers and producers to add 5% and 2% renewable content to gasoline and diesel fuel, respectively.

All of the provinces west of Québec, from Ontario to British Columbia, have adopted in recent years the obligation to use renewable content in gasoline and diesel fuel sold in their territory. Québec plans to adopt such requirements then gradually increase them according to the biofuel productive capacity of Québec firms.



The Maritime Strategy

Québec's *Maritime Strategy* is contributing to the targets in the energy policy by supporting port and intermodal infrastructure projects devoted to freight transportation. The strategy's objective is to enhance the energy efficiency of freight transportation, in particular through the use of new energy sources, including liquefied natural gas, in maritime transport. *The Maritime Strategy* also seeks to supply liquefied natural gas in territories that are not served by the gas network and that now use diesel or fuel oil.



The targets of the *2015-2020 Transportation Electrification Action Plan*

- ➔ BRING TO **100 000 THE NUMBER OF ELECTRIC AND RECHARGEABLE HYBRID VEHICLES** REGISTERED IN QUÉBEC.
- ➔ REDUCE BY **150 000 TONNES** THE ANNUAL GHG EMISSIONS PRODUCED BY THE TRANSPORTATION SECTOR.
- ➔ REDUCE BY **66 MILLION** THE NUMBER OF LITRES OF FUEL CONSUMED ANNUALLY IN QUÉBEC.
- ➔ BRING TO **5 000 THE NUMBER OF JOBS** IN THE ELECTRIC VEHICLE INDUSTRY AND MAKE TOTAL INVESTMENTS OF \$500 MILLION.

The attainment of these targets marks a step toward an even more ambitious target of 300 000 electric vehicles on the road by 2026 and 1 000 000 in 2030, i.e. 20% of all light-duty vehicles.

Set an example as regards energy consumption

The government, which is asking Quebecers and Québec businesses to participate in the implementation of the energy policy, must set an example by making commitments respecting the immovables and vehicles for which it is responsible. For the period 2016-2030, the government intends to:

- ▶ apply energy efficiency measures to at least 5% of the total surface area of public buildings each year;
- ▶ reduce by 15% unit energy consumption in public buildings in relation to 2012;
- ▶ promote the installation of geothermal systems for heating and air conditioning in public buildings;
- ▶ reduce by 50% the unit energy consumption (L/100 km) of its light-duty vehicle fleet in relation to 2012;
- ▶ integrate by 2020 1 000 electric or hybrid vehicles into its fleet;
- ▶ ask Hydro-Québec to promote the replacement of its current vehicles at the end of their useful life with wholly or partially electric vehicles of equivalent capacity.

SEPAQ makes profitable investments

To reduce its dependency on fossil energies, the Société des établissements de plein air du Québec (SEPAQ) is acting by upgrading its equipment and outdated heating systems. In the long run, the investments will make possible the replacement of fuel-oil-fired energy systems with hybrid systems that are less harmful to the environment, thereby reducing by 818 tonnes annually its GHG emissions and by 1 670 000 kWh its electricity consumption.

Profitable innovations for the CSSS de la Pointe-de-l'Île

The Centre de santé et des services sociaux (CSSS) de la Pointe-de-l'Île, which is part of the Centre intégré universitaire de santé et de services sociaux de l'Est-de-l'Île-de-Montréal, invested \$4.4 million in a project to implement a series of energy efficiency measures—geothermal energy, heat recovery, kitchen range hoods, lighting, and so on—in six of its buildings. It is now reaping the benefits since in addition to updating its equipment, it is saving \$350 000 a year and achieving energy savings on the order of 29%. Annual GHG emissions have been reduced by 975 tonnes of CO₂ equivalent, which is equivalent to the withdrawal of nearly 280 vehicles from Québec roads in a year.

Photo: CIUSSS de l'Est-de-l'Île-de-Montréal

The Northern Plan: priority initiatives in the energy sector

- ▶ Ensure electricity supply under competitive conditions for mining development.
- ▶ Ensure natural gas supply at competitive prices to enhance the profitability of mines, reduce GHG emissions, attract new investments and supply liquefied natural gas in the North.
- ▶ Support the projects of off-grid communities and businesses to convert electricity generation using fossil fuels to renewable energy sources.
- ▶ Ensure electricity supply by extending the power transmission network everywhere that it is possible and advantageous to do so.
- ▶ Ensure stable hydrocarbon supplies in municipalities in the Moyenne-Côte-Nord and Basse-Côte-Nord regions.



Photo: Justin Bulota, Tugliq Énergie Co.

Photo: Société de l'énergie communautaire du Lac-Saint-Jean

OFFER CONSUMERS A RENEWED, DIVERSIFIED ENERGY SUPPLY

By 2030, the government, with the assistance of energy distributors, will be able to offer consumers a wider choice of energy products. Such diversity will stem from public and private investments, the revision of governance, better planning of resource development in the territory, and government intervention in the form of incentives.

In order for residential, institutional, commercial and industrial consumers to participate in the energy transition and take advantage of the numerous benefits that it will afford them, the government intends to:

- **prioritize energy efficiency;**
- **increase green electricity offerings;**
- **fully capitalize on the energy value of biomass;**
- **diversify and enhance the supply of natural gas.**

Prioritize energy efficiency

Energy efficiency is often the least expensive and most readily available energy resource. It is the first energy option to which consumers have access to satisfy their needs. Québec still has significant untapped energy efficiency potential.

Without altering in any way Quebecers' way of life, energy efficiency makes it possible to use less energy to satisfy a given need such as heating, travel, lighting, manufacturing, and so on. In so doing, it:

- ▶ fosters growth and corporate competitiveness;
- ▶ reduces the energy costs of households (space and water heating, fuel for vehicles, and so on) thereby promoting reinvestment in local economies;
- ▶ avoids the construction of hard infrastructure to produce, transport and process energy, in addition to reducing pressure on existing infrastructure;
- ▶ enhances energy security;
- ▶ reduces the environmental footprint of energy consumption (airborne pollutants, climate change and so on);
- ▶ minimizes risks linked to activities related to energy production and transportation.

Energy efficiency applied to the housing and transportation sectors can significantly affect the health and well-being of populations, among other things by reducing the concentration of pollutants in the air in urban environments, enhancing air quality in housing units, and improving the overall comfort of dwellings.

The choice of the form of energy, recourse to new technologies, the use of more efficient equipment and processes, behavioural change in consumers, training and the application of standards are all tools that can help to achieve improved energy performance.

The government undertakes to prioritize energy efficiency as one of the solutions to satisfy consumers' needs.

The enhancement of energy efficiency in households, businesses, public buildings, industrial establishments and transportation will free up energy to satisfy other needs, including those arising from efforts to replace hydrocarbons with renewable energies.

Fonds Capital Mines Énergie

The government is announcing that it is changing the Capital Mines Hydrocarbures (CMH) fund to the Capital Mines Énergie (CME) fund. Accordingly, in close collaboration with Investissement Québec and the new agency responsible for energy savings and the energy transition, it will be possible to present innovative catalyst projects geared to the Québec economy. The projects must satisfy several criteria, the key one being their contribution to Québec's energy transition. The government is thus implementing a promising green energy development vehicle that will directly affect the attainment of its targets.

Energy efficiency, a separate production option

Energy efficiency consists in using each form of energy optimally, through the appropriate technologies, to deliver a given service or to produce a given good, without reducing comfort or altering our way of life and individual quality of life. It differs from energy substitution, which seeks the use of a different form of energy. For example, the conversion or replacement of a fuel-oil-fired boiler with a natural-gas-fired boiler is a measure to replace a polluting energy with a cleaner one. It is true that this step often leads to the improved energy efficiency of the new boiler.

Increase green electricity offerings

By 2030, to satisfy growth in Québec's electricity needs stemming from the energy transition, Hydro-Québec must rely on supply management means that allow it to balance electricity supply and demand. To this end, the government and Hydro-Québec can influence both supply and consumer demand.

Accordingly, within the framework of this energy policy, the government intends to:

- ▶ increase renewable electricity production through:
 - the optimization of existing generating facilities;
 - the development of the wind power option, in particular through exporting;
- ▶ find solutions to replace fuel oil and diesel for all off-grid communities;
- ▶ provide new responses to power demand;
- ▶ support industries with specific needs, in particular greenhouse production and ski resorts;
- ▶ increase interutility tielines with the American states and the provinces;
- ▶ optimize spinoff from large consumers.

By 2020, Hydro-Québec will:

- ▶ complete the La Romaine hydroelectric development. Upon completion, the complex will add 1 550 MW to its generating fleet;
- ▶ plan the implementation of electricity generation projects to satisfy Québec's power needs;
- ▶ determine the next major hydroelectric project that will satisfy Québec's future electricity needs.

ACCESS BY ALL QUEBECERS TO RENEWABLE ENERGIES

Hydro-Québec's *Plan d'approvisionnement 2014-2023* confirms that certain off-the-grid power systems will experience power deficits in the coming years. To continue to ensure stable electricity supply to communities not connected to Hydro-Québec's main system, new solutions must be considered to satisfy demand.

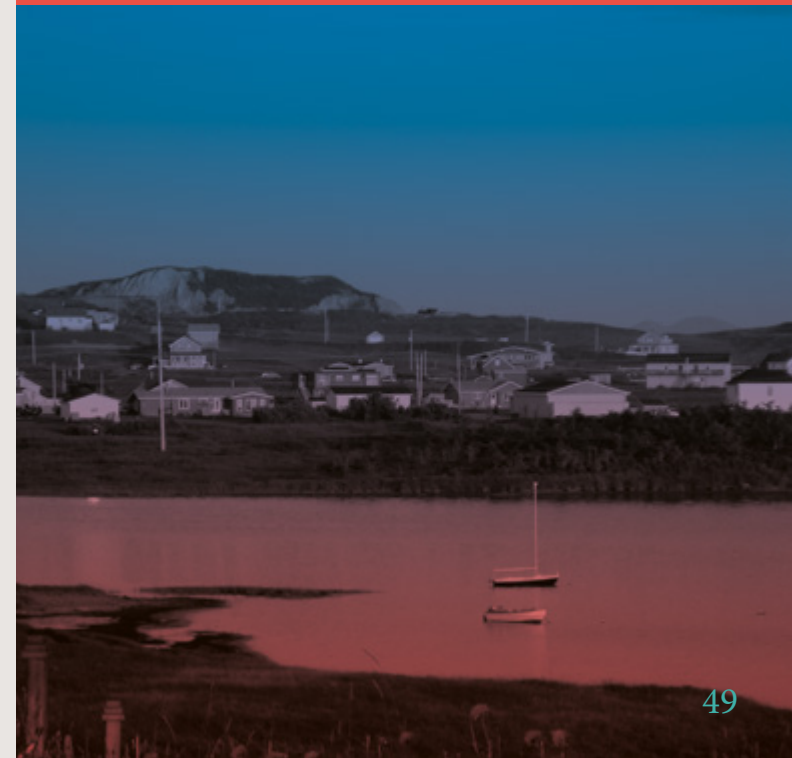
In this context, Hydro-Québec has initiated an approach to satisfy the needs of Kuujjuarapik, Tasiujaq, and Obedjiwan, the main communities concerned, and the Îles-de-la-Madeleine. Three key principles underpin this approach:

- ▶ the integration of technological solutions that reduce GHG emissions bearing in mind the special conditions in each community that relies on diesel generators;
- ▶ adherence by the community to the solution proposed, in particular the establishment of partnerships between the promoters and the communities;
- ▶ an economically viable solution through competition between conversion projects in off-the-grid power systems.

The approach that Hydro-Québec is advocating will take advantage of technological innovation in the field of the integration of intermittent renewable energies and high-capacity energy storage units. Hydro-Québec will submit each year to the Régie de l'énergie an update of the approach within the framework of the status report of its supply plan.

The situation of the Îles-de-la-Madeleine

As for the Îles-de-la-Madeleine, Hydro-Québec will evaluate solutions aimed at reducing the amount of GHG emitted by the two thermal power plants that supply its clientele with electricity. In anticipation of the end of the useful life of the Îles-de-la-Madeleine power plant, Hydro-Québec will also evaluate different options in collaboration with the community.



Consultation of the Aboriginal communities

Under *The 2030 Energy Policy*, the Aboriginal communities will be closely associated with the development of the projects in the territories that they inhabit. Through these nation-to-nation relationships, the government will work in cooperation with the Aboriginal communities to define the needs and solutions specific to each project and to each community. To conduct this assessment, the government, through the Ministère de l'Énergie et des Ressources naturelles (MERN) and the Société du Plan Nord, will work jointly with Hydro-Québec.

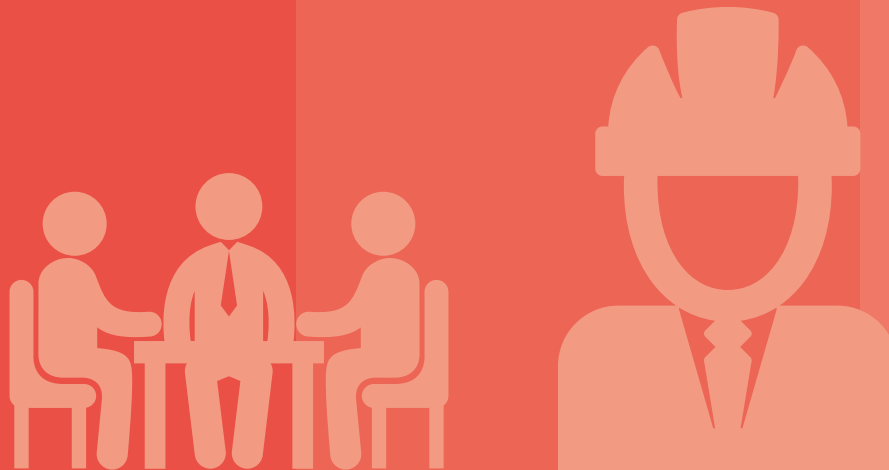
Establishment of an advisory council

An advisory council of the Aboriginal communities will be set up to define an effective communications mechanism to disseminate information on the development of different options and guarantee the coherence of initiatives in respect of the Aboriginal nations and communities, bearing in mind the decisions' impact on them. Consultations with representatives of the First Nations and the Inuit will be held before the forum for discussion is established.

A rate geared to economic development

In the coming years, Québec can rely on significant quantities of clean, renewable, competitively priced energy. This situation will enable it to foster job creation by attracting new businesses to the search for this type of energy and by supporting the development of companies already established in Québec. A development rate is usually available to satisfy this objective.

The government recently asked Hydro-Québec to offer a rate that institutes a temporary, regressive reduction intended for new investment projects in especially energy-intensive industrial sectors. The rate, which the Régie de l'énergie has accepted, grants a 20% discount during the first years of operation, which falls to 15%, 10% and finally, 5%, over the last three years of its application.



NEW SOURCES OF SUPPLY

For several years, different socioeconomic factors have meant that Hydro-Québec maintains leeway equivalent to more than 4% of Québec's annual electricity needs.

New sources of supply will be authorized insofar as they allow for the maintenance of leeway on the order of 2.5% of Québec's total annual electricity needs. Such leeway is an essential component of the policy to attract investment to Québec and this threshold will enable Hydro-Québec to send a signal to the market, with reasonable advance notice, in order to trigger new supplies.

Wind energy

The government intends to support Québec firms so that they can take advantage of the opening of new markets stemming from growing worldwide demand for wind power.

The Québec government's perspective of wind power development is in keeping with this context and it hopes that certain wind farms built in Québec can respond to business opportunities and export all of their electricity to North American markets. The government's objective is to take advantage of the wind power option without affecting the electricity rates

of Québec consumers, through production planning, when Hydro-Québec needs energy.

Lastly, within the framework of the rollout of the Northern Plan, the government wants to make wind energy an alternate solution to fossil energies in Northern Québec.

development lever for local and Aboriginal communities.

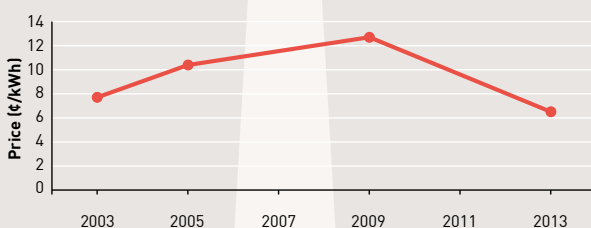
The government intends to support the development of community partnerships. To this end, it undertakes to analyze such needs in order to allocate the hydropower that the projects require. The promoters must ensure that their project complies with the most stringent environmental and social acceptability criteria, in addition to generating economic spinoff for local and Aboriginal populations.

Under this energy policy, the government intends to increase renewable electricity generation by means of the commissioning of six mini hydro power plants in respect of which it has announced the resumption of work:

Small hydroelectric power plants

The operation of small hydroelectric power plants represents a significant economic

The price of wind power according to invitations to tender conducted in Québec



The cost of electricity from wind power projects carried out in Québec has followed a downward trend comparable to the that observed the world over. Accordingly, the average price of electricity under the projects adopted in the context of the 2013 invitation to tender was 6.5¢/kWh.

- ▶ Chute Sainte-Anne;
- ▶ Chutes du Six Milles;
- ▶ Chute du Quatre Milles;
- ▶ Centrale Saint-Gabriel;
- ▶ Onzième chute;
- ▶ Barrage B (Manouane Sipi).

SATISFY DEMAND FOR ELECTRIC POWER

Large power storage

The objective of large power storage is to make available more energy than the generating fleet or electric power transmission line can produce or transmit at a given moment. A prototype large power storage system that operates like a rechargeable megabattery is now being tested. It could supply electricity to 23 houses for an entire day.

Advanced management of demand

The next-generation meter, which has already been installed on the premises of the majority of Hydro-Québec's customers, is the focal point of a smart grid. The meters make it possible to network the homes of consumers who decide to generate part or all of the electricity that they consume. Through the "net metering" option that Hydro-Québec already offers, the consumers can return their surplus electricity to the Hydro-Québec system and thereby contribute to solving the problem of peak period demand, in return for credits. Moreover, in the near future Hydro-Québec's advanced metering infrastructure will make it easier to manage peak period power demand since it will be possible to voluntarily remotely control certain especially energy-intensive equipment such as water heaters.

Electric vehicles as a solution to the grid's peak period demand

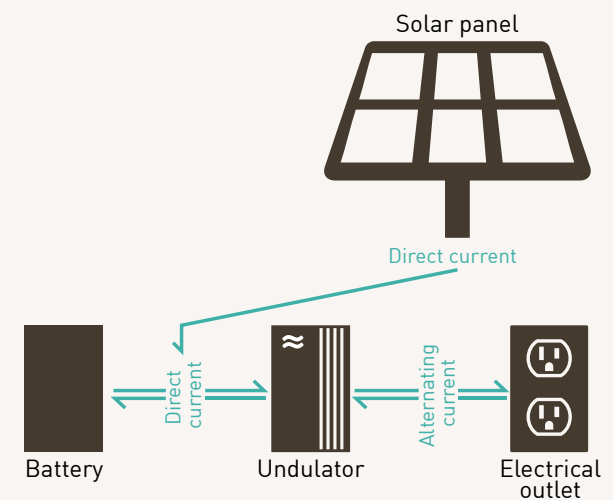
The notion of vehicle-grid and vehicle-home energy exchanges seeks to use the energy stored in an electric vehicle's battery as an auxiliary source to inject energy into a grid at peak periods or to temporarily supply a home during an outage, in the same way as a generator. A project carried out by Hydro-Québec has demonstrated the concept's feasibility, i.e. the vehicle-home energy exchange option, which appears to be the most realistic short-term solution.



Photo: Hydro-Québec

Prototype of a large power storage system made by Esstalion Technologies Inc., a joint venture between Hydro-Québec and Sony.

Growing numbers of households and businesses in certain regions, especially Vermont, are adopting stand-alone photovoltaic power systems, which are sometimes connected to batteries whose capacity resembles that of electric vehicle batteries. In this way, energy produced on sunny days can be stored for use later on, whether at night or during cloudy weather.



Fully capitalize on the energy value of biomass

To satisfy our energy needs and decarbonize the economy, we can turn to bioenergy options, in particular for building heating and transportation.

The production of biofuels such as ethanol, renewable natural gas and diesel, and wood pellets hinges on the use of proven technologies that make it possible to achieve a competitive production cost in relation to that of the fossil energies that they seek to replace. It also hinges on the availability of raw materials at fair prices and well established transportation and distribution networks.

The government therefore undertakes to:

- ▶ ensure the appropriate development of the residual forest biomass supply chain for production companies;
- ▶ support all stages in the innovation process concerning promising biomass energy conversion projects in order to accelerate their emergence;
- ▶ support the establishment of bioenergy production centres that rely on wood fibre where the resource is available;
- ▶ guide promoters, both those wishing, for example, to develop a commercial biorefinery and those wanting to establish a community agrifood residue biomethanization pilot project.

Generate electricity from biomass

Contracts to purchase electricity from residual forest biomass cogeneration power plants have enabled pulp and paper companies to generate new revenues and enhance both their profitability and their ecological balance sheet. The government intends to continue to support this type of initiative, which represents an ecological low-carbon energy supply solution, in particular for communities and industrial sites that are not connected to Hydro-Québec's main system.

It will also make accessible renewable liquefied natural gas (biogas) derived from biomass to generate renewable electricity in remote communities and industrial establishments that are accessible by road.

Diversify and enhance energy supply

The energy supply of major industry is a key factor in the economic attractiveness of Québec's regions. Such industry can already rely on North America's most powerful, reliable bulk electricity system. To properly plan the supply of all of the forms of energy that this clientele requires, in particular natural gas, electricity and various forms of bioenergy, the government will establish a permanent task force on industrial energy supply. The task force, chaired by the Ministère de l'Énergie et des Ressources naturelles, will also include the Ministère de l'Économie, de la Science et de l'Innovation, the Ministère des Finances and Hydro-Québec. It will be responsible for planning the future development of energy transmission networks and for satisfying the specific expectations of major industrial investment projects.

Natural gas supply

Natural gas is a transition energy that is profitable for Québec and will play a key role in the coming decades in supporting economic development and the competitiveness abroad of Québec companies. The government therefore intends to ensure that Québec households and businesses have reliable, secure, stable access to natural gas throughout the territory where demand and economic profitability warrant it.

To this end, the government intends to:

- ▶ pursue the extension of the gas network;
- ▶ develop a liquefied natural gas supply network;
- ▶ expand renewable natural gas production.

Landmark projects for Québec

The expansion of the production capacity of Gaz Métro's liquefaction, storage and regasification (LSR) plant will offer broader access to natural gas in areas not served in the Côte-Nord and Nord-du-Québec regions and in fuelling stations on the Blue Corridor.

Gaz Métro will supply Stornoway's Renard Diamond Project, now under construction, with liquefied natural gas (LNG) by truck from its LSR plant in Montréal. The LNG will be used to generate electricity (seven 2.1-megawatt generators) and to heat buildings and the underground mine located roughly 350 km north of Chibougamau. The equipment will significantly reduce GHG emissions.



Latitude to support industrial development

Given the saturation of the gas pipelines that supply Québec, large industrial enterprises that wish to set up operations here or convert their processes to natural gas are finding it difficult to guarantee in advance the supply of natural gas.

The government intends to offset this problem by demanding that the distributor Gaz Métro acquire surplus transportation capacity equivalent to 10% of the volume of natural gas that it plans to distribute in Québec. The Régie de l'énergie will take into account the cost of this recurring expense when natural gas rates are set.



Photo: Ministère de l'Énergie et des Ressources naturelles

DEFINE A NEW APPROACH TO FOSSIL ENERGIES

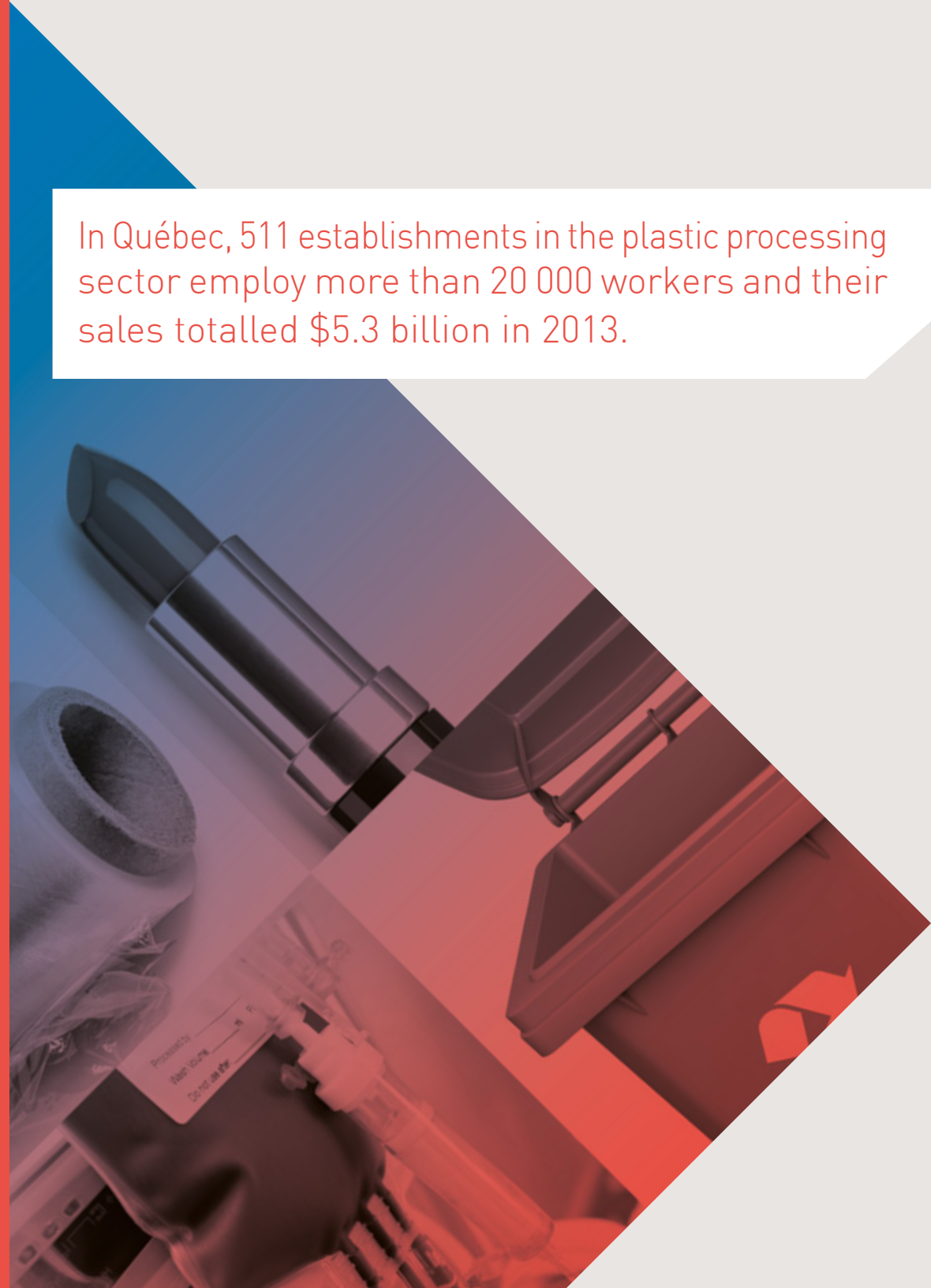
If it commits itself to the development of the hydrocarbon option, the government must alter its approach by transparently proceeding step by step. Revenues from this new option could enhance Québec's trade balance and would be earmarked for the energy transition and, as a matter of priority, the development of renewable energies, whose share will invariably continue to grow in the coming decades. However, several challenges arise:

- the safe transport of hydrocarbons;
- the responsible exploitation of hydrocarbons in Québec;
- social acceptability in the host communities;
- the enforcement of the most stringent technical and environmental standards.

Social oil is oil that is not consumed

Even though more than 90% of oil is now destined to satisfy energy needs, non-energy petroleum derivatives play an even more essential role in modern economies and in our daily lives. Their social benefits in the realm of public health (food packaging, hygiene, cleanliness), comfort and quality of life (the diversity of everyday goods, construction materials, automobiles, and so on), and even medicine, are undeniable. That is why the exploitation of oil is necessary.

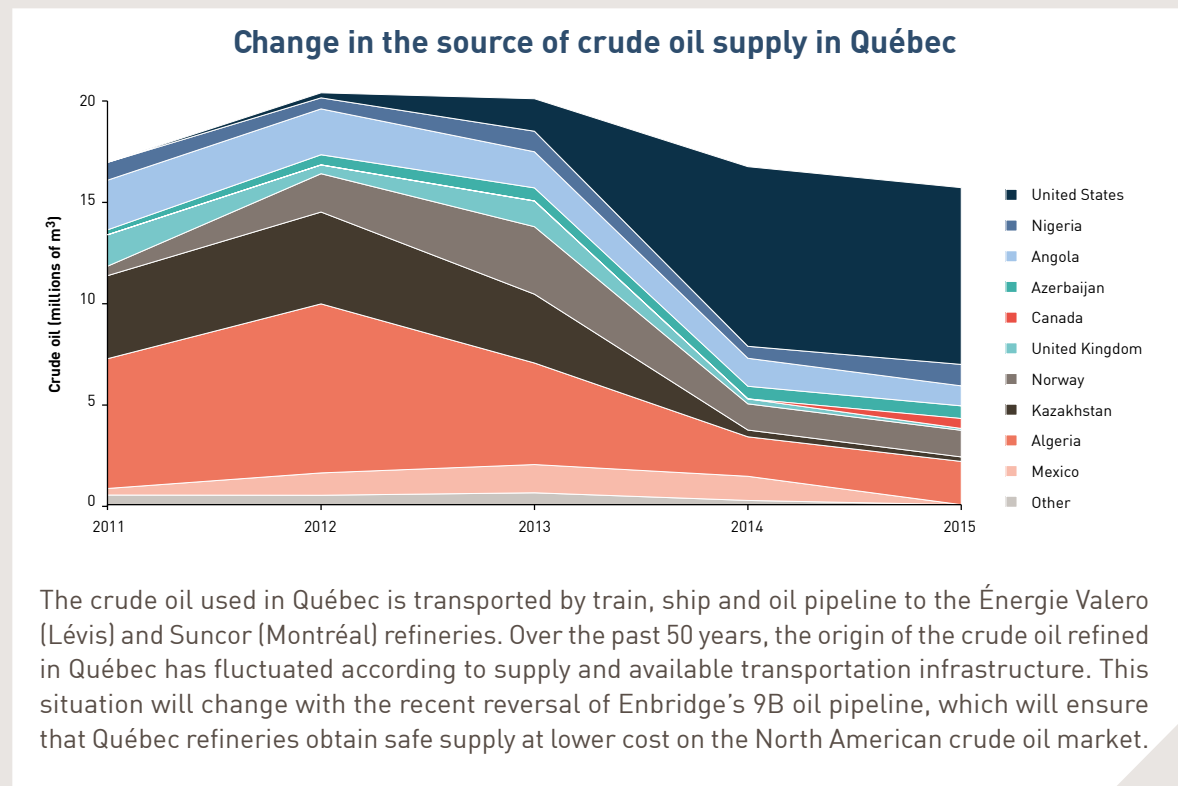
In Québec, 511 establishments in the plastic processing sector employ more than 20 000 workers and their sales totalled \$5.3 billion in 2013.



The safe transport of hydrocarbons

The transport of hydrocarbons is a daunting challenge in the development of the oil and natural gas industry in Québec. Maritime, rail, road and pipeline transport of oil to Québec refineries and refined petroleum products to Québec consumers raise legitimate concerns among Quebecers about public security and the environment.

The global context of the oil market is constantly changing and markedly altering the transport of hydrocarbons in Québec. The government intends to closely monitor hydrocarbons in transit in Québec and promote the safest modes of transportation from a technical and environmental standpoint. Depending on the choices made, it intends to ensure optimum management of the risks related to such activities.



Responsible hydrocarbon exploitation in Québec

The government must now make choices with regard to hydrocarbons. It will base its decision whether or not to pursue exploration activities and, possibly, exploitation of Québec's hydrocarbon resources on the recommendations in the final report of the strategic environmental assessments (SEAs). In addition to the security of the public and communities, special attention will focus on the protection of natural environments, in particular island environments.

The government plans to present a statutory framework governing hydrocarbon exploration and exploitation in Québec.

The legislative and regulatory framework will draw inspiration from the recommendations of the final report of the SEAs on hydrocarbons and will express in a legal form all of the concerns of Quebecers and communities in Québec in respect of these activities.

What is more, when a project is authorized, royalties will be demanded, and will be used to fund the energy transition and energy efficiency measures. The new agency responsible for energy savings and the energy transition will manage the royalties.

The Government Action Plan on Hydrocarbons

The key components of the *Government Action Plan on Hydrocarbons* introduced in 2014 are indicated below.

- ▶ The government favours limited, regulated hydrocarbon exploitation that is compatible with its GHG emission reduction targets and the maintenance of Québec's petrochemical industry.
- ▶ Potential must be confirmed, profitability must be ascertained and the best practices must be applied before exploitation is authorized.
- ▶ If need be, the hydrocarbon option must be subject to rigorous oversight and control.
- ▶ Exploration and exploitation activities must elicit the support of the communities concerned.
- ▶ The government will listen to Quebecers, guide them in their approaches and inform them throughout the process.

To obtain the most information and the maximum number of recommendations on the best ways of regulating the development and transport of hydrocarbons, maximize spinoff from them and reduce their negative impact, where warranted, the government conducted two SEAs, one on hydrocarbons in Québec and the other one on hydrocarbon development activities on Île d'Anticosti.

The *Canadian Energy Strategy*

In 2014, during the annual meeting of the Council of the Federation, Québec indicated that it was committed to actively participating in the elaboration and implementation of the *Canadian Energy Strategy*, which provides the provinces and territories with the necessary foundation for jointly formulating priorities that concern them in the realm of energy.

By agreeing on a shared perspective, principles and objectives, the provinces and the territories are now in a better position to develop, transport and distribute energy and to promote a vigorous research and technology sector. This will enhance competitiveness in the energy sector throughout Canada and promote the transition to lower-carbon economy.

It is in this spirit of partnership that Québec and Ontario have broadened their collaboration in the realm of electricity exchanges and pursued talks leading to Ontario's adherence to the carbon market that Québec and California established.

The 2030 Energy Policy shares the objectives and initiatives to which all of the provinces and the territories adhered in July 2015 by making public the new *Canadian Energy Strategy*.

Québec-Ontario principles governing the analysis of the Energy East Pipeline project

In the fall of 2014, Québec and Ontario formulated seven basic principles in light of which the Energy East Pipeline project must be analyzed:

- Local communities must be consulted to ensure the project's social acceptability.
- The entire Québec portion of the project will be subject to an environmental impact assessment, including an assessment of greenhouse gas emissions.
- The proposed oil pipeline must comply with the highest technical standards to ensure public safety and environmental protection and will, accordingly, be monitored by a permanent monitoring body.
- The project must comply with legislation as regards participation by and the consultation of the First Nations, where warranted.
- The project must generate economic and tax spinoff for Québec as a whole, in particular with respect to job creation in the regions where it takes place.
- TransCanada must guarantee an intervention plan and emergency measures according to the highest standards and assume full economic and environmental responsibility in the event of a leak or spill on land or water. The plan must include a compensation fund and a financial guarantee that proves TransCanada's ability to act in the event of an accident.
- Natural gas supply for Québec is a factor whose security must be enhanced before any oil pipeline project is approved.

Social acceptability in the host communities

The legal framework that the government is proposing will offer an undeniable advantage from the standpoint of the social acceptability of projects in the host communities since it will explicitly reflect the values and principles of transparency, fairness (polluter pays), precaution, prevention and redress that Quebecers cherish. It will focus both on human facets, the safety and health of workers and communities and the economic aspects of the projects.

The government will also adopt new procedures pertaining to territorial planning and public participation, which will apply to energy resource development projects.

The enforcement of the most stringent technical and environmental standards

By drawing inspiration from the best practices adopted the world over, Québec will ensure that hydrocarbon exploitation in its territory is carried out in such a way as to protect Quebecers, the environment, water resources, biodiversity and all of the attendant economic activities. Inasmuch as exploration activities confirm commercially exploitable potential, the legal framework will contribute to:

- ▶ ensuring that exploitation activities are based on the best environmental practices and engender the lowest GHG emissions;
- ▶ allow for the development of petroleum products destined for non-energy uses such as everyday products stemming from petrochemistry and plastic processing, and limited use in the transportation sector.

In cooperation with industrial associations, the Québec government will implement innovative measures to reduce GHG emissions in industrial activities. It intends to support the establishment of a task force to elaborate innovative solutions in response to the technological challenges that all Quebecers must meet. Accordingly, for example, it will specifically support efforts to develop carbon capture and sequestration technologies in cement plants, which seek to significantly reduce GHG emissions. The new technologies stemming from these projects will be subsequently made available to all large Québec GHG emitters.

CONCLUSION

THE QUÉBEC ENERGY POLICY IS A PACT THAT THE GOVERNMENT IS MAKING WITH ALL TYPES OF CONSUMERS TO CREATE WEALTH, ENSURE OUR QUALITY OF LIFE AND REDUCE GHG EMISSIONS.

The way forward is clear: we must change our ways of doing things. The measures put forward in the energy policy will create jobs, attract investments and reduce GHG emissions. Energy consumers are the keystone of this energy policy and the government will do everything possible to facilitate their initiatives.

To fulfil our commitment by 2030, we must adopt strategic approaches, display perspicacity in our ways of doing things, and have the ability to adapt quickly. We must bank on Québec's strengths and make energy a source of sustainable prosperity.

The government is convinced that by offering Quebecers new energy choices and modernized governance that is closely linked to policies and strategies already being elaborated, it will achieve the targets set. The impending changes will hinge on consumers' ecoresponsibility and the development of new, dynamic, diversified technologies and ideas.

The government wishes to assure Quebecers that it will guide them in their future choices. This collaborative approach will engender significant spinoff for Québec from the standpoint of economic development and sound environmental practices.



IMPLEMENTATION OF THE 2030 ENERGY POLICY

The 2030 Energy Policy will be implemented in four stages. First, several amendments will have to be made to the existing statutory framework. Next, three action plans will be published, covering the periods 2016-2020, 2021-2025, and 2030. Lastly, follow-up mechanisms concerning energy supply and consumption and the economy and the environment will be established to ensure that the targets are met by 2030.

The first action plan, in keeping with our ambitions, will describe the robust measures that will confirm that Québec is a North American leader in the realms of energy efficiency and renewable energy.

It will follow the adoption of legislation governing the implementation of *The 2030 Energy Policy*, in particular the modernization of the governance of energy efficiency, innovation and the development of Québec's energy resources.

The legislative amendments are intended, in particular, to:

- ▶ establish a new agency devoted to energy conservation and the energy transition;
- ▶ review the role of and the rules governing the Régie de l'énergie respecting the monitoring of the new agency, the authorization of energy projects and rate-setting for electricity and natural gas.

Performance indicators to assess progress concerning:

- ▶ primary energy production in Québec;
- ▶ the production of energy intended for consumers;
- ▶ energy demand from households and businesses;
- ▶ private and public investments;
- ▶ completion time (predictability and duration);
- ▶ public satisfaction;
- ▶ jobs;
- ▶ GDP and the trade balance;
- ▶ public finances.



The government is proud to offer Quebecers what is at once an energy policy and an energy pact. It cannot make a difference without their collaboration, participation and involvement to make Québec prosperous, greener and more sustainable, now and in the future.

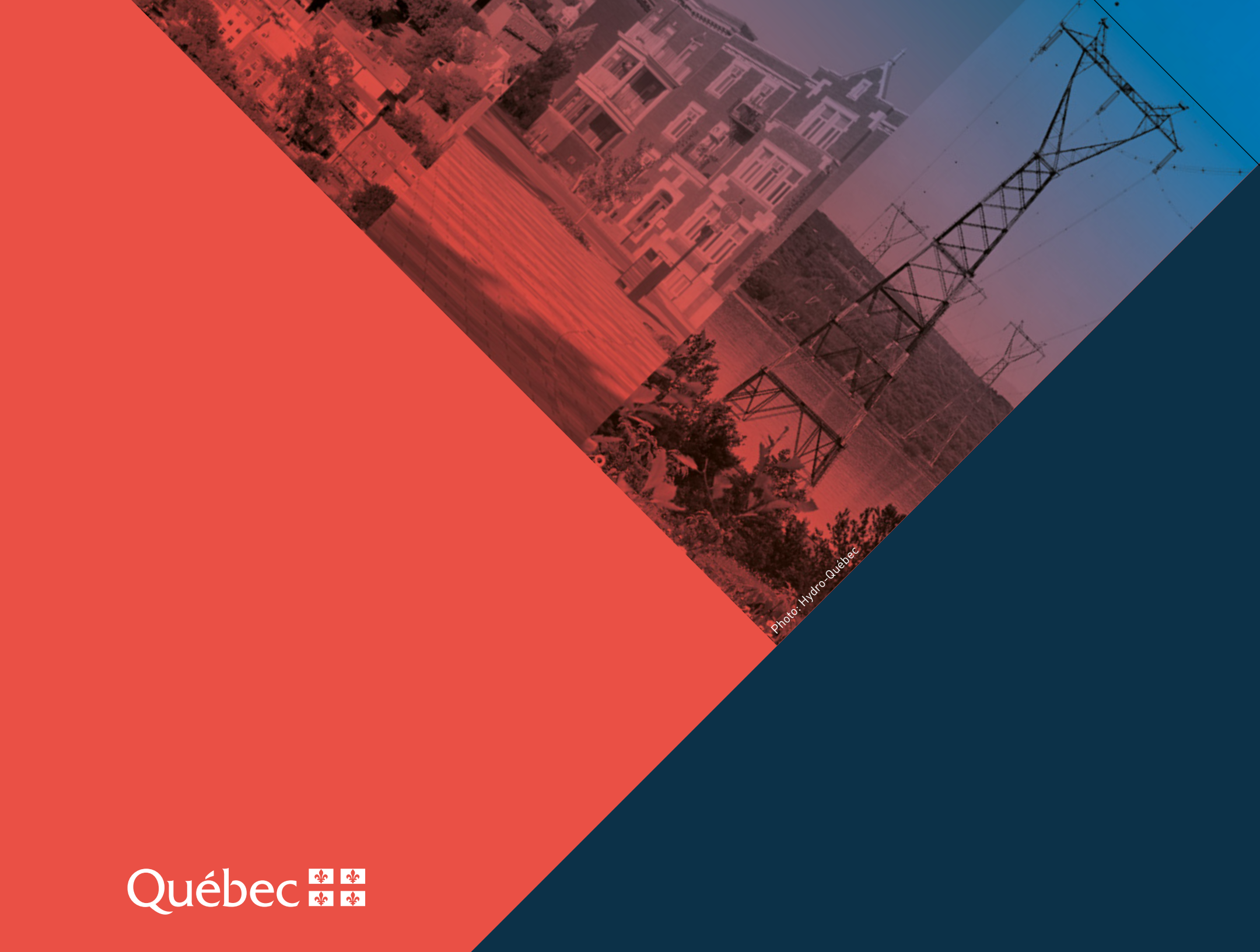


Photo: Hydro-Québec