Hydro Québec

Sustainability
Report 2019

Setting New Sights with Our Clean Energy

How to use this report

Interactivity

This report, presented in PDF format, has interactive features made possible by Adobe Reader software.

Features

Additional information on the web

Additional or more detailed information

Hyperlink to another page in the report

Exclusive web content

Access to a map locating a project

Global Reporting Initiative

Hyperlink

Social acceptability

Term defined

GRI (Global Reporting Initiative)

In this report, the indicators under the different section titles refer to GRI disclosures.

Navigation

Go to previous or next page

Previous view

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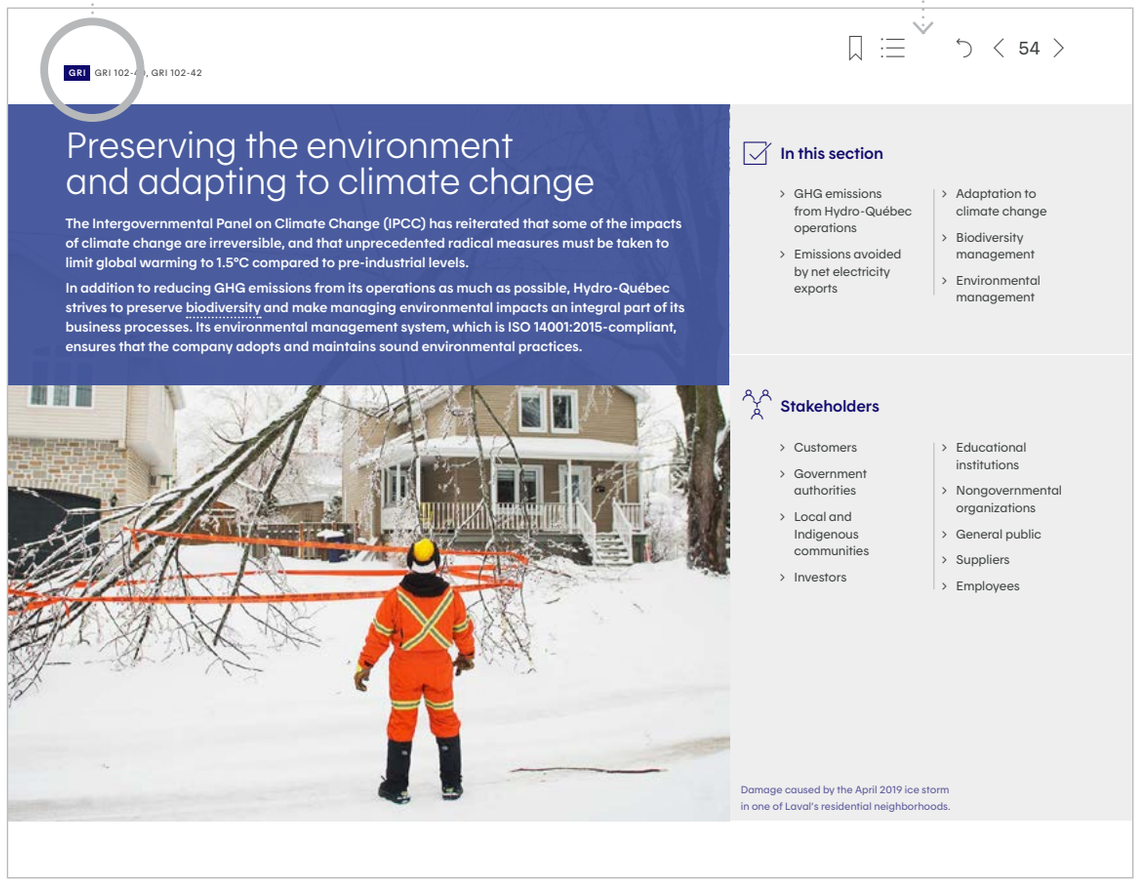
Access bookmarks



Cover: A Hydro-Québec line crew at work on the 765-kV interconnection, line 7040, in Valleyfield.

Our approach

Supplying clean, renewable energy helps ensure quality of life. Meeting people's electricity needs in a sustainable way is of prime importance. It is also crucial to use resources wisely and preserve the quality of the environment for future generations. Québec long ago opted for hydroelectricity, a clean, renewable energy source with known, well-controlled environmental impacts. Today, Québec is actively involved in the fight against climate change in North America.

Hydro-Québec has a sustainability vision that goes well beyond the environment. We strive to have stakeholders participate in our decisions. We are also determined to contribute to Québec's economic vitality.

The majestic Daniel-Johnson dam, the world's highest multiple-arch-and-buttress dam.

GRI GRI 102-15

Our priorities

Our mission is to deliver reliable electric power and high-quality services. By developing hydraulic resources, we can achieve this while contributing to collective wealth and playing a part in the emergence of a low-carbon economy—that is, an economy with a small carbon footprint. We have taken pride in the clean, renewable nature of our hydropower, which has until now been an energy form without equal. Now the time has come to turn our attention to other renewables, such as wind, solar and clean hydrogen.

Climate change, the energy industry, our business environment and our future aspirations all involve major challenges. Seven of these are directly related to sustainability.

Our main sustainability challenges

Enhancing corporate governance and remaining an employer of choice

p. 17

Ensuring social acceptability and remaining a responsible company

p. 31

Continuously improving customer satisfaction

p. 46

Preserving the environment and adapting to climate change

p. 54

Balancing electricity supply and demand

p. 67

Contributing to the energy transition

p. 78

Continuing to boost profitability and pursue technological innovation

p. 86

GRI GRI 102-1, GRI 102-2, GRI 102-4, GRI 102-6, GRI 102-7, GRI 102-8, EU1, EU4

Hydro-Québec in 2019

Our system

37,243 MW ✓
Installed capacity of the generating fleet

534 ✓
Number of substations

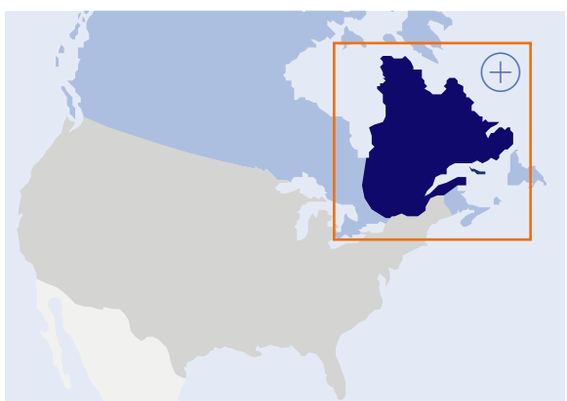
62 ✓
Number of hydroelectric generating stations

118,522 km ✓
Length of the medium-voltage distribution system

24 ✓
Number of thermal generating stations

34,802 km ✓
Length of the transmission system

Map of major facilities



Our human resources

19,477 ✓
Number of employees

45 years ✓
Average age

29.2% ✓
Proportion of women

1,465 ✓
New employees

924 ✓
Retirements

262 ✓
Number of internships

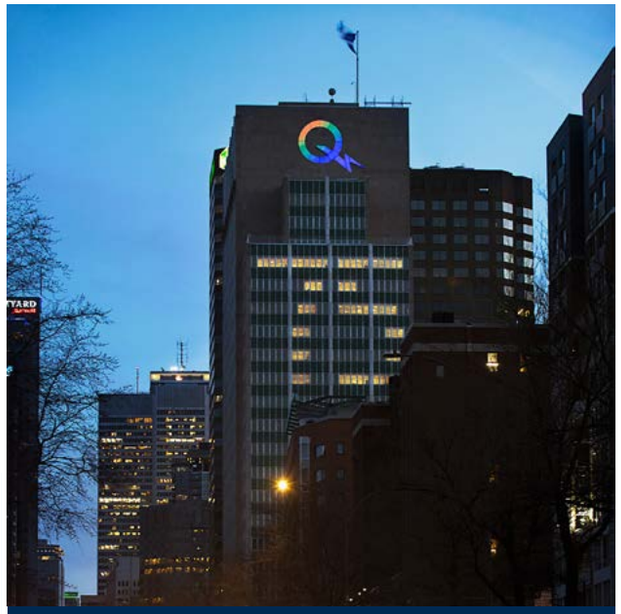
Noteworthy in 2019

Corporate Knights magazine

Hydro-Québec was recognized as Canada's second-best corporate citizen in 2019 by *Corporate Knights*. The magazine ranked Canadian companies with sales of more than $1 billion in a total of 97 industries on the basis of 21 environmental, social and governance criteria.

50th anniversary of Daniel-Johnson dam

This is still the world's highest multiple-arch-and-buttress dam. Its construction saw numerous technical feats and marked the emergence of Québec engineering on the world scene. The dam was named in honor of Daniel Johnson Sr., who launched the project in 1959, when he was Minister of Hydraulic Resources.



Hydro-Québec's 75th anniversary

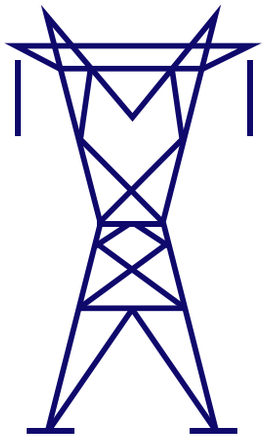
Hydro-Québec celebrated its 75th anniversary on April 14. This event, widely covered in the media, was marked in various ways: special illumination of the company's logo, display of the number 75 in head office windows and launch of an online microsite tracing the company's history. Since 1944, Hydro-Québec has made a continued contribution to the growth of all of the province's regions. Today, the company is a world benchmark in the generation of clean, renewable energy, management of major power systems and transportation electrification.

EcoVadis

At the request of some of our industrial customers, we conducted a review of our social, environmental, ethical and supply chain-related practices. This exercise, carried out on the EcoVadis platform, earned Hydro-Québec a Gold rating for its 2019 performance. The company is in the 95th percentile in the electricity, gas, steam and air-conditioning generation and distribution sector.

Electricity rates: a simplified approach that will guarantee low rates for customers

Passed at the end of the year, *An Act to simplify the process for establishing electricity distribution rates* provides for a rate freeze in 2020 and for a total of $535 million to be rapidly shared among customers. Subsequently, rates will be pegged to inflation from 2021 to 2024; the usual process will then apply for one year, after which a new four-year cycle of rates pegged to inflation will follow.



Inauguration of Chamouchouane–Bout-de-l'Île project

In July, we inaugurated the facilities in the largest north-south 735-kV line project built in the last 25 years in Québec. The project generated over $1.1 billion in economic spinoffs in the province and resulted in over 2,500,000 hours worked by 1,250 people, who installed 5,040 km of conductors and some 1,000 towers totaling 33,000 tonnes of steel.

GRI GRI 102-14, GRI 103-2

Message from the President and Chief Executive Officer

Sophie Brochu
President and Chief Executive Officer

We will remember spring 2020 for a very long time. All over the world, the COVID-19 pandemic has posed a severe threat to public health, weakened the economy and changed life as we knew it. It will leave behind deep scars but also important lessons. These include the need to cooperate and think outside the box—like never before!

Québec has not been spared by the pandemic. Our customers and partners, large and small, have been badly shaken. Hydro-Québec will steadfastly fulfill the economic, social and environmental leadership role that people have come to expect of it. We will be a powerful driver of Québec's economy and work tirelessly for the good of all Quebecers.

Decarbonizing the economy, here and beyond our borders

Hydro-Québec remains committed to the global energy transition and to the decarbonization of the economy. We will act with determination and discernment, taking care to properly prioritize the measures to be deployed at a time when public and private finances will be under intense pressure.

We will stay the course and continue to innovate, coupling our vast collective hydropower resources with the human know-how that lies behind smart energy management technologies, which are the subject of intensive research on our part. Whether this means energy storage by our customers, integrating distributed generation into the grid, home automation tools or developing smart grids, our research will find concrete applications, such as the upcoming installation of two distribution microgrids, in Lac Mégantic and Îles-de-la-Madeleine.

We will also rely on our abundant hydraulic resources to support the development of clean hydrogen produced through water electrolysis. Among the promising applications of this energy option: rail and road transportation, renewable natural gas, carbon-neutral fuels (synthetic hydrocarbons) and ammonia and methanol production. Just like electricity, hydrogen could form a pillar of the energy transition. We plan to invest in R&D in this area, create innovation hubs in collaboration with partners and join forces with existing hubs.

GRI GRI 102-14, GRI 103-2

Outside Québec, we can contribute to the energy transition in two ways. The first is to offer our decarbonized energy to replace energy generated from fossil fuels. Exporting our electricity is both commercially profitable and environmentally desirable. In 2019, our exports enabled our partners in neighboring jurisdictions to avoid the emission of nearly 7 million t CO_2 eq.—equivalent to taking 1.74 million vehicles off the road for a year. Our second contribution involves taking advantage of the large storage capacity of our reservoirs to support the emergence, among our neighbors, of generation using intermittent renewables like wind and solar power, which must be combined with energy storage to maximize their value.

We have already made a major commitment to reduce GHG emissions in all our activities. We are now going a step further and aiming for carbon-neutrality by 2030.

Taking inspiration from the best world standards

We also support the Ten Principles of the United Nations Global Compact in the areas of human rights, labor standards, environmental protection and the fight against corruption. We are determined to advance the UN Global Compact principles by incorporating them into our development strategies, business practices and management processes. Our report on this effort, titled *Communication on Progress*, can be found on page 95 of this report.

We have accomplished great things at Hydro-Québec over the past 75 years. Many exciting challenges and opportunities lie ahead of us. To meet those challenges and seize those opportunities, we are privileged to be able to count on capable, motivated women and men. I wish to pay tribute to them here, and to thank them all.

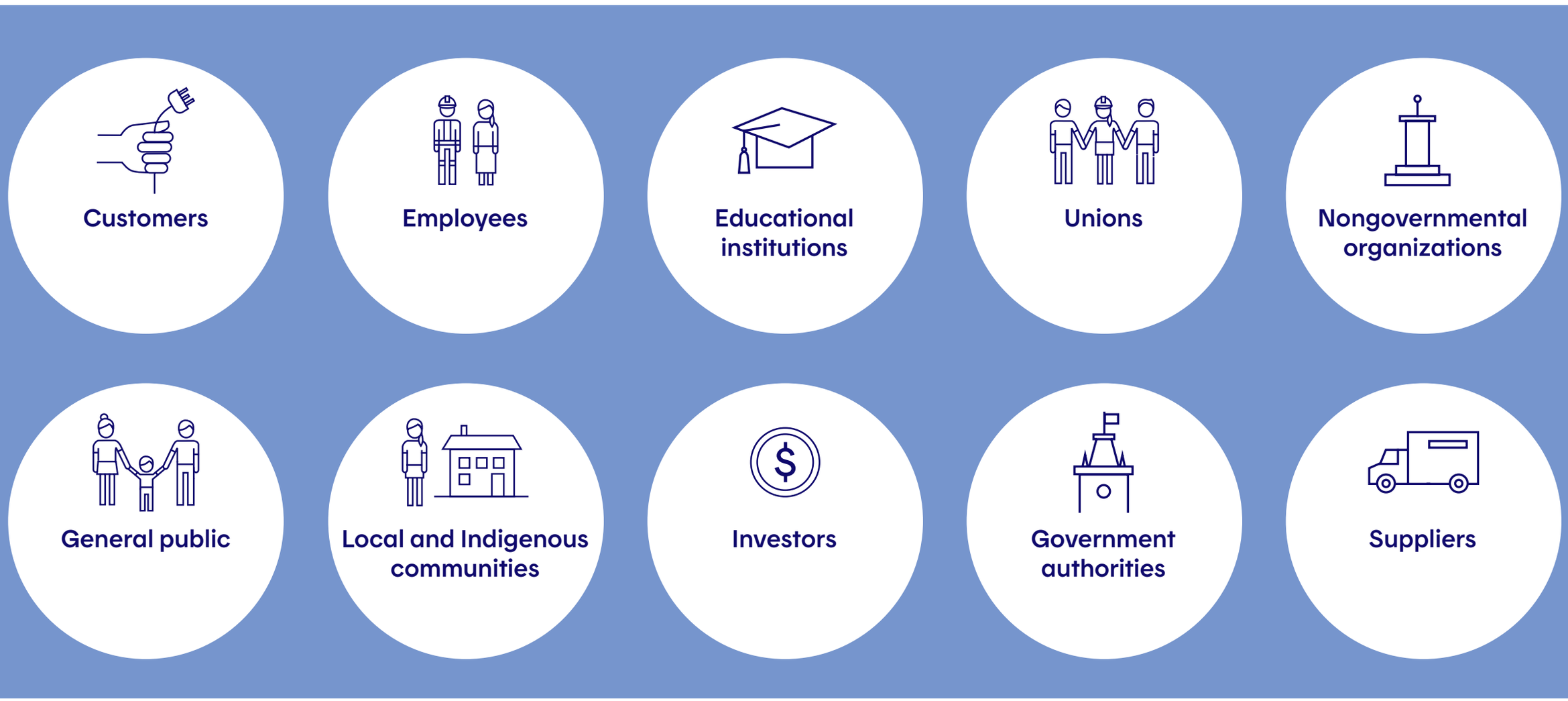
Sophie Brochu
President and Chief Executive Officer

GRI GRI 102-9, GRI 102-40, GRI 102-42, GRI 102-43

Mutually beneficial relations

Owing to the nature of our operations, we have a presence throughout the province and we maintain mutually beneficial relations with our stakeholders. This dialogue enables us to preserve trust, obtain support for important activities and even occasionally reconcile diverging interests. The Sustainability Report is intended to provide honest, transparent information to all our stakeholders.

Click on each stakeholder group's illustration for examples of shared sustainability goals.



GRI GRI 102-12, GRI 102-45, GRI 102-50, GRI 102-52, GRI 102-54

About this report

The *Sustainability Report 2019* describes Hydro-Québec's performance with respect to its main environmental, social, economic and governance issues. This edition, published in May 2020, is the eighteenth such report produced by Hydro-Québec.

Scope

This report mainly addresses the issues and impacts of Hydro-Québec's activities in Québec from January to December 2019.

New features

- Reporting in compliance with the recommendations of the Task Force on Climate-Related Financial Disclosures – TCFD. (p. 96)
- Improvement of the *Communication on Progress* section so as to meet the requirements of the United National Global Compact following our renewed engagement. (p. 95)

Communication tools

Hydro-Québec employs various tools for communicating and reporting on its sustainability, in order to reach the largest possible number of stakeholders.

- *Sustainability Report*
- Sustainable development website
- *Sustainable Development Plan 2020–2024*
- *Annual Report*
- Videos
- Presentations at various events (exhibitions, universities, conferences, symposiums, etc.)

Application of recognized standards

Stakeholders expect Hydro-Québec's Sustainability Report to be complete, and that the information presented be accurate, balanced and transparent. This report has therefore been prepared in accordance with the GRI Standards: Core option. The Electric Utilities Sector Supplement has also been used. These standards ensure the credibility and quality of sustainability reporting. Readers can consult a GRI index on page 103 of this report.

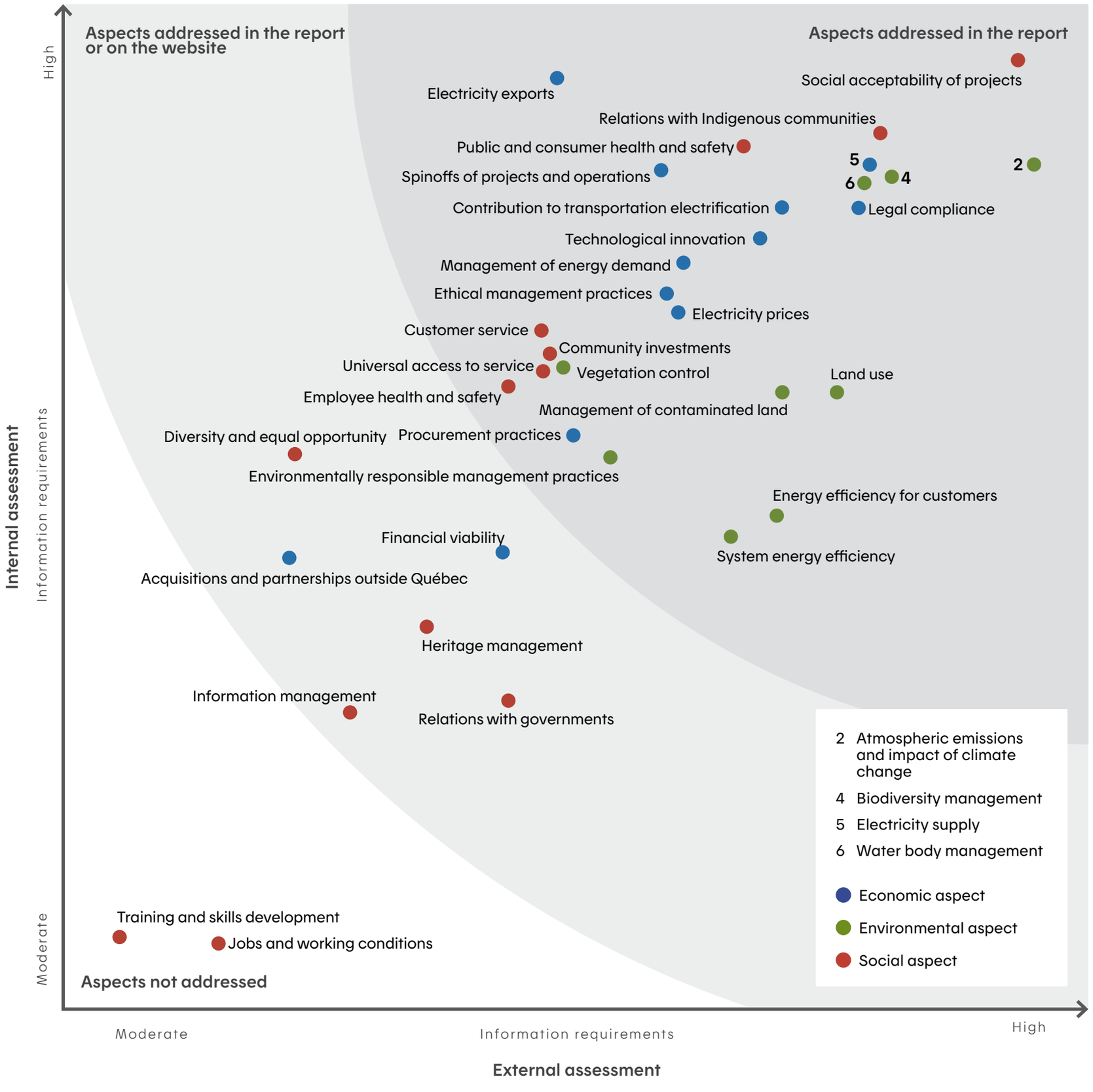
The information contained in this report has been carefully gathered and validated internally. In addition, an outside firm conducted an independent evaluation of some quantitative data and verified compliance with the *AccountAbility AA1000 APS* (2018) principles. Verified data are accompanied by the symbol ✔. An independent assurance statement is supplied on page 108.

GRI GRI 102-42, GRI 102-43, GRI 102-44, GRI 102-46, GRI 102-47, GRI 103-1

Materiality analysis

The materiality analysis is used to determine the content of the Sustainability Report. This ensures that the report covers the topics that are of the greatest materiality to Hydro-Québec in view of our business environment and the nature of our projects and operations, and analyzes their economic, environmental and social impacts. This exercise cannot be performed without the participation of both internal and external stakeholders. We conducted a materiality analysis in 2011, 2014 and 2017.

Click on an aspect to find out its scope.



Results of survey of our internal and external stakeholders

GRI GRI 102-2, GRI 102-15, GRI 102-45, GRI 103-1, GRI 103-2, GRI 201-1, GRI 203-2, EU1, EU3, EU4

Value chain

The value chain includes all activities that create value, from product design to service provision. At Hydro-Québec, we integrate criteria for environmental protection, social progress and economic development into every link in this chain.

Construction

$2.2 billion

Volume of activity

Generation

37,243 MW ✓

Installed capacity

Transmission

34,802 km ✓

Length of transmission lines

Distribution and customer service

4,356,542 ✓

Customer accounts

Management and support of our activities, and business development

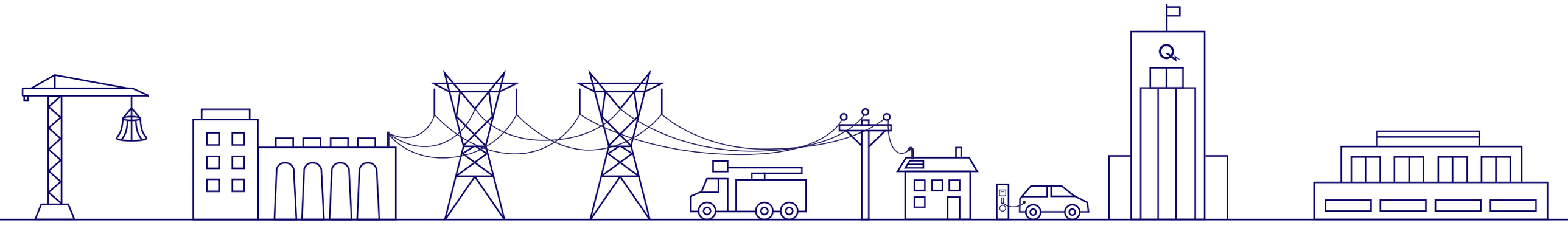
$4.2 billion

Contribution to the Québec government's revenue

Technological innovation

$140 million ✓

R&D budget allocated to IREQ in 2019

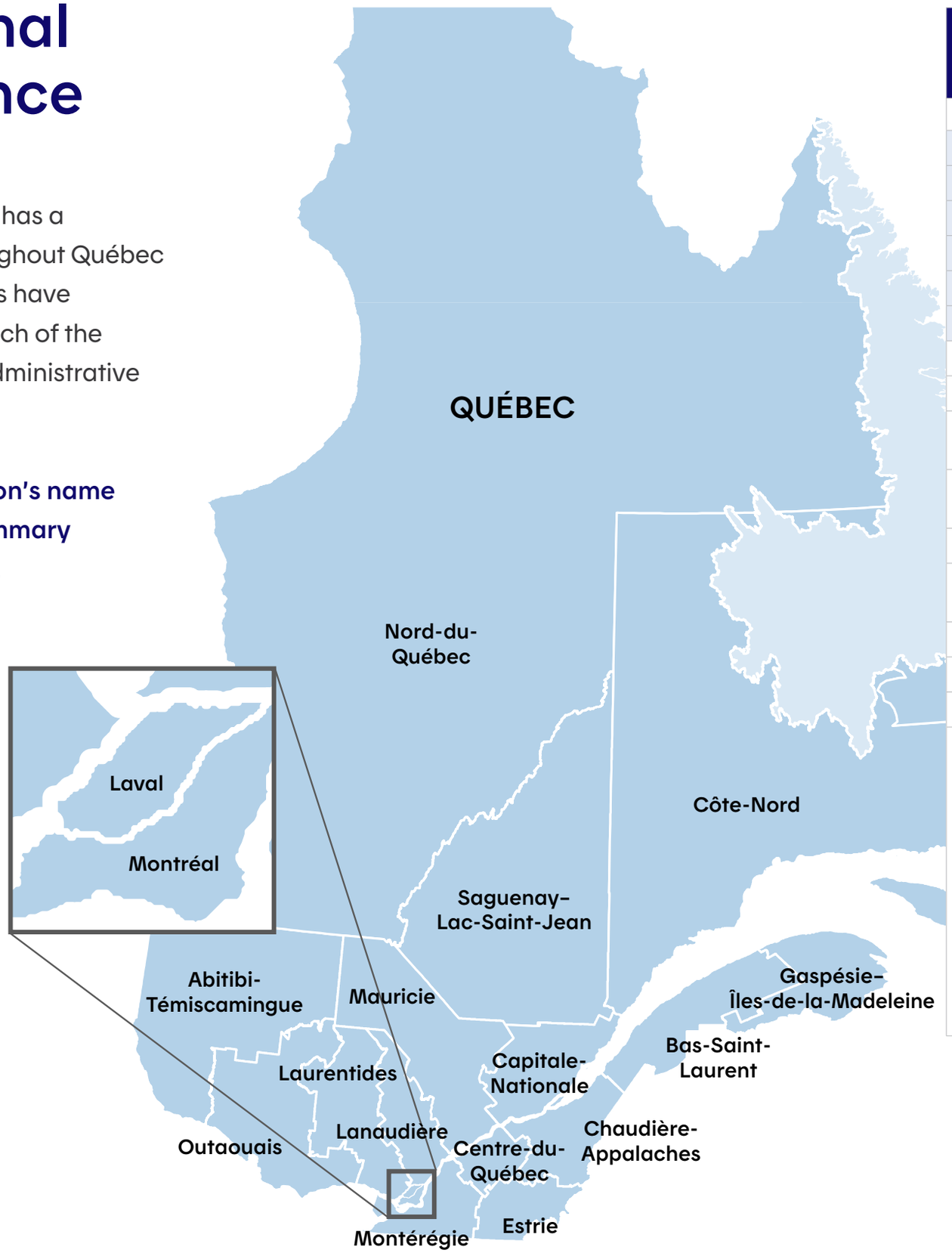


GRI GRI 102-2, GRI 102-4, GRI 102-6, GRI 102-7, GRI 102-8, GRI 103-1, GRI 201-1, GRI 204-1, GRI 413-2, EU1, EU3, EU4

Regional presence

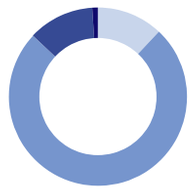
Hydro-Québec has a presence throughout Québec and its activities have an impact in each of the province's 17 administrative regions.

Click on a region's name to view the summary for that region.



QUÉBEC	
Population[a]	8,390,499
Generating stations in operation (number)	86 ✔
Installed capacity (MW)[b]	37,243 ✔
Transmission substations (number)[c]	534 ✔
Transmission lines (km)[d, e]	34,802 ✔
Surface area of properties (ha)[b, f]	23,846 ✔
Customer accounts (number)	4,356,542 ✔
Renewable energy purchases (GWh)[b]	16,427 ✔
Procurement of goods and services ($M)	2,851 ✔
System average interruption duration index (SAIDI) – distribution system (min/customer)	720 ✔
University chairs (number)/ Contribution ($'000)	17/1,425,000 ✔
Visitors to Hydro-Québec facilities (number)	84,134 ✔
Integrated Enhancement Program (number of initiatives/amount granted in $)	15/1,075,571 ✔
Electric Circuit charging stations (number)	2,389 ✔
Employees (number)	19,477 ✔
Donations and sponsorships ($M)[g]	18.9 ✔

Breakdown of purchases from independent power producers (GWh) ✔



Hydropower	2,054
Wind	12,266
Biomass	1,947
Biogas	159
TOTAL[b]	**16,427**

These figures include renewable energy certificates (649 GWh) that were sold to third parties. ✔

Overall total and sum of subtotals may differ due to rounding in each of the administrative regions.

Notes

GRI GRI 102-7, GRI 102-15, GRI 103-2, GRI 103-3, GRI 302-4, GRI 303-1, GRI 305-1, GRI 305-5, GRI 305-7, GRI 307-1, EU2

Performance metrics

Indicators	Results 2016	2017	2018	2019	Targets 2019	2020
Environment						
Net electricity generated by Hydro-Québec (GWh)	172,278	177,091	175,545	175,404 ✔		
Total net electricity generated and purchased (GWh)	217,165	221,097	225,439	225,010 ✔		
Renewable energy/total energy generated and purchased (%)[a]	99.9	99.8	99.8	99.6 ✔		
GHG emissions from thermal electricity generation (t CO_2 eq.)	227,249	227,936	234,441	235,855 ✔		
SO_2 emissions from thermal electricity generation (t)	979	1,008	1,180	1,169 ✔		
NO_x emissions from thermal electricity generation (t)	4,292	3,991	4,124	4,154 ✔		
GHG emissions from vehicle fleet (t CO_2 eq.)/ total number of vehicles as at December 31	51,571/ 5,229	51,063/ 5,174	51,785/ 5,236	50,131/ 5,723 ✔		
GHG emissions from light-vehicle fleet (t CO_2 eq.)	22,852	21,532	21,215	20,346 ✔	25,360	24,302
Hybrid and plug-in light vehicles as at December 31 (number)	98	150	294	399 ✔		500
Energy efficiency initiatives: energy saved (GWh)	534	524	455	478 ✔		
Accidental spills reported to the authorities (number)	937	1,143	1,262	1,365 ✔		
Environmental noncompliance notices (number)	43	45	26	27 ✔		
Insulating oil recovered (thousands of litres)/ reused (%)	3,632/ 87.9	4,110/ 95.8	5,563/ 96.2	3,228/ 95.9 ✔		
Water withdrawn (millions of m^3)[b]	39	45	9	3 ✔		
Area of transmission line rights-of-way treated mechanically (%)	98	95	95	93 ✔		
Area of dikes and dams treated mechanically (%)	51	52	46	73		
Distribution system length (km)/underground lines (%)	116,794/ 11.6	117,747/ 11.8	118,130/ 12	118,522/ 12.2 ✔		
Avoided GHG emissions in Québec (% of Québec government target for 2030 compared to 1990 emission level)	—	—	—	14	14	14
GHG emissions avoided through our long-term export contracts (Mt CO_2 eq.)	—	—	—	2.5	2.0	2.0

a) Excludes generating stations supplying off-grid systems.

b) According to the *Regulation Respecting the Declaration of Water Withdrawals*, which applies to thermal generating stations and some workcamps using more than 75 m^3 of water per day (excludes withdrawals for PPG Canada).

GRI GRI 102-7, GRI 102-15, GRI 103-2, GRI 103-3, GRI 203-2, GRI 403-2, EU29

Performance metrics

Indicators	Results 2016	2017	2018	2019	Targets 2019	2020
Social						
Overall public satisfaction – very and somewhat satisfied (%)	91	92	93	94 ✔	≥ 90	≥ 90
Customer satisfaction index – Combined index (scale of 10)[c]	8.1	8.2	8.2	8.3 ✔	8.3	8.3
Average call wait time (customer relations centers) (seconds)	99	84	87	104 ✔	≤ 110	≤ 110
System average interruption duration index (SAIDI) – distribution system (min/customer)	338	278	411	720 ✔		
System average interruption duration index (SAIDI) – transmission system (min/customer)	34	44	26	41 ✔		
Special payment arrangements for low-income customers (number)	97,879	106,438	92,882	94,924 ✔		
Customer complaints and claims (number)	7,517	6,211	6,771	5,732 ✔		
Total permanent and temporary workforce as at December 31	19,552	19,786	19,904	19,477 ✔		
Employee sustainable engagement index (%)[d]	—	—	85	84 ✔		
Work-related accident frequency (per 200,000 hours worked)[e]	—	2.00	2.01	1.97 ✔	1.70	1.11
Percentage of payroll invested in training	2.7	3.1	3.1	2.8 ✔		
Funding and financial commitments – Integrated Enhancement Program (number of initiatives/$M)	25/ 3.0	27/ 4.2	22/ 3.3	15/ 1.1 ✔		
Donations and sponsorships ($M)[f]	17.5	19.1	19.1	18.9 ✔		
Reputation (overall score out of 10)	—	—	—	7	6.85	6.95
Economy						
Electricity sales in Québec (TWh)[g]	169.2	170.7	172.8	174.6 ✔		
Revenue from electricity sales inside and outside Québec ($M)	13,199	13,414	13,865	13,939		
Rate increases (%)[h]	0.7	0.7	0.3	0.5	≤ CPI	
Contribution to Québec's gross domestic product (GDP) ($B)	—	—	—	20.7	20.4	20.7
Net income ($M)	2,861	2,846	3,192	2,923	2,700	2,900
Dividend ($M)	2,146	2,135	2,394	2,192	2,025	2,175
Water-power royalties ($M)	673	701	705	720		
Total procurement of goods and services ($M)/ Québec only (%)	2,952/ 94	3,170/ 92	2,883/ 91	3,115/ 92		
Public utilities tax ($M)	284	284	298	299		
Municipal and school taxes ($M)	40	38	39	40		
Funding for educational institutions – Contributions, research chair funding and research contracts ($M)[i]	8.4	7.1	7.8	6.8 ✔		

c) New method applied starting in 2016.

d) Revised in 2018, the survey now titled *Notre énergie, notre engagement* presents results that cannot be compared with those of previous years since they were established on new bases.

e) Since January 2018, the company has recorded accidents involving loss of time and temporary assignment. Previous years' figures can therefore not be compared, with the exception of those for 2017, which have been recalculated using the new method.

f) Includes Hydro-Québec's donation to Centraide.

g) Data from continuing operations.

h) Except for Rate L.

i) The 2019 figure includes $3.2 million recorded as donations and sponsorships. ✔

Our contribution to sustainable development goals

The 17 sustainable development goals of the United Nations Development Programme were adopted by world leaders in the fall of 2015 and took effect January 1, 2016. These goals build on the successes of the Millennium Development Goals, while including new priorities, such as climate change and energy efficiency.

Hydro-Québec intends to do its part by pursuing the goals most relevant to its industry and its projects. The 17 goals have 169 targets that demonstrate the scope and ambition of the new program. The goals and targets provide guidance for initiatives to be carried out by 2030 in the fields most important to humanity and the planet.

We published our *Sustainable Development Plan 2020-2024: Drawing on the Past to Shape the Future*, which contains 7 goals and 11 targets designed to increase our efforts to apply the United Nations Global Compact principles in each of four areas.

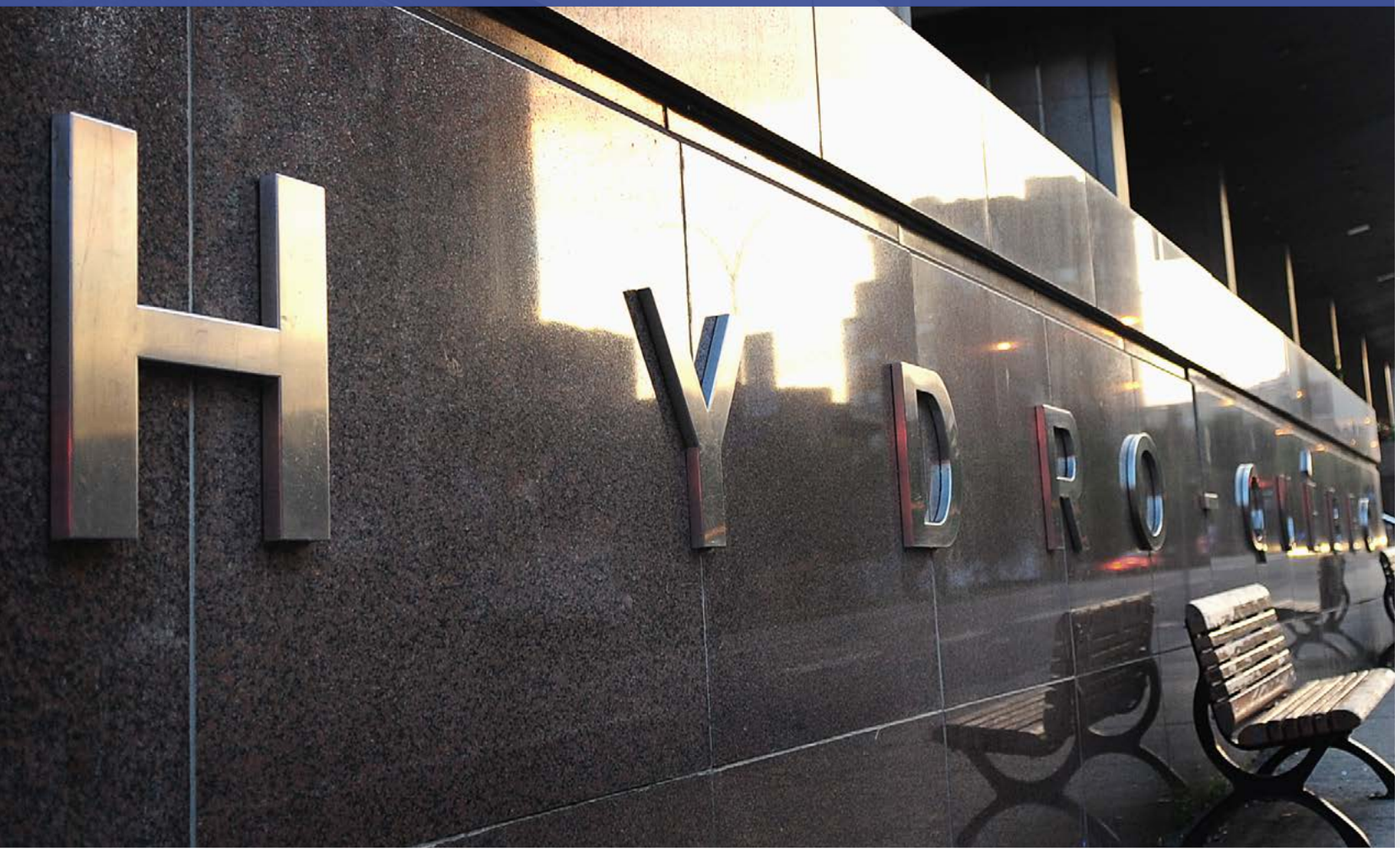
SUSTAINABLE DEVELOPMENT GOALS

Hydro-Québec plans to contribute by pursuing **goals 7, 8, 10, 12, 13, 15 and 16**, which are the most relevant to its industry and its projects. **Click on any one of these goals to learn more.**

GRI GRI 102-40, GRI 102-42

Enhancing corporate governance and remaining an employer of choice

Hydro-Québec's governance is based on the major priorities of the Québec government, our sole shareholder, and reflects our responsibility to all Quebecers. After 75 years of existence, the company's objectives remain the same: to develop clean, renewable energy sources, provide quality service to all our customers and contribute to Québec's socioeconomic development, in addition to promoting electricity as a means of reducing GHG emissions. In regard to our processes and procedures, the transformation of our corporate culture, which began a few years ago, is starting to show results.



Hydro-Québec sign at the company's head office, Édifice Jean-Lesage.

In this section

Stakeholders

- Customers
- Government authorities
- Nongovernmental organizations
- General public
- Suppliers
- Employees
- Investors

GRI GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2

Materiality analysis aspects

Economic

- Legal compliance
- Ethical management practices

Social

- Government relations
- Information management
- Employee health and safety
- Diversity and equal opportunity

509 ✓

Access to information requests ⊕

84% ✓

Sustainable engagement index ⊕

75 years of ingenuity and innovation

The year 2019 marked the 75th anniversary of the creation of Hydro-Québec, on April 14, 1944. In 75 years, we have seen many changes and met numerous challenges. Today, as the world faces the challenges of the energy transition and climate change, choosing hydropower is now more than ever proving to be a wise choice.

Since 1944, we have been contributing to the socioeconomic development of Québec society. We now plan to take on an even bigger, North America-wide role by sharing our expertise and exporting clean energy.

Hydro-Québec is recognized around the world for generating over 99% of its energy from hydropower, a clean and renewable source of electricity, and for its expertise in the design and management of large power systems. Also very active in the fields of battery materials and electric powertrains, we are well positioned to become a leader of the energy transition.

Important milestones in Hydro-Québec history

1944 The start of an adventure! ⊕

1953 Québec's first underground generating station ⊕

1960 Carillon: A training ground ⊕

1962 A modern head office ⊕

1963 Serving all of Québec! ⊕

1965 The 735-kV line: Pushing the technical envelope ⊕

1967 Creation of IREQ, a world-class research center ⊕

1969 Daniel-Johnson dam: A symbol of Québec know-how ⊕

1973 Leading the way in environmental responsibility ⊕

1975 James Bay and Northern Québec Agreement ⊕

1983 Championing women ⊕

1992 A new direct-current system ⊕

1998 An exceptional response to a crisis ⊕

2012 The Electric Circuit ⊕

2019 The energy transition: Hydro-Québec leads the way! ⊕

GRI GRI 102-12, GRI 102-13, GRI 102-16, GRI 102-18, GRI 102-22, GRI 103-2

Governance structure

75 years ago

From 1944 to 1978, Hydro-Québec was managed by five commissioners, one of whom acted as Chairman. Télesphore-Damien Bouchard, the first President, took office on April 15, 1944. He relinquished his post two months later to Ludger-Eugène Potvin, who held the position until 1955.

Our sole shareholder: The Québec government

The major priorities adopted by the Québec government—mainly through its Energy Policy and Sustainable Development Strategy—have a direct impact on the planning of all Hydro-Québec activities.

Sustainability governance

Planning

- Government guidelines ⊕
- *Strategic Plan 2020–2024*
- *Sustainable Development Plan 2020–2024*
- Division and group business plans

Commitment

- Mission
- Company policies
- Codes of Conduct
- Our values ⊕

Performance reporting

- Internal (annual environmental management review, semiannual reports on environmental compliance)
- External (corporate documents)

Implementation

- Management systems (ISO 14001, ISO 37001, OHSAS 18001, ISO 9001, etc.)
- Environmental assessments (impact statements and internal assessments, in French only)
- Research and development
- Stakeholder relations
- Internal discussion networks
- Training

Assessment and improvement

- Application of sustainability principles (in French only)
- Compliance audits
- Indicators

Québec Energy Policy (in French only) Ⓦ

Québec Sustainable Development Strategy Ⓦ

GRI GRI 102-18, GRI 102-22, GRI 102-24

75 years ago

In April 1944, with widespread public support, the Liberal government of Adélard Godbout adopted Bill 17, the *Act to establish the Québec Hydro-Electric Commission*, now known as Hydro-Québec. The goal was to nationalize Montreal Light, Heat and Power Consolidated, which held the monopoly on natural gas and electricity in the Montréal area.

Régie de l'énergie

As the economic regulatory body of Québec's energy industry, the Régie de l'énergie du Québec approves the conditions for electricity transmission, authorizes transmission investments and handles complaints concerning electricity rates and service conditions. Its mandate is to ensure that energy needs are satisfied in keeping with the government's energy policies while promoting individual and collective equity.

The Régie is financed by the fees and royalties paid by regulated bodies, with the bulk of its funding provided by Hydro-Québec. Over the year, the company filed a number of applications with the Régie, including an application for approval of a renewable energy supply contract for the Inukjuak off-grid system, and its Electricity Supply Plan 2020–2029. It also submitted various capital projects involving transmission and distribution systems.

The Régie handed down decisions in various cases, including an application regarding the introduction of a public electric-vehicle fast-charge service.

Electricity regulation in Québec

Legislative changes

In December 2019, the Québec government passed *An Act to simplify the process for establishing electricity distribution rates*. The Act provides for a rate freeze in 2020, rate adjustments indexed to inflation from 2021 to 2024, and the setting of rates by the Régie de l'énergie in 2025. Subsequently, rates will be pegged to inflation for a new four-year cycle; in the fifth year, Hydro-Québec will file a new rate application with the Régie.

2020	2021	2022	2023	2024	2025
Rate freeze	Rates indexed to inflation				Return to usual rate-setting process for one year, followed by a new four-year cycle during which rates are indexed to inflation.

GRI GRI 102-16, GRI 102-18, GRI 102-22, GRI 102-23, GRI 102-24, GRI 102-32

Board of Directors

As at December 31, 2019, Hydro-Québec's Board of Directors had 15 members—nine women and six men—who hailed from a wide range of professional backgrounds. The Board consists of 13 independent directors, along with the President and CEO and the Deputy Minister of Energy and Natural Resources. As stipulated in the *Act respecting the governance of state-owned enterprises*, at least one member of the Board was 35 years of age or less at the time of his or her appointment.

The Board of Directors also establishes a framework for the governance of our operations.

Committees of the Board of Directors ⊕

Expertise and experience profiles of Board members (in French only) Ⓦ

Main sustainability governance activities

Performance reporting ↷ Accountability

Board of Directors

- **Six committees**, including Governance and Ethics; **Health and Safety, Environment and Social Responsibility**; and Human Resources
- **Approval or review of documents**, including corporate policies, code of ethics, employee Code of Conduct, Strategic Plan, Business Plan, Annual Report and Sustainability Report

President and Chief Executive Officer

- **Approval of the following documents**: internal guidelines, Sustainable Development Plan
- **Annual management reviews pertaining to the environment and health and safety**

Hydro-Québec business units

- **Various internal networks for discussing issues such as the environment and occupational health and safety**
- **Maintenance of certified management systems**
- **Environment and sustainability training**
- **Annual management reviews pertaining to the environment**

Role of the Health and Safety, Environment and Social Responsibility Committee

Mandate

- Advise and make recommendations to the Board of Directors and contribute to deliberations on environmental, sustainability, public affairs and communication issues, specifically with regard to:
  - environmental management and compliance, and the application of sustainable development principles
  - environmental incident reports as well as claims, opinions, investigations and legal proceedings generated by government agencies or third parties
  - public health and safety
  - community relations
  - the company's social responsibility and contribution to the community, including its Social Responsibility Directive
  - internal and external communications
  - issues, challenges, risks and opportunities associated with the company's reputation and public perception

Activities in 2019

- Supported management teams with implementation of the Health and Safety Action Plan and the associated cultural transformation
- Reviewed the semiannual reports on compliance with environmental laws
- Drew up a policy on relations with Indigenous communities (in French only) and recommended it for Board approval
- Approved the 2019 corporate program for assessing environmental compliance
- Reviewed the *Sustainability Report 2018* and met with the person in charge of the report and its auditor
- Reviewed the annual report on communication activities and the associated performance indicators
- Reviewed the annual reports of the Fondation Hydro-Québec pour l'environnement and of the liaison committee with the Union des producteurs agricoles, as well as the annual report on international cooperation initiatives funded by Hydro-Québec in French-speaking nations

GRI GRI 102-18

2019 highlights

- The mandates and composition of certain committees were reviewed. Two committees were merged to create the Health and Safety, Environment and Social Responsibility Committee.
- The criteria for evaluating the Board of Directors' performance were updated.

Corporate management system and continuous improvement

Our corporate management system is built on the engagement of employees at every level of the company, fact-based management, continuous improvement and communication. The six aspects reflect the company's priorities and stem from the strategies adopted in the strategic planning process. Every team is responsible for setting the performance indicators applicable to its operations and choosing activities for each aspect.

Since we implemented the system two years ago, half of our teams have initiated daily meetings, installed operational dashboards and set performance indicators. They have also launched various optimization projects and continuous improvement methods and tools, and taken part in a range of activities to improve their processes and procedures, identify any shortcomings and increase their productivity. Starting in 2020, efforts are under way to apply this approach across the company.

The next step was to discuss these initiatives together to develop benchmarks and a common approach. The Académie de l'amélioration continue [continuous improvement academy] was created, and two main training thrusts were identified. We plan to lead the way with positive models, training our senior managers, directors and continuous improvement experts first. Thereafter, these training and educational opportunities will progressively be extended to all employees.

2019 highlights

- A project launched in 2018 to optimize the pole replacement process showed that it is possible to save $5 million on emergency pole replacement costs for Bell, Telus and Télébec poles. So far, the project has generated savings of $2 million out of the $5 million targeted.
- A new approach to logistics operations was introduced at Beauharnois generating station. It consists of assembling components into kits to save money through inventory reductions and to enhance procurement performance.

Ethical management practices

Ethics are central to our culture and values. Loyalty, integrity, respect, discretion and fairness are ethical principles that reflect Hydro-Québec's social commitment to its customers and the community.

Official inauguration of the Académie de l'amélioration continue.

Académie de l'amélioration continue

The mission of Académie Lean is to guide Hydro-Québec's efforts to improve its processes and procedures by providing continuous improvement training that meets its business objectives. This unique place of learning, co-creation and innovation supports the company-wide application of continuous improvement principles, all across Québec.

Académie de l'amélioration continue: Vision and mission

GRI GRI 102-12, GRI 102-18

We have adopted codes of conduct for our employees and suppliers. In addition, to help our personnel adhere to and uphold the ethical principles that we champion, we provide our employees with a variety of tools, including self-training, FAQs, a helpline and more.

2019 highlights

- A new version of the Code of ethics and rules of professional conduct applicable to directors and executives of Hydro-Québec and its wholly owned subsidiaries (in French only) was adopted. The rules of ethics and professional conduct were reviewed in light of recognized best practices in governance, ethics and conduct. The Code's application was also expanded, and it now covers wholly owned subsidiaries governed by Québec and Canadian law.
- A new, mandatory self-training course on the employee Code of Conduct (in French only) was made available to all personnel. It enables employees to deepen their knowledge of the fundamental ethical principles that underlie the behaviors and practices to adopt in professional activities and work relationships.

Act to facilitate the disclosure of wrongdoings relating to public bodies

To promote ethical behavior, Hydro-Québec adopted a procedure for handling allegations of wrongdoing a number of years ago. That procedure is currently being updated.

Information on disclosures made in 2019

Anti-corruption management

Working toward ISO 37001 certification

Corruption is a global phenomenon that exacts a high price on businesses and society, and undermines confidence in public bodies. Last spring, we began implementation of an anti-corruption management system and reinforced our prevention methods to meet the requirements of ISO 37001:2016. The general aim of this standard is to help organizations raise their level of integrity. Hydro-Québec is one of the first organizations in the country to commit to obtaining this certification.

Integrity, compliance and transparency

Our commitment to fighting corruption is based on a three-pronged approach:

- **Integrity** – Our actions must be beyond approach at all times in order to preserve the company's good reputation.
- **Compliance** – We must comply with all anti-bribery and anti-corruption laws and regulations applicable to our local and international operations. We must show zero tolerance for any actions that violate these rules.
- **Transparency** – We must be transparent in all day-to-day activities and be stringent in maintaining relationships of trust with customers and partners at all times.

In keeping with this approach, over 70 Hydro-Québec business units, staffed by some one hundred people, were mobilized to establish a profile of the risks we face.

GRI GRI 102-12, GRI 102-18

2019 highlights

- We selected 2020 as our target for obtaining ISO 37001:2016 certification and strengthening our corporate management practices in regard to corruption.
- On December 9, we released our commitment to anti-corruption initiatives to show our support for the United Nations global campaign *Corruption: An Impediment to the Sustainable Development Goals*. The release was timed to coincide with U.N.-proclaimed International Anti-Corruption Day.

Detecting and preventing corruption

To a great degree, the success of anti-corruption initiatives hinges on detection and awareness. Hydro-Québec introduced an awareness program focusing on fraud, corruption, collusion and the rules of conduct governing procurement operations. Training in more specific areas was provided to senior managers and investigators. To prevent corruption, each and every individual must strive to uphold the company's rules of ethics, integrity and transparency.

2019 highlights

- An anti-corruption information kit was distributed. It will be updated periodically and made available to all employees.
- A hotline for reporting any potential wrongdoing or inappropriate situation was maintained. We are committed to keeping the information provided confidential and we guarantee that no reprisals will be taken against any employee acting in good faith.
- The mandatory declaration of real or perceived conflict of interest that every supplier is required to make was updated to ensure compliance with the rules of ethics governing the awarding and administration of contracts.
- Two training programs were dispensed. The first, which concerned the rules of conduct governing procurement and 27 behaviors to adopt or avoid, was taken by 1,374 people. ✔ The second, which dealt with fraud, collusion and corruption, was taken by 939 people. ✔

Strategic Plan 2020-2024

The energy sector is undergoing profound change. In our Strategic Plan, which builds on the previous plan, Hydro-Québec reaffirms its commitment to leading the energy transition. Our actions to that end have two main thrusts: fighting climate change and creating collective wealth through greater electrification.

The Plan's objectives reflect the challenges and opportunities associated with the energy transition, including the desire to spark a new wave of electrification in Québec in order to improve the trade balance and reduce GHG emissions. Those objectives can be broken down into major strategies that will guide our actions and decisions over the next five years.

- Our vision remains unchanged: "Setting new sights with our clean energy."
- Our mission has evolved: Once a developer of hydraulic resources, we are now a developer of clean and renewable energy sources.
- We have updated our values to include pride, ingenuity and innovation.

Strategic Plan objectives and strategies at a glance

GRI GRI 102-18

Sustainable Development Plan 2020-2024

The *Sustainable Development Plan 2020-2024: Drawing on the Past to Shape the Future* was drafted in 2019. It takes into account stakeholder expectations, an analysis of the discrepancies between common practices in the area of corporate responsibility and those found in ISO 26000, and the main sustainability issues we face. It prioritizes the most pressing issues, encourages employees to become agents of lasting change and creates synergy between units. It also demonstrates our commitment to advancing Québec's collective prosperity and making the transition to a low-carbon economy.

Some 30 units worked together to identify the initiatives, processes, risks and opportunities associated with the areas of operation covered by ISO 26000. These areas were then ranked by priority according to their importance to our business environment and the level of performance: 21 were categorized "to maintain" while 15 others were categorized "act" or "react." These last two areas, corroborated by stakeholders and a review of international sustainability challenges, gave rise to the Plan's strategies.

The Plan sets out 12 strategies linked to three pillars: governance, community and environment. Each strategy is associated with at least one improvement target and one performance indicator.

The Plan also supports 7 goals and 11 targets in the United Nations 2030 Agenda for Sustainable Development.

We will report on our progress with respect to these targets every year in the Sustainability Report.

Access to information and protection of personal information

In accordance with the *Regulation respecting the distribution of information and the protection of personal information*, Hydro-Québec publishes information of public interest on its website.

2019 highlights

- Employees were reminded of the principles governing access to and protection of personal information through various communications and training sessions, as well as in connection with specific cases.
- A total of 509 access-to-information requests concerning administrative documents or personal information were handled, compared to 565 in 2018; 201 were granted in full, 211 were granted in part and 57 were denied. ✔ We were unable to fulfill the remaining 40 requests either because we did not have the documents, the request was withdrawn or the information concerned another public body.
- In addition, two cases involving the loss or theft of customers' personal information were handled with all due care. In both cases, steps were taken to ensure that it did not happen again.

An employer of choice

75 years ago

Before the mid-1950s, hard hats were a rare sight in Québec. It was not until 1957 that they became mandatory.

Employee and contractor health and safety

In 2016, a study by an external firm showed that Hydro-Québec's health and safety culture lacked consistency and a strong foundation, and that it was ill suited to workplace realities. Following a review of our processes and procedures, we undertook a major cultural change. While there remains a great deal of work to be done, we are continuing this company-wide shift by focusing on leadership, risk management and performance measurement.

For this transformation to succeed, all employees must join the effort. Ownership of the process at every level of the organization is imperative if our culture is to evolve. Regional transformation initiatives have been rolled out and are now producing results.

Risk management: A priority at our construction sites.

Testing insulation on an instrument transformer.

Risk management is a critical factor in reducing the number of accidents. For this reason, targets are set in order to increase the number of near misses/potentially serious incidents (PSIs) reported. The target for 2020 is 340.

Various indicators, such as the frequency of incidents resulting in temporary assignments or lost time (TALT), the number of PSIs and the number of field observations, continued to be closely monitored in dashboards and performance reviews. Although some indicators have plateaued, the many measures adopted in 2019 should make our programs more robust and help bring about the desired results.

Committees were formed to give workers a voice in occupational health and safety matters. They include union and management representatives, and operate in accordance with collective agreements.

Health and safety committees

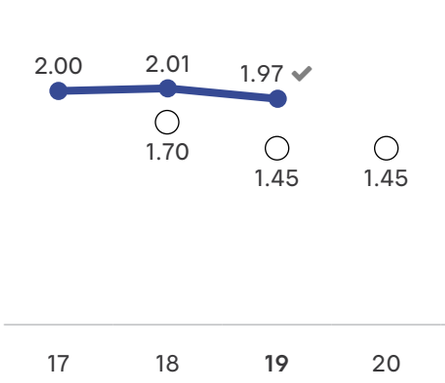
GRI GRI 403-2

2019 highlights

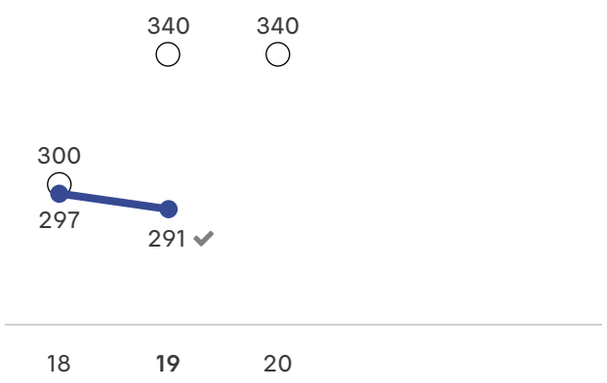
- Employees and suppliers were reminded of the importance of remaining vigilant, adopting safe behaviors at all times and reporting any situation that could pose a risk to personal safety or the company's assets. The Ouvrons l'œil hotline has been operating day and night since 2012 so that any incidents can be reported promptly. Number of calls received in 2019: 2,678 (2,551 in 2018). ✔
- Psychological health tools were distributed with the aim of opening a dialogue and promoting a culture of caring.
- A psychological health training program was introduced as part of the Canadian Mental Health Association's "Not Myself Today" awareness campaign. The campaign fights stigmatization and promotes a supportive, inclusive workplace.
- A total of 2,644 cases were opened under the Employee Assistance Program (2,489 in 2018). Free, confidential and always available, the program helps employees resolve personal or professional issues in a timely manner.
- Occupational health and safety training sessions continued, with 64,908 employee and contractor enrollments (61,943 in 2018). Viewings of the four videos on psychological health by 20,373 participants accounted for close to 31% of these sessions.

Awareness project on risks associated with lift trucks.

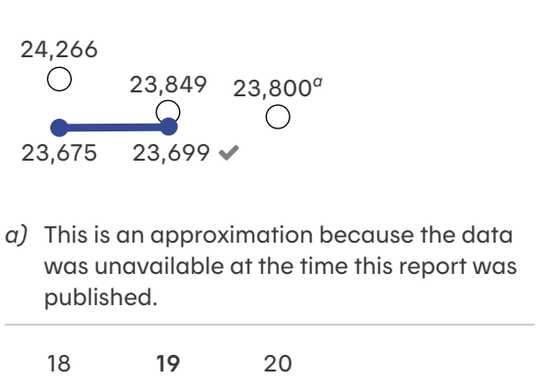
Work-related accident frequency (per 200,000 hours worked)



Near misses/potentially serious incidents (PSIs)



Field observations



a) This is an approximation because the data was unavailable at the time this report was published.

Improving health and safety on our jobsites

In May, an outside firm conducted a survey of workers and contractors at Hydro-Québec construction sites regarding our occupational health and safety practices. The results were positive, with most of the 1,025 respondents reporting that the effort to improve occupational health and safety is making good headway.

One of the study's main findings is that many workers and contractors have noticed how motivated Hydro-Québec's senior management is to make our jobsites safer. Respondents also saw certain occupational health and safety activities as playing a valuable role in identifying potential jobsite risks and determining how they should be addressed.

However, the contractors reported that they have difficulty adjusting to the rapid pace of change in occupational health and safety, that Hydro-Québec sometimes lacks flexibility and that Québec's construction industry is still strongly influenced by a culture focused on maximizing productivity and cutting costs and delivery times.

On our construction sites, moving vehicles, live equipment and objects that are unstable or at heights are responsible for 67% of potentially serious incidents (PSIs). We will continue to pay special attention to these critical hazards so that we can determine what control methods should be implemented in jobsite operations.

2019 highlights

- Work to clarify and raise occupational health and safety standards continued. Drawing on in-depth investigations and the risk reviews performed in the draft-design stage, we were able to take steps to eliminate or lower risks during the construction period.

Employees at the Achigan substation jobsite.

- There were over 10,000 instances of interactions between managers and workers on jobsites, encouraging a steady dialogue and exchange of information between the parties.
- Hydro-Québec established health and safety qualification requirements to make it easier to select partners that attach importance to this issue. We plan to work closely with our partners to transform health and safety culture, not only on our jobsites but throughout the Québec construction industry.

Occupational health and safety award

For the second year in a row, a team working at the Brisay and Laforge-2 facilities won the CNESST's regional award in the Innovation – Public Organizations category as well as the people's choice award.

The team earned this honor for designing a lifting beam able to load 12-metre stoplogs on transport trucks more safely. These stoplogs are used at two facilities, Laforge-1 and Laforge-2 generating stations, and they have to be moved frequently by truck over distances in excess of 160 km. Thanks to the team's innovation, the hoisting, transport and installation manoeuvres involved are now safer.

Watch the video on this innovation (in French only) Ⓦ

GRI GRI 405-1

Championing women and diversity

In 2009, Hydro-Québec launched its employment equity program to increase the presence of certain groups that were underrepresented among its employees. These groups are women, Indigenous people, ethnic minorities, visible minorities and people with disabilities.

The company is changing, and considerable efforts are being made to ensure that all groups are fairly represented. There are now more women in management positions, with a 10% increase in 2019 alone.

On December 31, 2019, 60% of all Board members were women. However, there is still a great deal to be done to improve the representation of certain target groups. Read Hydro-Québec's declaration (in French only) (W)

2019 highlights

- Sponsorship program for new arrivals: 14 sponsorships in 2019 and 33 since the program was established in 2017.
- Internship program for students with disabilities: 12 internships in 2019 and 43 since the program was established in 2017.

Representation of target groups (%)

	2016	2017	2018	2019 ✓
Women	28.7	28.9	28.8	29.2
Indigenous people	1.4	1.5	1.6	1.6
Ethnic minorities	1.5	1.5	1.6	1.9
Visible minorities	4.1	4.5	5.1	6.3
People with disabilities	0.7	0.6	0.6	0.6

An employee may be included in more than one category.

Rainbow flags fly in front of Hydro-Québec's head office to celebrate Pride Week.

Employee groups helping to shape the world

LGBTQ+ community

- Over 90 employee members.
- Participation in International Day Against Homophobia and Transphobia, and in Pride Week.
- Hydro-Québec was well represented at Gala Phénicia, an initiative of the LGBTQ business community, and Gala Arc-en-ciel, presented by the Conseil québécois LGBT.

HQultures community

- Over 230 employees from ethnocultural communities.
- This group meets to discuss issues of common concern and make recommendations.

Women leaders

- Members include female employees designated as up-and-comers.
- Several informal initiatives, including Femmes d'énergie, a mutual support and professional development network for women from all business units.

GRI GRI 102-13, GRI 405-1

- An access-to-employment program for people with an intellectual impairment was introduced, in cooperation with Regroupement des organismes spécialisés pour l'emploi des personnes handicapées (ROSEPH).
- In total, just over 14% of the external resources hired were members of cultural minorities (ethnic minorities, visible minorities and Indigenous people).
- We partnered with a number of job-finding agencies serving newcomers, including Montréal International, Québec International, Centre Émersion de la Côte-Nord, Clef pour l'intégration au travail des immigrants (CITIM), Service d'intégration au marché du travail par objectifs (SIMO) and La Maisonnée.

Cooperation and influence, in Québec and around the world

Hydro-Québec is a member of a number of associations and organizations that promote hydropower and other renewable energies. We also take part in meetings and technical discussions with foreign companies and international power industry representatives.

Hydro-Québec's participation in international organizations

2019 highlights

- We partnered with Ontario Power Generation and BC Hydro as the main sponsors of the Annual Meeting of the International Commission on Large Dams (ICOLD–CIGB), held in Ottawa. Nearly 1,300 experts from around the world took part in technical workshops, presented research findings and discussed dam-related innovations.

Awards and honors

- Named Canada's second-best corporate citizen by *Corporate Knights* magazine.
- Ranked third-most responsible company by Quebecers, according to *Baromètre de la consommation responsable*.
- Named the country's sixth-best employer by *Forbes* Magazine.
- The Montréal region was named the best place in the world to set up a data center, thanks in particular to our low electricity rates.
- Hydro-Québec was named Québec's most influential brand, according to Ipsos.
- Awarded a "Gold Standard" rating by EcoVadis.

Learn more

Ensuring social acceptability and remaining a responsible company

In addition to its customers, Hydro-Québec does business with numerous suppliers, business partners, municipal officials, community organizations, landowners, farmers and other groups and individuals who are affected by its activities and with whom it shares use of the land. In everything we do, we strive to maintain the best possible balance between the three aspects of sustainability: social acceptability, respect for the environment and profitability. To remain a responsible company, all our activities must be well received by the community.

The 230-kV transmission line connecting Mont-Joli and Sainte-Angèle-de-Mérici.

In this section

Stakeholders

- Customers
- Suppliers
- General public
- Local and Indigenous communities
- Educational institutions
- Nongovernmental organizations
- Government authorities
- Employees
- Investors

GRI GRI 102-9, GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2, GRI 201-1, GRI 413-1

Materiality analysis aspects

Environmental

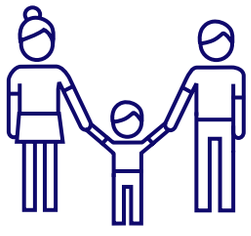
- Water body management
- Land use
- Environmentally responsible management

Economic

- Legal compliance
- Spinoffs of projects and operations
- Procurement practices

Social

- Social acceptability of projects
- Stakeholder relations
- Community investments



$28M

Community investments

92%

Procurement of goods and services in Québec

A responsible presence in the community

75 years ago

The excessive rates Quebecers were charged for decades by private utilities with a monopoly on electricity service led to their nationalization and incorporation into Hydro-Québec. Complaints against the companies were numerous: electricity rates were inconsistent and often high, service was unreliable and varied from one region to the next, certain rural areas were denied electricity… and the list goes on.

Hydro-Québec is a responsible corporate citizen that takes pains to understand the concerns and expectations of the communities with which it interacts. To ensure our facilities are seamlessly integrated, we maintain an ongoing dialogue with these communities in order to adjust our projects, as far as possible, to local circumstances and make them socially acceptable.

Every project is unique, and the measures taken to promote social acceptability may vary depending on the host community's expectations. A project's social acceptance does not necessarily mean there is no opposition, but rather that as broad a consensus as possible has been achieved. By encouraging public participation and working with stakeholders from the moment a project is envisioned, we give communities an opportunity to collaborate

GRI GRI 413-1

on project development and help create the conditions that ensure our projects are socially acceptable and mutually beneficial.

735-kV Chamouchouane–Bout-de-l'Île project and Judith-Jasmin substation

Between 2010 and the moment construction started, Hydro-Québec held over 300 meetings and talks, including open-house events, information sessions and technical meetings with elected officials and the general public. There was a broad consensus concerning the project in most regions.

In Lanaudière, a liaison committee made up of representatives from municipalities and the MRC, environmental and economic groups, and land users met nine times starting in September 2015 to track progress and review how requests and complaints were being handled. The opinions, suggestions and recommendations received helped us find an optimal solution for the region.

A project developed in partnership with local communities

Community concerns resulted in significant changes to this major project commissioned in the last year. For instance, following public consultations, a number of changes were made to the initial route planned for the lines to be built, which total over 400 km in length.

In the south, the new route was moved westward, making it possible to house the new line's connection to the Montréal metropolitan loop as well as the 120-kV equipment installed to meet the region's growing electricity demand in a single substation. By using just one substation for three separate projects, we avoided the need to build some 20 km of new lines and a substation near residential areas, thereby reducing the impact on the woods near the TransTerrebonne bike path and on the surrounding neighborhoods.

See the project fact sheet Ⓦ

^^ The project has had substantial economic spinoffs in Québec, generating over $1.1 billion in purchases of specialized services, goods and materials.

^ Located in Terrebonne, the 735/120/25-kV Judith-Jasmin substation will meet the needs of the main 735-kV transmission system as well as local and regional demand.

GRI GRI 413-1

Social acceptability portrait

Hydro-Québec contributes to the sustainable development and well-being of the communities with which it interacts to ensure its activities are well received. Although social acceptability concerns apply primarily to our projects, many of our day-to-day activities also have a role to play. For that reason, we must clearly identify how we can improve our performance in this regard. That is why, in fall 2019, we drew up a portrait of the measures implemented and the indicators used to benchmark our performance in terms of social acceptability.

Measures implemented and indicators used to benchmark our social acceptability performance

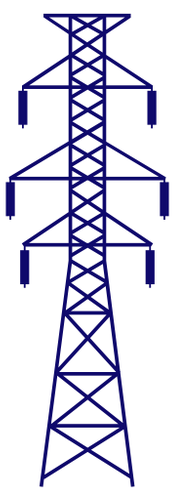
Activities, programs and services	Public participation in projects	Relations with communities and Indigenous peoples	Integrated Enhancement Program (IEP)	Donations and sponsorships	Customer services	Reception and facility tours	Government and public affairs and media	Environment
Measures and approaches implemented	Process for taking account of community views and concerns regarding our projects	Ongoing dialogue with municipal authorities, Indigenous communities and major municipal and regional associations (UPA, UMQ, FQM, etc.)	Funding of initiatives to improve life in communities where new power transmission facilities are built (lines or substations)	Program to maximize the positive social impact of Hydro-Québec investments in communities	The closest and most direct relationship possible with customers	Facility tour program that creates closer ties with the public and provides opportunities to answer numerous questions on a wide range of subjects	Relations between Hydro-Québec and its shareholder, government departments, government agencies and media	Conducting of environmental assessments in connection with our projects, targeting the most socially acceptable option, along with the necessary mitigation measures
Sample performance monitoring indicators	Number of projects in progress and number of opportunities for public participation	Number of requests processed Annual satisfaction survey of municipal partners	Annual satisfaction survey of eligible organizations Allocated funding and number of initiatives completed	Assessment of progress achieved in relation to targets Allocated funding and number of initiatives funded	Monthly customer satisfaction survey Number of complaints	Annual report on satisfaction surveys completed during tours	Survey on Hydro-Québec's reputation, which covers six aspects, one of which is social and environmental responsibility	

GRI GRI 413-1

Public participation process

	Planning	Draft design	Government approvals (permitting)	Construction	Operations/Report
Duration	**1 to 2 years**	**2 to 3 years**	**1 to 2 years**	**2 to 12 years – Generation** **1 to 5 years – Transmission**	**Variable – up to 30 years**
Description	Determine requirements and develop scenarios	Determine technical content, variants, route, constraints, permits required, impacts on the environment and communities, etc.	Obtain government approvals	Begin work	Conduct environmental and agreement follow-ups
Public participation	Determine issues and contact local authorities and organizations	Meet with communities, provide information and consult stakeholders	Hold public hearings (if required) and continue discussions	Track work progress and maintain good public relations	Respect commitments and follow through on agreements

Examples of public participation



Strengthening the 120-kV and 315-kV transmission systems in Abitibi-Témiscamingue
(Abitibi-Témiscamingue)

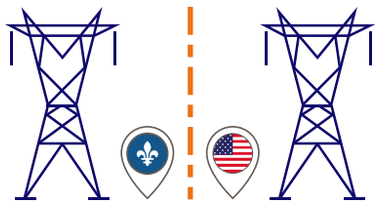
Project fact sheet

Project description and progress

735-kV Micoua–Saguenay line
(Côte-Nord, Saguenay–Lac-Saint-Jean)

Project fact sheet

Project description and progress



Appalaches–Maine interconnection
(Chaudière-Appalaches, Estrie)

Project fact sheet

Project description and progress

Des Irlandais substation
(Montréal)

Project fact sheet

Project description and progress

GRI GRI 413-1

Community relations

75 years ago

On May 24, 1945, the *Act to promote rural electrification by means of electricity cooperatives* was passed under Premier Maurice Duplessis. The Act made local cooperatives responsible for bringing electricity to Québec's less densely populated regions, markets that held little appeal for private enterprise. Of the 46 electricity cooperatives that grew out of this law, 45 accepted Hydro-Québec's 1963 buyout offer. Only one of the cooperatives, Coopérative régionale d'électricité de St-Jean-Baptiste de Rouville, still exists today.

The ongoing dialogue that Hydro-Québec maintains with municipal authorities, community groups and Indigenous authorities gives it a good understanding of community expectations regarding its activities.

Since many of our generation and transmission facilities are located on Indigenous land, we pay special attention to relationships with these communities.

2019 highlights

- A public information session was held in Grenville-sur-la-Rouge to explain the improvements being made to Chute-Bell dam and answer the public's questions. In the spring, the flow in the Rivière Rouge rose to a record level, forcing the preventive evacuation of residents living near the dam. Watch the video (in French only) Ⓦ
- A coordinating committee and weekly meetings were set up in connection with reconstruction of the 120-kV lines between Vignan, Templeton and Interconnexion-Maclaren substations in the city of Gatineau. The committee kept the relevant stakeholders (the city, transit authority, firefighters, police officers, ambulance technicians, hospitals, etc.) informed about upcoming activities to ensure that work would proceed smoothly.
- We held meetings and discussions with various local stakeholders in regard to the refurbishment of Rapide-Blanc generating station, an investment of more than $610 million. These discussions gave us a better understanding of local realities and cohabitation issues.

Rapide-Blanc generating station on the Rivière Saint-Maurice.

New newsletter

In June 2019, Hydro-Québec launched a new communications tool, *Actualités d'Hydro-Québec*. The newsletter provides a direct channel for communicating with stakeholders in various industries and is designed to encourage dialogue. The first four issues reported on industry trends and our main projects.

Read the newsletters (in French only) Ⓦ

GRI GRI 413-1

Relations with the municipal sector

Hydro-Québec maintains an ongoing dialogue with municipalities through a network created over 20 years ago to pair each local authority with a specific community relations advisor. The advisor not only supports the municipality in its relations with the company, but also works to align the company's interests with those of the communities.

The company also maintains close relations with the two Québec-wide municipal associations through a liaison committee with the Fédération québécoise des municipalités (FQM) and discussions with the Union des municipalités du Québec (UMQ).

2019 highlights

- Hydro-Québec created a new website for municipal governments.
- We had extensive communications with municipalities, riding offices and the media to explain our preventive practices aimed at minimizing the impact of spring flooding. Meetings were held at open-house events in the Mauricie, Montérégie, Outaouais and Laurentides regions. Our experts met with hundreds of Quebecers to keep them informed of flow management operations and address any concerns.
- We worked with Ville de Montréal, the affected boroughs and the cities of Montréal-Ouest, Côte Saint-Luc and Mont-Royal to optimize the Aqueduc–Saraguay project and encourage greening and active transportation initiatives. The goal of this collaboration is to promote biodiversity, connectivity and sustainable mobility in addition to enhancing residents' quality of life.

An urban farm developed by Ville en vert in the Ahuntsic-Cartierville borough.

- We participated in the work of the FQM's Commission permanente sur les enjeux urbains, a standing committee that addresses the challenges posed by the urbanization of municipalities surrounding Québec's large urban centers. The committee tackles problems common to municipalities with over 2,000 inhabitants.

2019 survey of our municipal partners: Satisfaction on the rise

Hydro-Québec gauges the satisfaction of its municipal partners every year through a short-form survey, and every four years through a more detailed survey. According to our 2019 results, all indicators are up, including two that had been declining since 2010: the company's efforts to minimize the impact of its equipment, and the way it consults municipal partners on its projects and activities.

GRI GRI 413-1

75 years ago

It wasn't until 1963 that Québec's Ministry of Natural Resources created the Direction générale du Nouveau-Québec, which provides services to a number of Cree and Inuit communities, mainly in the area of education.

Relations with farmers

Hydro-Québec maintains regular contact with agricultural sector stakeholders, including the Union des producteurs agricoles (UPA). They exchange information on an ad-hoc basis or at the regular meetings of the HQ-UPA liaison committee, a forum for discussing issues involving the company's operations on farmland and in forested areas.

The liaison committee met three times in 2019. Hydro-Québec also took part in three meetings of the special committee on stray voltage, an affiliated committee whose members include the Ministère de l'Agriculture, des Pêcheries et de l'Alimentation du Québec (MAPAQ).

Relations with Indigenous communities

Conscious of the unique character of all Indigenous communities and respectful of their culture and traditional land use, Hydro-Québec adjusts its methods and practices wherever appropriate.

Over the last four decades, the company signed some 50 agreements with six Indigenous nations and communities on power generation and transmission projects. We have learned a great deal from our Indigenous partners over the years and developed considerable expertise. Our goal is always the same: to forge lasting and mutually beneficial relationships that respect the culture and values of all parties.

The potential impacts of our projects on communities, their members and land users are addressed in numerous meetings and agreements. Specific enhancement and mitigation measures are put in place as needed to keep any impacts to a minimum.

Crees examine artifacts at Eastmain-1 reservoir.

A team of experts in biology, anthropology, law and geography work every day to establish and maintain good relations with Indigenous peoples throughout the province. These specialists remain a constant presence for the communities and maintain ongoing communications with them, in addition to negotiating, implementing and monitoring agreements.

Map of the Indigenous nations and communities of Québec

GRI GRI 413-1

Hydro-Québec Cree workers on the Rupert diversion jobsite.

Progressive Aboriginal Relations (PAR) certification

Hydro-Québec laid the foundations for its relationship with several Indigenous communities almost 45 years ago by ratifying the *James Bay and Northern Québec Agreement*. In January 2019, the company joined the Canadian Council for Aboriginal Business (CCAB), an organization that seeks to create economic opportunities for Indigenous individuals and businesses across the country.

Hydro-Québec's participation in the CCAB certification program demonstrates our desire to be:

- a workplace that is open and receptive to Indigenous employees
- an excellent business partner for Indigenous businesses
- an electricity supplier that meets the expectations of its Indigenous customers
- a company that strives to harmonize its facilities and activities with the Indigenous environment

Our statement of commitment (in French only) also confirms that we are committed to making all employees aware of the importance of strengthening our ties with Indigenous peoples so that they can participate fully in our activities.

2019 highlights

- In all, 114 of our employees participated in the training program on Hydro-Québec and Indigenous people. ✔
- Under the *Apatisiiwin Agreement*, the company continues to employ 99 Crees ✔ (74 men ✔ and 25 women ✔) as power system electricians, mechanics, and telecommunications and automatic controls operators and technicians.
- A ceremony was held to rename the reservoir associated with Eastmain-1 dam and Eastmain-1-A generating station, which will now be called Paix des Braves reservoir in commemoration of the historic agreement signed on February 7, 2002, by the Québec government and the Grand Council of the Crees. To pay tribute to the late Bernard Landry, the structures were renamed Bernard-Landry dam and Bernard-Landry generating station. Watch the video (in French only) Ⓦ
- Hydro-Québec signed the Mashteuiatsh and Essipit agreements, which aim to reconcile the company's interests with those of the Mashteuiatsh and Essipit communities in connection with the project to build a transmission line between Micoua and Saguenay substations.
- A special agreement was signed with the Naskapi Nation of Kawawachikamach, Kativik Regional Government, Makivik Corporation and Québec government to support efforts to protect and preserve the Lac Cambrien area.
- A meeting was held with the Atikamekw community of Manawan to discuss water management and wildlife-related issues, including community concerns regarding lake trout and walleye.

GRI GRI 203-1, GRI 413-1

Integrated Enhancement Program

Hydro-Québec believes that its power transmission facilities (lines and substations) should blend harmoniously into their environments. It selects sites with great care and takes appropriate mitigation measures to keep the impacts of its facilities to a minimum. At the same time, it works with host communities to ensure its projects improve their quality of life and environment. Despite these considerable efforts, however, Hydro-Québec is aware that the presence of these facilities may have residual environmental impacts. For that reason, it created the Integrated Enhancement Program (IEP) in 1985 to improve the overall environment in communities where power lines and substations are built.

Through the Program, Hydro-Québec grants eligible organizations funding to enable them to carry out initiatives in which local residents have had a say. The funding consists of two amounts: a variable amount based on the distance (in kilometres) that the new line travels through their jurisdiction, and a lump sum based on the area occupied by the new substation. Eligible organizations are invited to propose integrated enhancement initiatives that meet the program's four general conditions.

2019 highlights

- A sum of $1.1 million was granted for 15 initiatives. ✔
- Since the IEP was introduced, $134.6 million has been disbursed for 1,331 initiatives.

Citizen involvement and the IEP

Since 2018, the IEP has given citizens a role in choosing and planning the initiatives that it funds. The borough of Rivière-des-Prairies–Pointe-aux-Trembles, however, didn't wait for the IEP's encouragement before springing into action. After receiving $328,000 from the IEP following the expansion of Bout-de-l'île substation, the borough teamed up with the Centre d'écologie urbaine de Montréal to give residents a say in selecting the best proposal. Through its Transformons nos parcs campaign, the borough gave citizens a wide variety of platforms for voicing their opinions: electronic voting, steering committees, information desks at retirement homes, etc. To encourage young people to take an interest in their well-being, anyone 12 or over was allowed to vote. The borough received more than 200 proposals, and over 650 people voted.

By the time this innovative and democratic process had successfully concluded, the choice had settled on Parc Ernest-Rouleau, which is expected to be built in 2020 and provide users with a universally accessible facility where they can relax and socialize on the shores of the Rivière des Prairies.

Funding and financial commitments – Integrated Enhancement Program

	2016	2017	2018	2019
Number of initiatives	25	27	22	15 ✔
Hydro-Québec funding ($'000)	3,001.2	4,231.0	3,349.5	1,075.6 ✔
Community funding ($'000)	9,809.9	23,641.7	8,437.8	508.8
Project value ($'000)	12,811.1	27,872.7	11,787.3	1,531.4

GRI GRI 203-1

Fondation Hydro-Québec pour l'environnementt

The Fondation Hydro-Québec pour l'environnement (FHQE) is a nonprofit organization founded in 2001 whose mission is to help Québec communities develop a sense of ownership of their environment, enjoy it responsibly and pass on this natural heritage to future generations. From 2001 to 2019, the FHQE provided funding for 297 projects in all of Québec's administrative regions.

In 2019, Hydro-Québec signed a partnership agreement with the Fondation de la faune du Québec (FFQ). The FFQ now administers contractual commitments on behalf of the FHQE and manages a new funding program fully subsidized by Hydro-Québec. The arrangement will streamline the funding application process for organizations that had previously applied to both foundations.

2019 highlights

- The FHQE provided $80,000 ✔ to the Nature Conservancy of Canada (NCC) to build wildlife crossings on Route 117 and reduce the risk of collisions with animals (Laurentides).

Land use and integration of new facilities in the community

Power grids are an integral part of land use and development practices. In our projects and regular operations alike, we consider land use planning initiatives such as master plans for water, development plans and plans for the use of public land. We review our practices regularly to ensure that our facilities, whether generating stations in remote regions or distribution systems in built-up areas, integrate harmoniously with current and future land uses.

We build close ties with communities across Québec to better understand their concerns and expectations. Every region, community and group has its own issues and priorities. We strive to find tailored solutions and develop mutually beneficial partnerships.

Public land use plan

Hydro-Québec's power generation and transmission infrastructure is sometimes built on public land. For every project, we carry out an environmental assessment that meets the legal requirements. As part of these studies, conducted before work gets under way, we inventory and analyze environments and sensitive elements that may be affected in order to avoid, reduce and mitigate the adverse impacts of our projects. To that end, we consult a range of information sources and take account of government policies set out in the public land use plans covering the regions in question.

Learn more

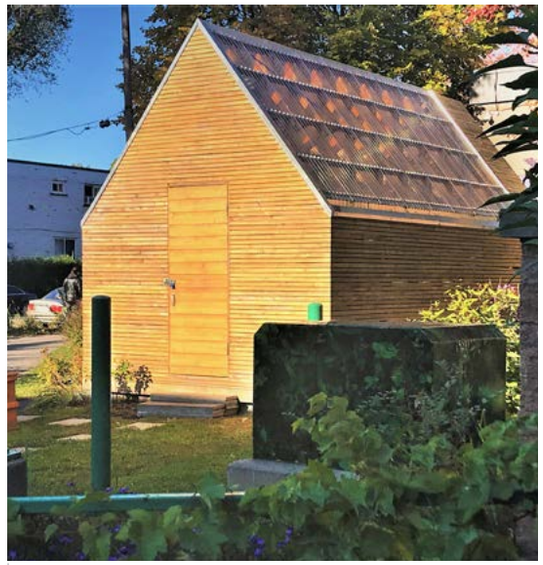
2019 highlights

› Hydro-Québec took part in the *Atlas social des paysages et des territoires : concepts, besoins, indicateurs et potentiels d'application pour le Québec* research project. Initiated by the Université de Montréal's Environmental Design Chair, the project involves developing an atlas to map landscape-related social concerns. We will provide $130,000 in project funding over three years.

› The company implemented a number of temporary safety measures to ensure snowmobiler safety, including a road escort service for the Route 138 bridge crossing. We also committed to building permanent snowmobile bridges over the Romaine and Aisley rivers, which no longer freeze up as they used to as a result of Romaine complex operations and milder weather.

A snowmobile bridge at Romaine-1.

› At the community's request, we dismantled a 1.4-km transmission line section and five towers between Donnacona and Cap-Santé, which had not been used since the Abitibi Bowater plant closed. Steps were taken to restore the land where the towers and lines had been located. (Capitale-Nationale)



The Harmonie project: Embellishing a pad-mounted transformer

As part of a pilot project, Hydro-Québec applied an adhesive decal sporting a foliage design on a transformer. Following through on a community initiative, the residents of the La Pépinière social housing complex in Montréal's Mercier-Ouest district took over an abandoned parking lot and launched the Harmonie project, which combines urban farming and corporate citizenship. For Hydro-Québec, embellishing electrical equipment is an environmental mitigation measure that could be implemented in a wide range of settings if the results are conclusive.

The Appalaches–Maine project: Adapting a line to its environment

Right from the start of our interconnection project with Maine, Hydro-Québec began developing a new type of tower ⊕ to reduce the width of the right-of-way that had to be purchased and cleared.

The proposed tower design makes it possible to position the conductors of the future 320-kV, direct-current line vertically rather than horizontally, reducing the width of the right-of-way to be cleared from 53 metres to 43 metres, a 10-metre gain.

The new design offers definite environmental advantages and demonstrates our commitment to reducing the environmental footprint of our line projects.

GRI GRI 403-2, EU25

Public health and safety

Hydro-Québec monitors its facilities and manages its operations with a view to reducing risks and nuisances while ensuring the public's safety. To that end, we inform the public about the hazards of electricity and the risk of drowning near hydropower generating facilities. Despite all the precautions taken, four deaths by electrocution occurred over the year, a fact we deeply regret.

We also study the potential human health risks inherent in our operations and take steps to mitigate them. For example, we know that reservoir impoundment temporarily increases fish mercury levels and that they return to normal after 10 to 35 years. We monitor this situation closely and issue fish consumption recommendations as needed.

2019 highlights

- Safety reminders were posted at six boat launches on the Rivière Péribonka, which has four generating stations. One of these stations, Péribonka, belongs to Hydro-Québec. This joint initiative reflects the safety concerns expressed by the municipality of Lamarche and a recreotourism business over sudden changes in river water levels. The MRCs in the area also produced an updated version of a guide to boating on the Rivière Péribonka (in French only).
(Saguenay–Lac-Saint-Jean)
- A discussion workshop on mercury was organized by the Romaine-Ekuanitshit technical and environmental committee (CTER-E). The workshop gave Hydro-Québec an opportunity to hear from participants on the communication tools under development (Côte-Nord).
- A map-based guide to the consumption of local fish and seafood from the Rivière Romaine region (in French only) was produced and distributed. A joint initiative of the Centre intégré de santé et de services sociaux de la Côte-Nord and the Mashtishnitshuap health center in Ekuanitshit, the guide focuses on the nutritional value of these food sources and their health benefits, in addition to providing useful information on mercury.
(Côte-Nord)
- The company launched public awareness campaigns to inform Quebecers about the dangers posed by distribution lines. The central message remained Keep everyone and everything at least 3 m away from a medium-voltage line. A total of 35 accidents occurred during the year, affecting mainly skilled workers like arborists and tree trimmers.

Hydro-Québec operations and human health

Electrical accidents – 2019

	Incidents	Deaths
Public – Hydro-Québec facilities	3	1
Public – Use of electricity	1	1
Skilled workers – Hydro-Québec facilities	23	2
Skilled workers – Use of electricity	2	0
Hydro-Québec employees	170	0
TOTAL	**199**	**4**

Of the four deaths by electrocution, one occurred during a copper theft at an electrical facility, two resulted from accidental contact with distribution lines during road transportation, and the last was caused by accidental contact with distribution line conductors during tree-pruning operations.

GRI GRI 102-7, GRI 102-9, GRI 201-1, GRI 203-2, GRI 204-1

Our socioeconomic contribution

75 years ago

From 1945 to 1959, Hydro-Québec continued construction of Beauharnois generating station and began work at its first remote site, on the Rivière Betsiamites (also known as Bersimis) in Québec's Côte-Nord region. Betsiamites provided the company with an opportunity to gain expertise and show it could transmit power over long distances at the unprecedented voltage level of 315 kV. Hydro-Québec also began construction of Carillon generating station on the lower portion of the Rivière des Outaouais (Ottawa River).

Hydro-Québec's operations support thousands of jobs and stimulate economic activity in many Québec regions. All together, they contribute roughly $20.4 billion to Québec's gross domestic product (GDP). However, GDP, an economic indicator that measures the creation of wealth, does not adequately quantify all the positive effects of sustainable development, such as the company's social engagement in the community.

Social economy enterprises

Social economy enterprises —cooperatives, non-profit organizations and mutual societies—are collective enterprises that sell goods or services while pursuing a social, cultural or environmental goal. They reinvest most of their profits in their social mission.

These enterprises operate in close to 20 sectors of the economy and are important to the development of Québec and its regions. One of their goals is to employ and ensure the social integration of individuals who are isolated from the labor market, including new immigrants and people with functional limitations.

Hydro-Québec awarded these enterprises contracts valued at $33,466,251, accounting for 1.1% of the total value of all contracts. Of Hydro-Québec's 7,718 suppliers, 36 are social economy enterprises.

2019 highlights

› In conjunction with Aéroports de Montréal and Ville de Montréal, Hydro-Québec developed a guide for purchasing goods and services from social economy enterprises. The project was coordinated by Espace de concertation sur les approvisionnements responsables (ECPAR), an association of which we are a founding member.

Value of contracts awarded to social economy enterprises, by goods and services category ⊕

Hydro-Québec's contribution to the Québec economy

	2016	2017	2018	2019
Dividend ($M)	2,146	2,135	2,394	2,192
Public utilities tax ($M)	284	284	298	299
Water-power royalties ($M)	667	695	699	714
Municipal and school taxes ($M)	40	38	39	40
Procurement from Québec-based companies (%)	94	92	91	92
Community investments ($M)	28	28	27	28

GRI GRI 102-9, GRI 201-1, GRI 204-1

Hydro-Québec employees get a taste of the social economy

Last fall, seven social economy enterprises offering catering services presented their products and services to roughly 170 employees at an event organized jointly with the Conseil d'économie sociale de l'île de Montréal. These enterprises provide support and training for marginalized individuals to help them enter the labor market. Beneficiaries include new immigrants, people with functional limitations and people who have dropped out of school.

Donations and sponsorships

In 2019, Hydro-Québec introduced a directive on social responsibility designed to maximize the impact of our donations and sponsorships on the community. We are now focusing our efforts on measurable social change that meets a real need, whether of an environmental, economic or community nature.

To determine the challenges to be addressed under the new directive, we took stock of our strengths and priorities along with Québec's social needs. We ultimately selected three main issues that support our strategic priorities and on which we can have a real impact: reducing GHG emissions, supporting the economic vitality of Québec's regions and fighting poverty.

2019 highlights

- We adopted a transition strategy to ensure that implementation of the new directive proceeds smoothly. We continue to honor our multiyear partnerships, while gradually decreasing our contributions to organizations that no longer meet the new guidelines.
- We assisted organizations receiving Hydro-Québec funding by providing tools designed to gauge their social impact. These tools will also provide us with data on the results of our activities and the extent to which we are achieving our goals. ✔
- We supported organizations in every region of the province. A total of 576 organizations received donations and sponsorships with a total value of $18.9 million. ✔

A mobile response unit of L'Anonyme, an organization that Hydro-Québec is proud to support.

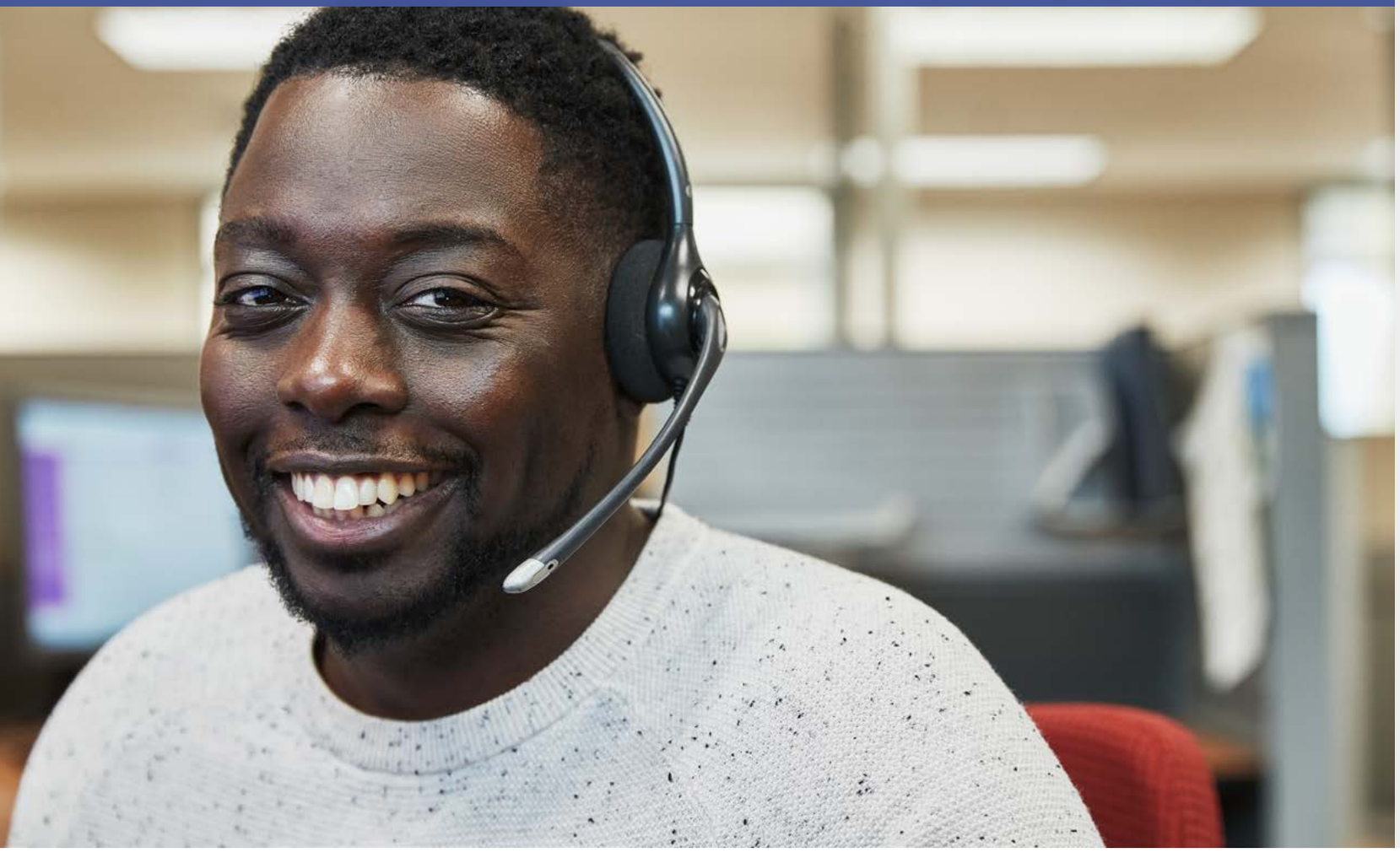
Indigenous-owned businesses

Indigenous communities have created a number of businesses that provide goods and services to Hydro-Québec. Found all across Québec, they also play a significant role in local procurement. The value of the contracts we awarded to Indigenous-owned businesses was $137.3 million, or 4.4% of the total value of all contracts.

GRI GRI 102-40, GRI 102-42,

Continuously improving customer satisfaction

In the midst of the energy transition, Hydro-Québec's relationships with its customers are evolving in step with the transformation of the power industry. Some of our customers are already doing much more than using electricity: they generate it, store it and can feed it into Hydro-Québec's grid. In this context, our focus on customers has become more important than ever. Continuous improvement of service quality helps keep customers loyal, as well as fostering employee engagement and pride. It enables us to achieve our goal of making Hydro-Québec a benchmark in customer service.



Benz Figaro, customer service agent at the Anjou customer relations center.

In this section

- Service reliability and continuity
- Vegetation control
- Customer services (expectations, satisfaction, complaints)
- Electricity prices
- Low-income households

Stakeholders

- Customers
- Nongovernmental organizations
- Government authorities
- Local and Indigenous communities
- Employees
- General public
- Suppliers
- Investors

GRI GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2, EU29

Materiality analysis aspects

Environmental

- Vegetation control

Economic

- Electricity prices
- Electricity supply

Social

- Universal access to service
- Customer service

Customer service

75 years ago

In 1944, Hydro-Québec had 290,457 residential customers, who paid an average of $19.09 per year for electricity use equivalent to $286.56 today. At the time, wood and oil were the primary fuels used for heating and hot water.

Hydro-Québec uses a variety of indicators to measure residential and business service quality. Call wait time and number of complaints and claims are key indicators. The 14 customer relations centers located across Québec field more than three million calls annually.

For over 25 years, we have been using surveys to determine our customer satisfaction index. Also, in compliance with the *Act respecting the Régie de l'énergie*, a complaints mechanism allows customers who feel they have been wronged to ask the Régie to review their complaint.

720 min/customer ✓

System average interruption duration index – Distribution system ⊕

94% ✓

Satisfaction with the company ⊕

GRI EU3

2019 highlights

- In 89% of simple service connections ⊕, the connection was completed within 10 business days (88% in 2018). ✔
- In 90% ✔ of cases where a commitment ⊕ was made to the customer about the lead time for a service connection, the connection was completed on the date first scheduled with the customer (88% in 2018).
- We carried out 86,398 multi-party service connections. ⊕. ✔
- A new complaints procedure was approved by the Régie de l'énergie, reducing the maximum time allotted for processing customer complaints from 60 days to 30 days. Information about the new procedure was sent out in an insert attached to the conditions of service to ensure optimal visibility and accessibility.

A customer-driven culture

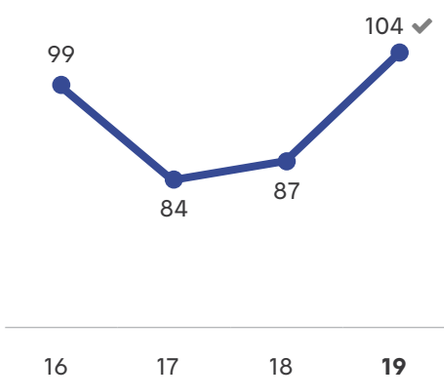
Hydro-Québec places its customers ⊕ and internal partners at the heart of its corporate culture. In concrete terms, our teams share their best practices to ensure that the customer's voice is a key driver of process improvement. Most employees are aware of how their work impacts customer satisfaction and know which behaviors promote a customer-driven culture.

2019 highlights

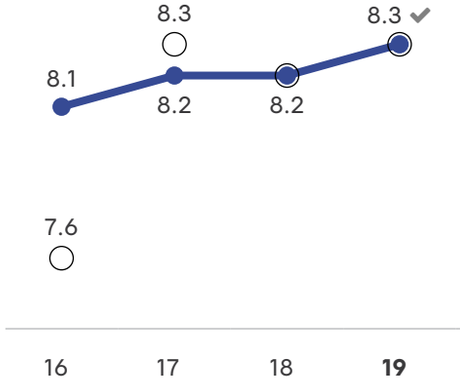
- Hydro-Québec entered the world of voice assistants. Customers can now use these devices to get answers to a variety of questions: what to do in case of a power outage, why rates vary from year to year, etc. Alexa users must first enable the Hydro-Québec skill in Alexa Skills, on Amazon.
- To meet the needs of real estate developers, we set up a single point of contact through which they can reach an advisor who will handle all their projects. The platform also connects developers with experts who can guide them in their energy and technology choices.

Electricity sales and number of customer accounts in Québec ⊕

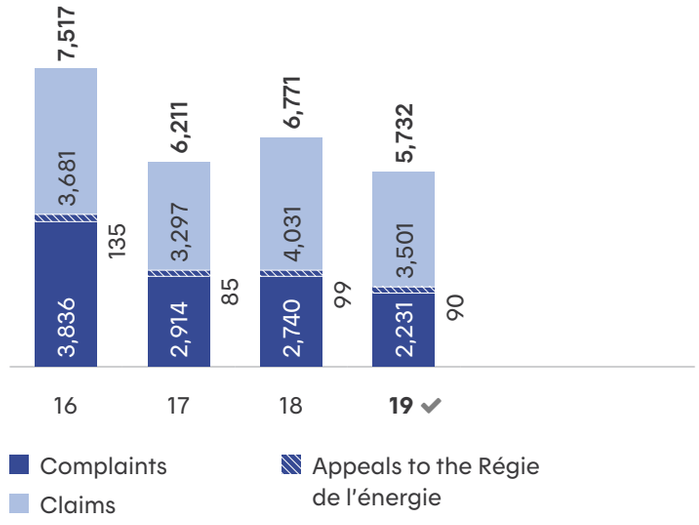
⊕ Average call wait time at customer relations centers (seconds)



⊕ Customer satisfaction – combined index (scale of 10)



⊕ Customer complaints and claims (number)



GRI GRI 102-13,

Reliability and continuity of electric service

75 years ago

One of the company's first technical challenges was to harmonize the systems of the different companies it acquired during the two phases of nationalization. For example, the Abitibi-Témiscamingue system, which supplied some 17,000 customers, had to be converted from 25 to 60 hertz. The conversion work began in 1964 and lasted until September 1965.

Recognized the world over for the reliability of its transmission system, Hydro-Québec spares no effort to stay at the forefront of the industry in this regard. Our grid is one of the most extensive in North America, with 34,802 km of lines and 534 substations. ✔

Throughout most of Québec, electricity is distributed by overhead lines on poles. The distribution system comprises over 118,522 km of lines, ✔ and 99% of its 2.5 million poles are made of wood.

Maintenance and asset sustainment

To ensure a reliable power supply for its customers, Hydro-Québec undertakes major maintenance and upgrading work every year on its transmission and distribution systems.

Every year, we perform over 200,000 maintenance tasks on the distribution system—over 90% of them while the lines are live, so customers do not lose service. However, in the interests of worker and public safety, sometimes service must be interrupted. Although these scheduled interruptions cause certain inconveniences, they help reduce the number and frequency of power outages.

2019 highlights

- Transmission system investments totaled $1.6 billion.
- Distribution system investments totaled $0.7 billion.
- Work to modernize the transmission and distribution grid control systems continued.

Hydro-Québec, a member of the North Atlantic Mutual Assistance Group

Hydro-Québec is a member of the North Atlantic Mutual Assistance Group (NAMAG) of power utilities that have agreed to help each other during major outages. In times of need, crews of Hydro-Québec line workers and logistical and technical personnel will take to the road in a convoy to lend a hand to their colleagues. NAMAG utilities represent more than 35 million customers spread out across 13 states, 4 provinces and 1 district.

Similar assistance groups also exist within Québec (Hydro-Sherbrooke, Hydro-Joliette) and Canada (Hydro One, Hydro Ottawa, NB Power).

Assistance provided and received under NAMAG in 2019

Line crew repairing the damage caused by freezing rain in April 2019.

Large-scale mobilization

2019 fall storm

At the height of the fall storm, some 990,000 Hydro-Québec customers were without power. To deal with the aftermath of the violent winds that swept through the province, we mobilized nearly 1,400 employees, who were supported by colleagues from Detroit and Ontario. Our customer relations centers fielded 56,500 calls and we handled 6,000 media requests. Power was restored to close to 90% of affected customers within 51 hours.

April 2019 freezing rain event

We dispatched 550 crews, including 385 transmission system crews and private contractor teams. We were assisted by Hydro-Sherbrooke, Hydro-Joliette, private contractors from Québec and New Brunswick, and by Vermont utility Green Mountain Power. At the height of the event, nearly 316,000 Québec customers were without power, mainly in the Laurentides, Laval, Lanaudière, Montréal and Montérégie areas.

Understanding power outages (W)

Why control vegetation near power lines? (W)

Service continuity

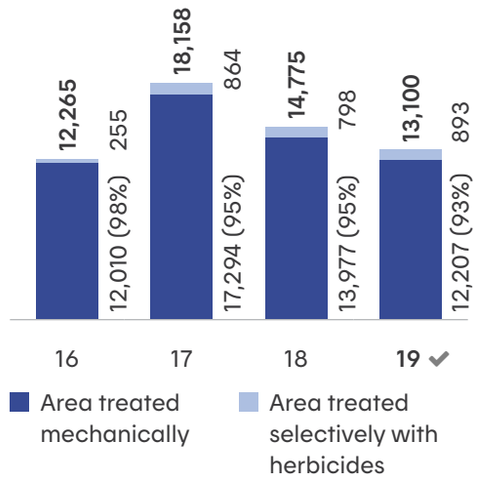
To measure the quality of electricity service, Hydro-Québec uses the system average interruption duration index (SAIDI), which reflects the average service interruption time per customer over the course of a year. Some scheduled interruptions are required for system maintenance; unscheduled outages are caused by bad weather, invasive vegetation (approximately 40% of outages) or equipment failure.

A variety of activities are carried out to ensure a reliable power supply, including programs to control vegetation on transmission and distribution line rights-of-way.

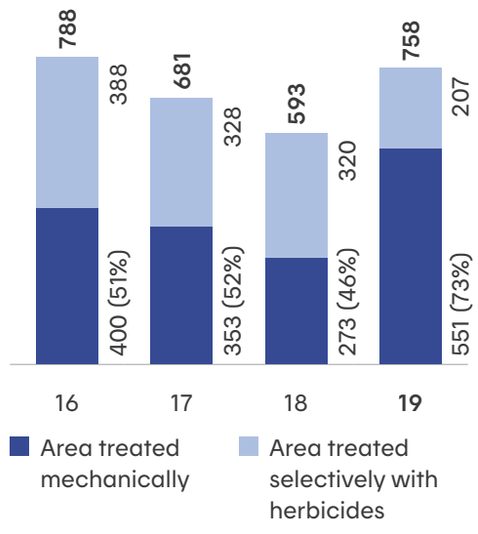
2019 highlights

› Clearance around medium-voltage lines was maintained through pruning (145,000 spans), clearing (37,000 spans) and felling (63,000 trees). No herbicides were used to control vegetation along the distribution system.

Vegetation control along transmission lines (ha)



Vegetation control on dikes and dams (ha)



GRI GRI 102-13

› We undertook significant vegetation control work—to be continued for several years—in the municipality of Potton, which had experienced a high number of power outages caused by strong winds. (Estrie)

› Over 600 insulators were replaced on the system connecting Cap-à-l'Aigle and Baie-Sainte-Catherine, in the MRC of Charlevoix-Est, following complaints about frequent outages. Most of the outages were due to the poor-quality insulators installed in the early 1990s. (Capitale-Nationale)

Grid security and cybersecurity

A hot media topic in 2019, cybercrime is much more than the theft of personal information. It can involve attacks on operational technologies, cause damage to physical assets and even endanger human lives. Hydro-Québec takes this threat seriously and monitors its system continually.

2019 highlights

› The company's emergency procedures were mobilized in response to three adverse weather events: the April ice storm, the spring floods and the violent winds on November 1.

› We unveiled a proactive approach in the area of prevention and security, and held a lunchtime presentation titled *Bâtir un avenir sécuritaire… dès maintenant !*

› We took part in the cyber-security awareness month, organizing several activities: videos, podcasts about phishing at work, awareness-raising workshops and visits to the monitoring center, promotion of best practices, and the lunchtime presentation *Moi@Hydro, j'agis en pro*.

Security activities at Hydro-Québec

Corporate – Office liaising with organizations that have investigative mandates; personal reliability and integrity background checks in line with our corporate standard; management of the company's emergency plan; implementation of a security audit program; awareness-raising initiatives; security culture.

ICT – Consulting services, for example to ensure ICT projects meet security requirements; IT access and identity management; systems vulnerability monitoring; incident management; implementation of security control points.

Physical security – Consulting services; investigations; management of physical access privileges; inspections, audits and security notices on fire prevention and emergency measures plans; securing of critical facilities; monitoring, guarding and patrolling of facilities.

Hydro-Québec takes part in GridEx V, the North American grid security exercise

GridEx, a simulation of physical and cyber attacks, is organized by the North American Electric Reliability Corporation (NERC) with the aim of improving the security, resilience and reliability of critical electric infrastructure. A team of 25 Hydro-Québec employees was involved in the year-long planning of the exercise, and some 225 employees participated in the simulation, which activated over 25 emergency centers. Across North America, approximately 7,000 people from 527 organizations took part in the exercise. Representatives of Sûreté du Québec and the Ministère de la Sécurité publique were also among GridEx V participants, testing out Québec's civil security plan.

Rates and electricity use

75 years ago

In 1944, the rate structure consisted of four rates: residential service, commercial service, pool and demand rates, and three-phase motive power service with secondary voltage. Today's rate structure has over 20 different rates.

Hydro-Québec is required to charge the same electricity rates throughout Québec, except in the region north of the 53rd parallel (apart from Schefferville). Rates are based on the consumption profile of the different customer categories.

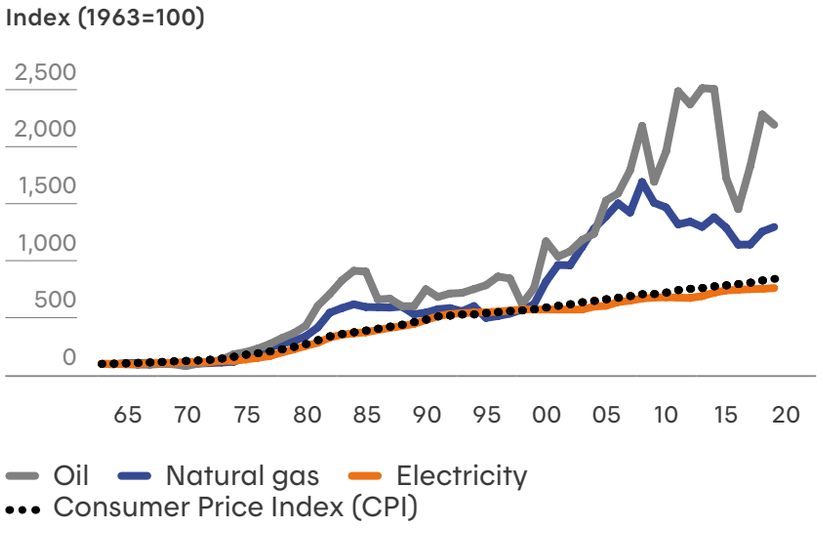
Electricity prices

Thanks to the low-cost heritage pool of electricity ⊕, Québec's residential rates are the lowest in North America. Residential customers in Québec paid 7.30¢/kWh for electricity in 2019, a rate that includes generation, transmission and distribution costs. By comparison, the residential rate in Toronto was 13.89¢/kWh, in New York City it was 30.56¢/kWh, and in Boston, 33.37¢/kWh.

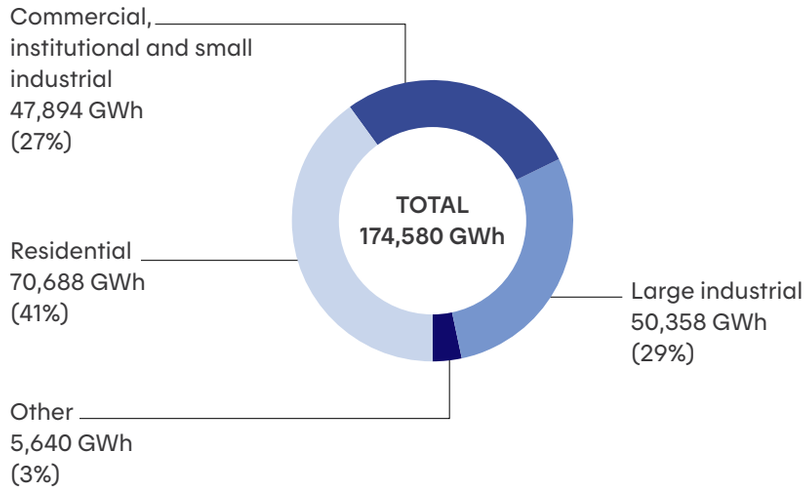
While electricity is inexpensive in Québec, it still represents a significant outlay for some households. For many years, Hydro-Québec has been making it easier for low-income households to stay on top of their electricity bills. For example, we've modified our collection procedures and energy efficiency initiatives to fit their situation.

Comparison of electricity prices in major North American cities Ⓦ

Inflation and energy prices in Québec – 1963–2019 ⊕



Electricity sales in Québec by segment – 2019 ✔



2019 highlights

- The rate increase in 2019 was 0.9% for all customers, except industrial and large power (Rate L) customers, whose rates were increased by 0.3%.
- Payment arrangements were signed with residential customers to facilitate settlement of 378,836 cases ✔ representing $698.4 million gross.
- A total of 94,924 payment arrangements ✔ covering $398.5 million gross were reached with low-income customers; 50,585 of the agreements, ✔ amounting to $125 million, provide assistance with payment of arrears and, if necessary, partial payment for current electricity use.
- 156 employees ✔ attended the workshop on doing business in a context of poverty to learn about collecting from low-income customers who are having difficulty making payments. We have offered this workshop since 2003.
- Two new dynamic pricing rates are gradually being rolled out for residential and small business customers.
- A winter credit option is now being offered to customers who reduce their electricity use during peak periods.

Cross-subsidization index per customer category – 2019

Customer category	Cross-subsidization index
Residential	86.9
G (small power customers, such as convenience stores or hair salons)	119.4
M (medium-power customers, such as SMEs, small industrial companies and shopping centers)	127.5
LG (large-power customers not engaged in an industrial activity, such as hospitals, universities and office buildings)	101.7
L (large-power customers engaged in an industrial activity)	104.6

An index value below 100 indicates that the customer pays less than the cost of service. An index value above 100 means the customer is charged more than the cost of service and thus helps to offset the shortfall from another category.

Cross-subsidization

In Québec, the idea behind cross-subsidization is to offer residential customers affordable rates. Cross-subsidization consists in charging one or more customer categories higher rates than the allocated service cost in order to be able to offer lower rates to one or more other customer categories. Residential customers benefit from cross-subsidization, paying only about 87% of the service cost. The difference in service cost is covered by the other rate categories.

An Act to simplify the process for establishing electricity distribution rates

Passed by the Québec government in December 2019, this act provides for a total of $535 million, from variance accounts required under the previous rate system, to be rapidly shared among customers who were Hydro-Québec account holders in 2018 or 2019, the two years when the amount was accumulated in the company's variance accounts.

All eligible people and businesses will receive a credit, which will be applied to their bill. For people or businesses that are no longer Hydro-Québec customers, their credit will be applied to any amount due, after which they will receive the remainder by cheque, where applicable.

GRI GRI 102-40, GRI 102-42

Preserving the environment and adapting to climate change

The Intergovernmental Panel on Climate Change (IPCC) has reiterated that some of the impacts of climate change are irreversible, and that unprecedented radical measures must be taken to limit global warming to 1.5°C compared to pre-industrial levels.

In addition to reducing GHG emissions from its operations as much as possible, Hydro-Québec strives to preserve biodiversity and make managing environmental impacts an integral part of its business processes. Its environmental management system, which is ISO 14001:2015-compliant, ensures that the company adopts and maintains sound environmental practices.

Damage caused by the April 2019 ice storm in one of Laval's residential neighborhoods.

In this section

Stakeholders

- Customers
- Government authorities
- Local and Indigenous communities
- Investors
- Educational institutions
- Nongovernmental organizations
- General public
- Suppliers
- Employees

GRI GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2, GRI 305-1, GRI 305-2, GRI 305-3, GRI 305-4, GRI 305-5

Materiality analysis aspects

Environmental

- Atmospheric emissions and impact of climate change
- Biodiversity management
- Environmentally responsible management practices

GHG

90% ✓

Reduction in GHG emissions since 1990 ⊕

6,880,394 t CO_2 eq. ✓

Emissions avoided thanks to net electricity exports ⊕

Electrifying Québec and being a leader of the energy transition

The global energy transition under way is bringing about profound transformations in the power industry, which Hydro-Québec is poised to meet proactively.

Despite its environmental benefits, electricity represented only 35% of all the energy consumed in Québec in 2018, while petroleum products accounted for 42%, and natural gas, 15%. We plan to roll out strategies and initiatives to increase the electrification of certain sectors in order to decarbonize Québec and northeastern North America.

This approach is directly in line with the first of the four main goals in our *Strategic Plan 2020–2024*, namely to contribute to the reduction of GHG emissions in all our markets. To achieve this goal, we are counting on the following strategies:

- Increase our exports to support the decarbonization of northeastern North America.
- Stimulate the development of electric transportation.
- Convert systems powered by fossil fuels to electricity.
- Convert off-grid systems to cleaner, less expensive energy sources.

On a global scale, electricity generation is responsible for one-third of GHG emissions. In Canada, it represents only 10% of emissions, and in Québec, less than 1%. Since 2005, GHG emissions attributable to electricity generation and heating in Canada have decreased by 37%, following the partial replacement of coal and oil with hydraulic, nuclear or wind power. As for Québec, it owes its outstanding performance to the predominance of hydroelectricity in its energy mix. In addition,

GRI GRI 201-2, GRI 305-1, GRI 417-1

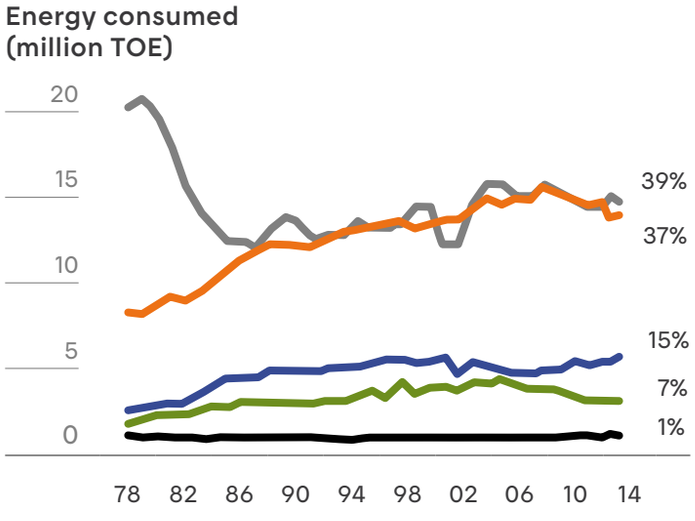
the GHG emissions avoided thanks to Hydro-Québec's electricity exports are greater than the emissions generated by the company's activities.

By providing its customers with energy that is over 99% clean and renewable, Hydro-Québec is helping to preserve air quality and reduce the emissions responsible for climate change. However, some of the company's operations produce atmospheric contaminants or GHG emissions, for which mitigation measures are implemented.

2019 highlights

- Emissions avoided by net exports of electricity totaled 6,880,394 t CO_2 eq. ✔ (7,901,691 t CO_2 eq. in 2018). These avoided emissions are equivalent to a year's exhaust from 1.74 million vehicles and were 18 times greater than the company's direct emissions for the same period.
- Atmospheric emissions from electricity generation and purchases in Québec were significantly lower than the average for other Canadian provinces and neighboring U.S. states: 473 t CO_2/TWh (323 times less), 1.4 t SO_2/TWh (282 times less) and 7.9 t NO_x/TWh (253 times less). ✔
- Every year, Hydro-Québec updates a fact sheet, Electricity Supply and Air Emissions, which industrial customers can use to calculate their carbon balance.
- GHG emissions from Hydro-Québec's light-vehicle fleet have decreased by 29.3% compared with 2009, and by 4.1% compared with 2018 (21,215 t CO_2 eq.). ✔
- We participated in the work carried out by the Québec government for its Electrification and Climate Change Plan (ECCP).

Trends in the consumption of different forms of energy in Québec (1978–2014)



Sources: Ministère de l'Énergie et des Ressources naturelles du Québec and Statistics Canada

Most up-to-date data available at the time of publication of this report

Carbon neutral by 2030

For many years now, Hydro-Québec has been reducing the GHG emissions linked to its operations. We are working to decrease the environmental impact of employee travel and to electrify our vehicle fleet. In the coming years, we will continue to invest significant efforts to lower our GHG emissions through initiatives such as converting the power supply of our many off-grid systems to cleaner energy.

Among the commitments undertaken in our *Sustainable Development Plan 2020–2024*, we will be working toward decarbonizing all our business activities and markets. More specifically, we aim to be carbon neutral by 2030.

GRI GRI 201-2, GRI 305-1, GRI 305-5, GRI 305-7, EU5

Study on changes in ice cover along the eastern coast of Baie James

We published a scientific article on changes in ice cover along the eastern coast of Baie James (James Bay). The study highlighted recent changes in the ice cover and developed projections for a period of over 30 years to assess the impact on the lifestyle and land use habits of local communities. It predicts that, around 2050, the ice cover will have receded by several kilometres, freeze-up dates will be delayed by one to three weeks, and breakup will start between two and ten days earlier than in the period from 2018 to 2016.

Carbon market

Québec and California are partners in the Western Climate Initiative's carbon market. ⊕ Under Québec's cap-and-trade (C&T) system for GHG emission allowances, organizations, such as Hydro-Québec, that emit more than 25 kt CO_2 eq. annually must offset their emissions in accordance with set terms and conditions.

Hydro-Québec is subject to the C&T system for the following three emission sources:

- The oil-fired thermal generating station on the Îles-de-la-Madeleine.
- Electricity purchased outside Québec, mainly from thermal sources.
- Losses of insulating gases (SF_6 and CF_4) from certain transmission and distribution facilities.

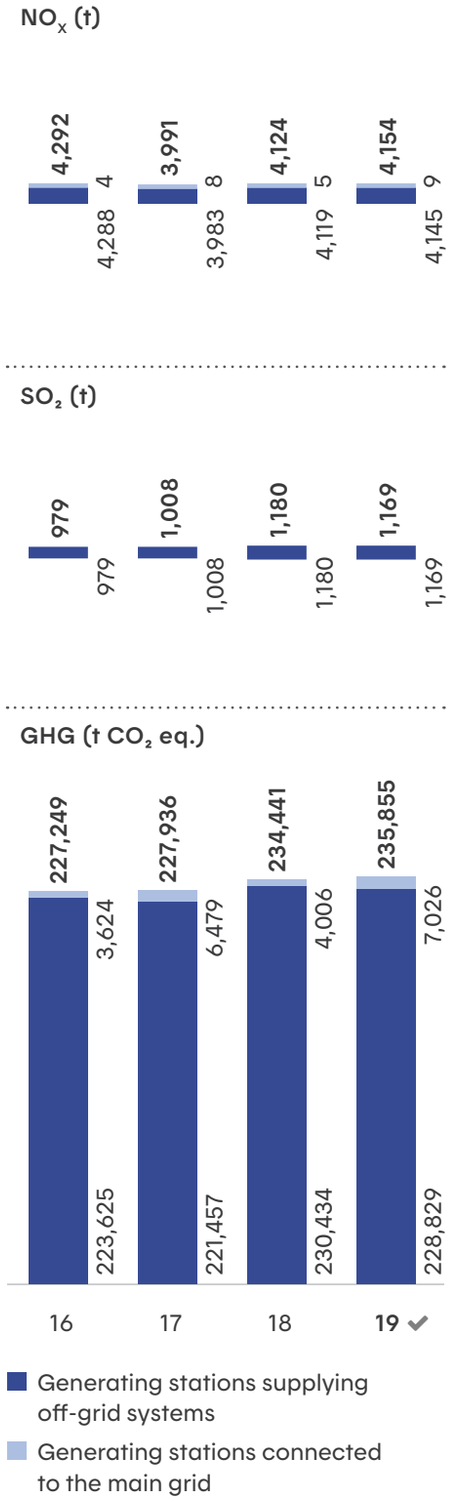
To date, the carbon market has generated over $3.8 billion in revenue for Québec—a sum earmarked to support the province's companies, municipalities, institutions and citizens in transitioning toward a lower-carbon future.

Main sources of GHG emissions in Québec, Canada and the world ⊕

Energy consumption in Québec by sector – 2017 ⊕

2050 greenhouse gas emission-reduction targets – Export markets ⊕

⊕ Atmospheric emissions from Hydro-Québec thermal generation operations



GRI GRI 305-1, GRI 305-2, GRI 305-3, GRI 305-4, GRI 305-5, GRI 417-1

GHG emissions from Hydro-Québec operations – 2019 (t CO_2 eq.)

Category	Operations	2019
Direct sources (scope 1)		
Generating stations	Thermal power plants	235,855
Mobile sources	Vehicle fleet	50,131
	Hydro-Québec aircraft fleet	12,941
	Utility vehicles (e.g., snowmobiles, tractors, snowblowers)	1,068
	Propane-fueled lift trucks	88
Fuel use	System maintenance generators	14,656
	Emergency and jobsite generators	554
	Building heating	1,118
Other uses	Equipment containing CF_4 and SF_6	38,786
	Aerosols	258
	Equipment containing HFCs	459
	Synchronous compensators	24
Indirect sources (scope 2)		
Energy losses	Power transmission and distribution system losses	6,742
Indirect sources (scope 3)		
	Electricity purchases	91,254
	Business travel – employee personal vehicles	5,153
	Vehicles leased long-term	2,134
	Business travel – trains	15
	Business travel – commercial airlines	1,743
	Helicopters	5,079
	Chartered airplanes	4,796
	Life cycle of fuel	52,639
Total emissions		
	Direct sources (scope 1)	**355,939**
	Indirect sources (scope 2)	**6,742**
	Indirect sources (scope 3)	**162,813**
	Direct and indirect sources	**525,494**
EMISSIONS AVOIDED (net exports of electricity)		**6,880,394**

GHG emissions from Hydro-Québec operations account for 0.7% of Québec emissions.

Overall total and sum of subtotals may differ due to rounding.

Compare years 2016 to 2019

Bucket truck sporting Hydro-Québec's new signature.

Exclusive web content

- GHG emissions and Hydro-Québec electricity
- GHG emissions and reservoirs
- Life cycle assessment

GRI GRI 102-11, GRI 102-13, GRI 201-2

Adaptation to climate change

Hydropower generation is dependent on weather conditions. Whether dealing with violent winds, tornadoes, freezing rain or heavy precipitation, Hydro-Québec is increasingly feeling the effects of climate change and extreme phenomena on its operations and infrastructure.

To address these impacts, we have been working with the Ouranos consortium for the past 18 years. This collaboration provides us with key knowledge for instituting adaptive measures, such as modifications to equipment design.

After identifying climate change as a business risk in 2018, we have decided to implement an adaptation approach, in line with the main priorities of our Strategic Plan and Sustainable Development Plan for the 2020–2024 period.

2019 highlights

- We set up working groups with representatives of all the business units that will be involved in the company's climate change adaptation approach. The goal of these groups is to produce an initial action plan, identifying the most vulnerable elements, the risks and opportunities, and the best adaptation measures. Mechanisms will then be implemented to integrate climate risk into our decision-making processes.
- We launched a preliminary version of a climate atlas presenting the indicators of interest to Hydro-Québec. In the final version of this tool, business units will be able to draw up lists of the vulnerabilities of their assets and operations. A series of climatic indicators identified by Ouranos will be directly integrated into Hydro-Québec's geographic information system. Two climatic variables were selected for the preliminary version: temperature and precipitation.

Segment of the 735-kV Micoua–Saguenay line.

Integrating climate change adaptation measures into the Micoua–Saguenay and Appalaches–Maine line projects

The impacts of climate change on these two high-voltage lines could include:

- an increase in the frequency of freezing rain and in the thickness of the accumulation
- an increase in the frequency of storms, tornadoes and forest fires

Details on anticipated effects and solutions considered

GRI GRI 102-11, GRI 201-2

Health impacts of climate change

The environmental impacts of climate change are becoming increasingly well known. But what about the impacts on human health?

At Hydro-Québec, we are keeping a close watch on any developments related to impacts on worker health and safety and public safety, so that we can quickly adjust our field practices as necessary.

Details on anticipated effects and solutions considered

Eastmain–Sarcelle–Rupert complex.

Ground-wire repair on the Saguenay–Jacques-Cartier line.

Optimizing reservoir management through improved evapotranspiration models

To predict the impact of climate change on the hydrological regime, hydrologists rely on hydrometeorological tools. The evapotranspiration formula is a key element of hydrological modeling because it integrates the water cycle's terrestrial and atmospheric components. It represents the combination of two natural processes by which water moves into the atmosphere: evaporation of water from the earth's surface, and transpiration from plants. However, the concept of potential evapotranspiration is the weakness of hydrological models, due to its lack of robustness in contrasting climates.

Finalized in the fall, a project conducted by Ouranos with Hydro-Québec's participation led to the development of more physical approaches for calculating evapotranspiration in hydrological models. These approaches will offer increased accuracy in predicting the impacts of climate change on hydrological regimes.

By improving the management of water levels in reservoirs, modeling results based on these approaches will optimize power plant generation. In the longer term, these results will be used to analyze the effects of climate change on inflows into reservoirs and adapt the design of future hydraulic structures.

Biodiversity

Loss of biodiversity is a major global issue. It is estimated that the current rate of species extinction is 1,000 times higher than the average rate observed throughout history. Human activity is largely responsible for this situation, with overexploitation, habitat destruction, climate change and pollution as the main culprits. More than ever, biodiversity protection must be prioritized to avoid the destruction of a plant and wildlife heritage millions of years in the making.

In addition to preserving biodiversity in all its activities, Hydro-Québec works to protect species at risk and a range of ecosystems. We ensure that the environments we develop are comparable to the surrounding natural environments in matters related to species biodiversity and biological productivity.

Despite these efforts, some of our activities can lead to the proliferation of invasive animal and plant species and pathogens. Once established, these species can affect biodiversity and be detrimental to farming and forestry. Our activities related to construction, operations and vegetation control can propagate these harmful species. To mitigate these impacts, we implement various measures that help preserve biodiversity.

Drones used in environmental surveys

To update its knowledge about the natural environment surrounding its hydroelectric facilities, Hydro-Québec is conducting a series of surveys in the area where the Fleuve Saint-Laurent spillways are located. One of the elements studied was the use of the area by turtles.

Based on the protocol of the Ministère des Forêts, de la Faune et des Parcs, surveys need to be carried out by boat. However, due to a combination of high spring water levels and our health and safety regulations, we were unable to follow this instruction. Instead, we sent out drones equipped with photographic and video cameras. Through this approach, we were able to identify nearly 200 turtles and determine the environment's sensitive areas. The experience confirmed that drone use increases the number and accuracy of observations, in addition to facilitating access to hard-to-reach sites and providing a georeferenced visual archive.

GRI GRI 102-11, GRI 102-13, GRI 304-1

Network of protected areas

In 2015, the Québec government reiterated its intention to protect 17% of its territory by 2020, as laid out in the Nagoya Protocol. As at December 31, 2019, Québec's network of protected areas covered 167,395 km², representing 10.03% of the province's area.

Hydro-Québec works closely with the government to harmonize the creation of new protected areas with energy development in Québec. At the end of the year, we were operating in 2,609 km² of protected or sensitive areas as well as in 1,664 km² of adjacent areas (within 500 m of a protected area).

2019 highlights

- During the dismantling of a transmission line in the municipality of New Richmond, we moved an osprey nest found on one of the H-frames to the Bioparc de Bonaventure, where the nest is now being used to educate visitors about osprey, their habits and their nest-building technique. Nests were also removed from Coteau-3 and Île-Juillet-2 dams to ensure that they do not interfere with the proper functioning of the facilities.
- We helped protect 16 endangered wildlife species in Québec by participating in the work of seven recovery teams coordinated by the Ministère des Forêts, de la Faune et des Parcs.
- After having to fell a number of ash trees infected with emerald ash borer, we set up 14 testing sites to assess different approaches for increasing biodiversity in urban trees. We are exploring strategies to promote the coexistence of medium and large trees alongside the power system, in order to allow cities to maintain a significant green canopy.
- We published an article on biodiversity in line rights-of-way (in French only), discussing native pollinators and their use of grassy or shrubby brushland, an environment whose ecological functions are often underestimated.
- We produced a leaflet on transmission line rights-of-way and native pollinators, which includes a list of recommended plant species considered good sources of pollen and nectar.
- As part of our collaboration with the Chaire de recherche sur la croissance des arbres (UQAM), we worked on developing protocols related to different approaches for increasing the functional biodiversity of trees planted by municipalities, with a focus on an experimental protocol for trees under power systems.
- We completed a research program on migratory birds in transmission line rights-of-way that was initiated in 2014. In total, 43 species were inventoried in the

Special protective measures for the western chorus frog

Special measures were integrated into the project to rebuild the 120-kV lines between Vignan, Templeton and Interconnexion-Maclaren substations. The environmental surveys carried out in the draft-design phase confirmed the presence of the western chorus frog—a vulnerable species—in the right-of-way to be rebuilt. To protect these frogs, exclusion fencing was installed in the spring, when the species uses breeding ponds, to prevent them from venturing into the work area. Work areas will also be seeded and restored to their original condition once the work is completed.

GRI GRI 102-11, GRI 413-1

rights-of-way of southern Québec. The study showed that the number of breeding pairs is primarily influenced by the hardwood tree cover, the height of shrubby vegetation, the number of habitats and the bioclimatic domain.

› We completed another study begun in 2014 examining the impact of vegetation control on the ecological functions of wetlands. Overall, the study's results indicate that the ecological functions of wetlands are not compromised by the presence of a transmission line or by the activities related to its operation.

Connecting the Îles-de-la-Madeleine: Start of surveys

By 2025, the Îles-de-la-Madeleine will be supplied by clean energy via underwater and underground cables from Percé substation in Gaspésie. The existing thermal power plant will be kept as a backup facility for use during equipment maintenance or outages.

In 2018, to gain a better understanding of local fishing activity, we invited fishermen to provide input at meetings and by means of an online interactive map. In spring 2019, we carried out a series of geophysical and hydrographic surveys between the Gaspé peninsula and the islands to learn more about the seabed and any constraints to the installation of underwater cables. Because of the underwater noise emitted by some of the survey devices, we monitored for the presence of marine mammals and implemented mitigation measures to avoid disturbing them. Special attention was paid to right whales and blue whales, two endangered species. No right whales were observed during the surveys. Three blue whales were seen but they were far enough from the boat that there was no need to interrupt the surveys. The other special status species observed were a few fin whales and one porpoise. The most abundant marine mammal observed in the study area was the minke whale.

Biosecurity action plan

When it comes to biosecurity, Hydro-Québec believes in implementing an approach that is adapted, consistent and integrated for all its operations. We have developed an action plan aimed specifically at non-native invasive plant species and pests.

We are committed to managing these organisms early and effectively, and to ensuring that our activities, particularly our vegetation control operations, do not facilitate their spread. We are actively involved in discussions with the organizations in charge of developing political, legislative and regulatory policies related to biosecurity. We prioritize preventive over corrective measures, and are motivated to lead by example through our proactive approach to biosecurity.

Consult our action plan's strategies

GRI GRI 102-12,

Environmental management

Managing the environmental impacts of our operations is an integral part of our business processes. We monitor and carry out environmental follow-ups on our projects under development and facilities in operation. We also integrate environmental and social criteria into our processes for procuring goods and services. These measures aim to reduce negative environmental impacts, increase social spinoffs and enhance the economic viability of our suppliers. Since the late 1990s, all our operations that could have an impact on the environment are governed by ISO 14001-compliant environmental management.

2019 highlights

- In 2019, 2,430 employees took part in at least one training activity related to the environment ✔ (2,267 participants in 2018).
- The Romaine-4 jobsite obtained Performance level certification from Recyc-Québec's ICI on recycle + program. The certification reflects Hydro-Québec's excellent practices on this jobsite: disposable dishes were eliminated from the jobsite office; composting bins were added to the cafeteria; and recycling is available for wood, iron, cardboard and cans.
- We took part in an expertise-sharing meeting organized by NB Power, in collaboration with the Canadian River Institute and the University of New Brunswick, as part of the project to refurbish the Mactaquac hydroelectric generating station. We presented our expertise on mercury and GHGs, and discussed our research and how we use it to respond to concrete hydropower industry challenges.
- The decommissioning of Gentilly-2 nuclear generating station continued: 4,800 spent fuel bundles were moved to the dry storage areas. We initiated a project to reduce the total volume of low-level radioactive waste, in compliance with applicable regulations.
- Archeological digs were carried out in preparation for the rebuilding of a salmon trap at the site of Mitis-2 dam, on the Rivière Mitis. Five stonemasonry structures, which are the foundations of an old flour mill, were found. Based on a collection of artifacts, we were able to determine that the site has been inhabited since approximately 1850–1851.

Archeological site at Rapides-des-Cœurs.

Exclusive web content

- Declaration of ISO 14001 environmental principles

GRI GRI 102-11, GRI 413-2

Planning for the climate of the future and its possible impacts on electrical substations

The transmission system includes hundreds of transformers containing significant quantities of insulating oil. In the event of a leak, the oil is caught and held in a containment basin. From there, it moves to an oil-water separator. When it rains, these spills are leached out and the oil is then recovered through gravity. Accurately estimating extreme precipitation at a given site is therefore very important for designing and optimizing substations. Our estimates are based on Environment Canada's intensity-duration-frequency (IDF) curves for extreme precipitation, which are generated at various weather stations.

One of IREQ's research projects aims to refine these estimates through climatology. The new technique will be used starting in June 2020.

Landscape of the Côte-Nord highlands. The 735-kV Micoua–Saguenay line will run through forest for 88% of its length.

735-kV Micoua–Saguenay line

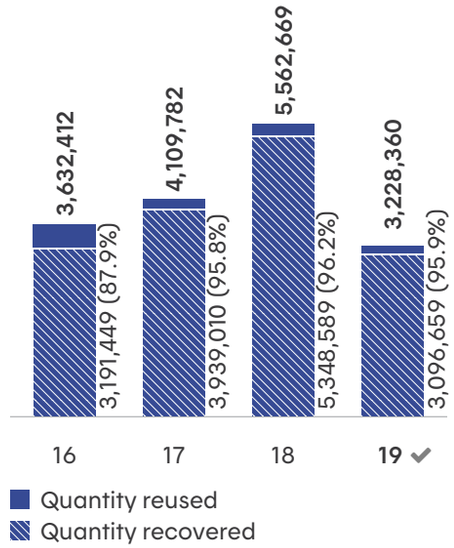
To mitigate the impacts linked to the construction and presence of the line, we have implemented a number of measures and a follow-up program. Below are some examples of these initiatives:

- Innu land use – Landscape – Archeology
- Controlled harvesting zone (ZEC) – Resident relocation
- Forest-dwelling woodland caribou – Bicknell's thrush – Barrow's goldeneye
- Wetlands and aquatic environments

Hydro-Québec has also undertaken to implement a variety of measures to promote regional economic spinoffs from the project, which should represent between 15% and 20% of the value of clearing and construction contracts. Agreements to maximize the project's economic spinoffs have been signed with two Indigenous communities. Further spinoffs will be provided through the Integrated Enhancement Program.

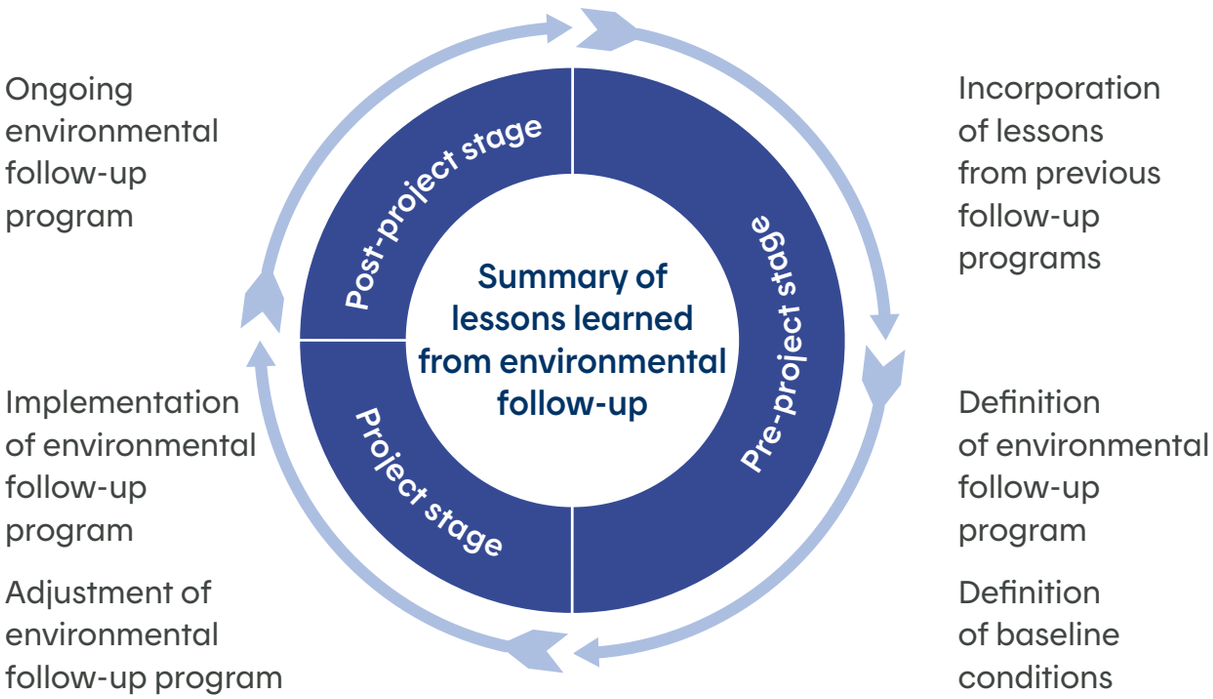
Project fact sheet

Recovery and reuse of insulating oil (litres)



GRI GRI 304-1

Environmental follow-up on facilities in operation



Examples of environmental follow-ups completed

Péribonka hydroelectric development (Saguenay–Lac-Saint-Jean)

Partial diversion of the Rivière Manouane (Saguenay–Lac-Saint-Jean)

Chute-Allard and Rapides-des-Cœurs hydroelectric developments (Mauricie)

Duration of environmental follow-ups

Facility	Region	Commissioned	End of follow-up	Duration of follow-up[a] (years)
Romaine-1	Côte-Nord	2015	2040	31
Romaine-2	Côte-Nord	2014	2040	31
Romaine-3	Côte-Nord	2017	2040	31
Chute-Allard	Mauricie	2008–2009	2019	13
Rapides-des-Cœurs	Mauricie	2008–2009	2019	13
Eastmain-Sarcelle-Rupert	Nord-du-Québec	2011–2012	2023	16

a) Environmental follow-up may begin as soon as the project is launched.

Review of the Grand-Brûlé–Saint-Sauveur line project

After receiving non-compliance notices from the Ministère de l'Environnement et de la Lutte contre les changements climatiques (MELCC), we implemented a number of measures, along with an erosion control and sediment management plan. The line was commissioned in May 2019 and the environmental follow-up will continue into 2020.

GRI GRI 102-40, GRI 102-42

Balancing electricity supply and demand

Electricity demand fluctuates considerably based on the time of day and year. To meet this demand, Hydro-Québec needs to be able to adjust generation in real time, since electricity generated must be used immediately. During periods of low demand, hydraulic energy is stored in the form of water held in large reservoirs, from where it can quickly be drawn to generate electricity during peak periods.

In this section

Stakeholders

- Customers
- Educational institutions
- Nongovernmental organizations
- Investors
- Government authorities
- Employees
- Suppliers

Péribonka hydroelectric development in Saguenay–Lac-Saint-Jean.

GRI GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2, EU2, EU10

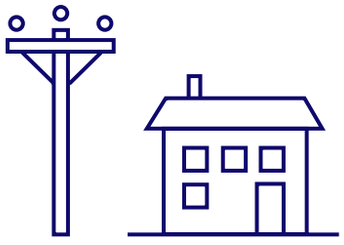
Materiality analysis aspects

Environmental

- Energy efficiency for our customers
- System energy efficiency

Economic

- Electricity supply
- Energy portfolio



99.6%

Power delivered to customers generated by renewable sources

31,600 GWh

Volume of electricity purchases outside Québec

Energy supply

75 years ago

In 1944, Hydro-Québec inherited five generating stations: Chambly, Les Cèdres, Rivière-des-Prairies, Lachine and Beauharnois, which, at the time, was equipped with only 13 of the 14 generating units planned for the first section. The postwar period was marked by steady demand for electricity and growth in Quebecers' needs. It was projected that an additional 12.5 TWh would be required to meet electricity needs over the next decade.

Electricity supply plan

In its Electricity Supply Plan 2020–2029, Hydro-Québec Distribution presents the anticipated electricity needs of Québec customers for the next 10 years and the means by which they will be met. An electricity supply plan is filed with the Régie de l'énergie every three years and updated in the two subsequent years.

According to current forecasts, Hydro-Québec's available and future supplies will be sufficient to meet energy needs until 2026 and capacity needs until 2025. No new supplies will therefore be required in the short term. On a horizon of three to five years, however, calls for tenders could be launched if demand increases as expected.

GRI EU5, EU10

At the time we filed the Electricity Supply Plan with the Régie, we also published an *Overview of Hydro-Québec's Energy Resources*, which presents the context of our electricity supply and the status of energy resources in Québec.

2019 highlights

- Short-term energy purchases of some 1.8 TWh were required due to below-average winter temperatures. Emission rights had to be acquired for just under a quarter of these purchases under the *Regulation respecting a cap-and-trade system for greenhouse gas emission allowances*.
- A short-term tender call was issued to meet capacity needs in winter 2019–2020, for a total of 675 MW in January 2020 and 650 MW in February 2020.

Demand response

To compensate for the expected increase in capacity needs, we are relying on the development of energy efficiency measures—particularly demand response (DR) measures—for all customer categories.

A new range of products and services will be offered starting in 2020, through the Hydro-Québec subsidiary, Hilo. Peak shaving will be achieved thanks to technological tools that will allow customers to manage the energy use of certain loads, especially heating.

Energy balance

Capacity balance

Hilo: Your best friend for managing your energy consumption

Hilo by Hydro-Québec

Hilo is a new Hydro-Québec subsidiary offering personalized products and services that will make it easy for customers to manage their energy use more efficiently.

Hilo's highly adaptable offering will be rolled out gradually: first to residential customers, then to businesses. The residential offer will consist of a variety of smart home products, including electric mobility options—such as bidirectional charging stations for charging an electric vehicle and supplying the home—as well as solar self-generation solutions with storage. Through these different connected products, customers will be equipped to wisely manage their energy consumption.

The commercial and industrial offer will be catered to the needs of businesses and include smart solutions for buildings and processes. The products and services offered by Hilo are being developed locally, thanks to the expertise of IREQ and other Québec companies on the cutting edge. In the winter of 2028–2029, Hilo should account for a 621-MW reduction in Québec's capacity needs.

Exclusive web content

- Understanding power and energy

GRI EU10

2019 highlights

- We continued our three-element water heater program, offering a $100 instant rebate to all first-time buyers of a water heater with ECOPEAK® technology.
- Some 20,000 customers signed up for dynamic pricing, an option that allows them to save money by reducing their electricity use at Hydro-Québec's request during critical peak events—between 6 and 9 a.m. and 4 and 8 p.m.—for a maximum of 100 hours per winter.

Generation, purchases and energy sources

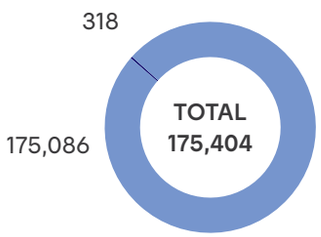
Hydro-Québec Distribution's long-term supply portfolio is made up of the heritage pool (essentially hydropower), as well as contracts with Hydro-Québec Production and independent producers of renewable energy. We also rely on a variety of energy efficiency initiatives for reducing the energy consumption of our customers.

2019 highlights

- We signed an electricity supply contract with the town of La Tuque and the Atikamekw community of Wemotaci for power generated by the Manouane Sipi small hydro community project.
- Chapais forest biomass cogeneration power plant (31 MW), in the Nord-du-Québec region, was commissioned.

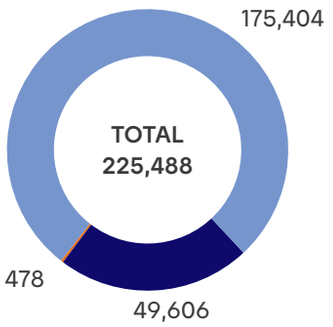
Wind farm in Montérégie.

Meeting energy needs – 2019 (GWh)



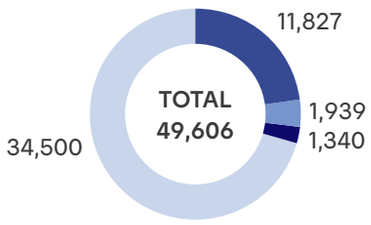
ENERGY GENERATED

Hydropower
Thermal power



ENERGY GENERATED AND PURCHASED

Energy generated
Energy purchased[a]
Energy savings through energy efficiency measures



ENERGY PURCHASED[a]

Hydropower
Wind power
Biomass/waste reclamation
Other

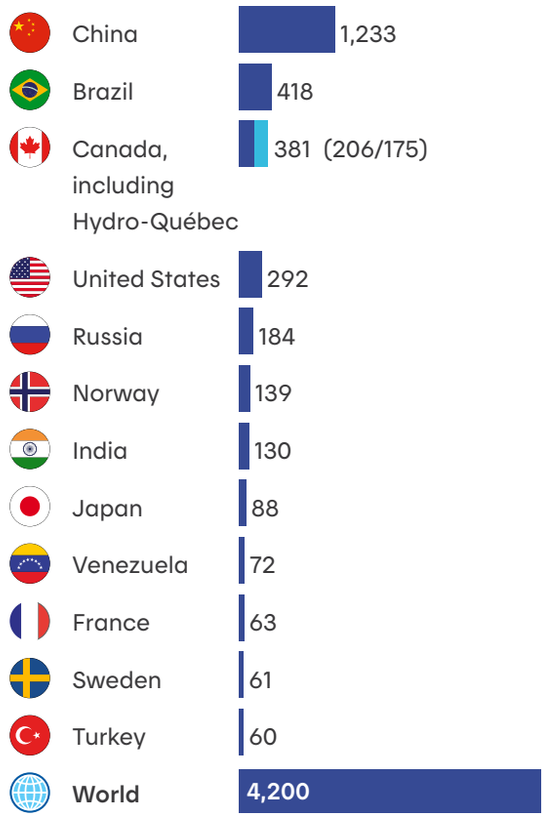
GRI EU10

Renewable energy supply

Hydropower accounts for 93% of our energy portfolio, ✔ alongside other renewables. Our supply is complemented by contracts with independent power producers drawing on sources like wind, biomass and small hydro, and by electricity purchases outside Québec.

Romaine-3 generating station, commissioned in 2017.

Hydropower generation:[a] World leaders in 2018 (TWh)



a) Includes electricity generated by pumped storage plants.

Source: *Hydropower Status Report 2018*, International Hydropower Association.

Long-term supply (under contract)

	Maximum contribution	
	Peak capacity (MW)	Annual energy (TWh)
Heritage pool	37,442	178.9[a]
Contracts with Hydro-Québec Production	1,100	5.4
Wind	1,489	11.4
Biomass and biogas	346	2.5
Private small hydropower plants	144	0.6

a) This figure consists of 165 TWh of heritage pool electricity and additional volume to account for transmission and distribution losses.

Exclusive web content

- Electric power purchases – Québec market
- Wind power
- Self-generation
- Renewable energy sources: current state of knowledge

GRI GRI 302-4

Energy efficiency

75 years ago

In 1944, most Quebec homes were heated using wood or coal, and the average amount of electricity consumed by residential customers was 864 kWh per year. Today, that number is 18,000 kWh per year.

Our energy efficiency initiatives allow customers to reduce their energy use without sacrificing comfort. The savings achieved help conserve resources and prevent unnecessary generation, transmission and distribution.

Residential customers

2019 highlights

- We maintained our public awareness activities and resources, including our Energy Wise initiatives and our Home Diagnostic and Dare to Compare tools. We also continued our promotional campaigns for efficient pools, efficient lighting products, ENERGY STAR® certified windows and patio doors, and water- and energy-saving products.
- In collaboration with Transition énergétique Québec, we continued our initiatives to complement the Éconologis program, which helps low-income households replace their refrigerators with more efficient, ENERGY STAR® certified appliances. Close to 2,500 refrigerators have been replaced since the start of the program. ✔

Average annual energy consumption by type of use in Québec ⊕

Energy consumption by sector in Québec ⊕

New annual energy savings – Energy efficiency initiatives (GWh)

	2016	2017	2018	2019 ✔
Residential customers	202	200	207	211
Business customers	330	321	245	257
Off-grid systems	2	3	3	10
ENERGY SAVINGS	**534**	**524**	**455**	**478**

Watch out for the rebound effect!

Energy efficiency means the use of less energy to achieve the same effect. For example, an LED bulb uses less energy to create the same brightness as a compact fluorescent bulb.

However, energy efficiency can also have the unintended effect of encouraging customers to consume more, for example by turning on more LED lights to make the room brighter. This type of change in behavior could reduce, or even cancel out the energy savings achieved.

GRI GRI 302-4

› We maintained our Energy Efficiency Retrofit Program for Low-Income Households. The program's goal is to reduce electricity bills through renovations to the thermal envelope and basic energy efficiency measures.

Off-grid systems

We have worked hard to develop specific offerings catered to the needs of each off-grid system. To maximize customer engagement, we've opted for a project-based approach, meaning that all new energy efficiency initiatives are rolled out for a given off-grid system and for a limited time.

We plan to maintain this approach, which not only allows us to reach more customers but also to support them in their efforts from start to finish.

2019 highlights

› We continued our winter peak awareness campaigns aimed at off-grid system customers. The campaign messages drive home the importance of moderating energy use during periods of intense cold. Each campaign is designed for a specific clientele.

› We maintained our Efficient Energy Use Program, which offers financial assistance for heating with oil (all residential and commercial customers, except Schefferville) and propane (Îles-de-la-Madeleine, residential and commercial customers).

Business customers

2019 highlights

› We continued our efficient product offering for agricultural customers, which generated energy savings of 12 GWh.

Technology and business demonstration (TBD)

Our TBD initiative aims to promote the technological and commercial development of new energy-efficient systems and electric equipment. Financial assistance is offered to customers who validate the technical or commercial viability of innovative electricity-saving or power demand optimization measures. Participants can now receive up to 75% of the project's total eligible cost, up to a maximum of $500,000.

› Winter peak was reduced by 280 MW thanks to business customer participation in our Demand Response program.

› Energy savings of 123 GWh were achieved by business customers through initiatives carried out in commercial and institutional buildings, and 122 GWh through initiatives in the industrial sector.

› We maintained our Projets innovants program (web page in French only) to encourage highly efficient real estate projects.

› We improved our Efficient Solutions Program, simplifying and integrating existing options, and adding new ones. This program is designed to support the new construction, renovation or upgrade of commercial, institutional or industrial buildings. The simplified and enhanced offering covers over 200 eligible energy-saving measures.

GRI GRI 302-4

The Chanoine-Beaudet school: An energy-efficient building

The Commission scolaire Kamouraska–Rivière-du-Loup and the municipality of Rivière-du-Loup joined forces to upgrade the 25,000-m² École secondaire Chanoine-Beaudet. The following equipment was installed:

- 40 geothermal pumps for heating and air-conditioning, along with an electric furnace
- variable speed drives on heating pumps
- motion sensors to control lighting in several areas
- CO_2 detectors on the main ventilation systems to control the intake of outside air

The measures implemented will lead to annual energy savings of 844,231 kWh ✔, or the equivalent of 35 air-conditioned homes.

Energy efficiency results – Administrative buildings (kWh/m² gross)

	2016	2017	2018	2019
Average energy consumption	229	230	229	233 ✔

Energy savings – Our buildings and facilities

We take concrete steps to reduce energy consumption in our buildings and facilities. The savings achieved mainly relate to lighting, ventilation and energy recovery.

We also rehabilitate and refit our generating stations to increase capacity and output, and implement measures to reduce energy losses on our transmission system. Together, these efforts enable us to generate and deliver more energy for less.

2019 highlights

- We continued to implement energy efficiency measures in our administrative buildings, replacing ventilation and lighting systems at the end of their service life with more efficient models.
- Since 1992, we've cut the energy consumption of our buildings by 42%, for total savings of $146.8 million.
- We made a list of 38 buildings whose power demand will need to be reduced during winter peak. ✔
- We reduced winter peak demand in our buildings by 7,259 kW. ✔

Exclusive web content

- The Right Moves
- Energy Wise (residential customers)
- Energy efficiency programs (business customers)
- Québec's energy transition plan

Project portfolio 2019

Installing underwater cables to supply Île-d'Orléans.

Video (in French only) on installing new underwater cables to supply Île-d'Orléans (W)

Project fact sheet (in French only) (W)

Reconstruction of the underwater line supplying Île-d'Orléans

In 2019, the three electric cables that run along the riverbed to supply electricity to Île-d'Orléans were replaced. The island's only electrical connection, these cables had reached the end of their useful life and could no longer meet local demand, which had increased significantly in the past 15 years.

Drilling through bedrock was required along 1.4 km, at a depth of over 100 m beneath the riverbed. Three of the four metal conduits inserted into the opening house the 25-kV electrical circuits that were then commissioned, while the fourth was sealed in anticipation of future needs.

The project's three main sustainability challenges were protecting farmland in a heritage area, managing drilling mud and maintaining the quality of life of residents living near the worksite (noise, vibration, dust). We implemented specific, non-conventional mitigation measures to limit the project's environmental impact: wood mats were installed to prevent soil compaction, drilling mud was treated on-site before being transported to a technical landfill site, sound barriers were installed and noise levels were continually monitored.

Our effective environmental management of this project was recognized in December by the 2019 edition of PMI-Montréal's Élixir contest.

La Romaine and Unamen Shipu.

Project schedule (+)

Project fact sheet (W)

Connection of La Romaine and Unamen Shipu

La Romaine and Unamen Shipu are the only villages in the Basse-Côte-Nord not supplied with renewable energy. Because the thermal generating station that has powered these villages since the 1970s has reached the end of its useful life, various replacement scenarios were explored.

The best economic, technical and environmental solution is to connect the two communities to Hydro-Québec's grid. This option will save 3.5 million litres of diesel and 10,000 tonnes of GHGs per year.

The connection entails building a new transmission line between the Rivière Natashquan and La Romaine Village. The line will be operated at 34.5 kV, but supported by wooden H-frames to ensure sufficient robustness for the local climate. The project will also require the addition of two distribution substations: one in Natashquan and the other in La Romaine. Finally, a third substation will be built in Kegaska to provide a backup supply option for this community.

GRI GRI 203-2, GRI 204-1, GRI 307-1, GRI 413-2

Project portfolio 2019

The Romaine complex: A new generation of hydropower pioneers.

Romaine complex

Status
Under construction

Investment
$6.8 billion

Region
Côte-Nord

Construction
2009–2021

Installed capacity
1,550 MW

Planned annual output
8.0 TWh

Economic spinoffs
$3.5 billion for Québec as a whole, including $1.3 billion for the region

Locate the project

Project fact sheet

Video The Romaine complex: A new generation of hydropower pioneers

Progress in 2019

Romaine-1 generating station – 270 MW (commissioned in 2015)

An ecological instream flow downstream from the Romaine-1 generating station is modulated based on the needs of local Atlantic salmon (in French only).

Romaine-2 generating station – 640 MW (commissioned in 2014)

Romaine-2 is the most powerful generating facility in the complex. The dam and retaining structures have an asphalt core.

Romaine-3 generating station – 395 MW (commissioned in 2017)

Second-highest dam in the complex, after Romaine-2, and largest moraine dam in the complex.

Assessing net GHG emissions

The research program has shown that GHG emissions from this complex are low compared to other reservoirs of the same age in Québec. To estimate gross annual emissions, we continually monitored dissolved gas concentrations in the water discharged from Romaine-2 (2015), Romaine-1 (2016) and Romaine-3 (2017) generating stations.

Romaine-4 generating station – 245 MW (reservoir impoundment 2020; commissioning 2021)

- Concreting and erecting of powerhouse superstructure
- Clearing for reservoir
- Excavation of collecting works
- Installation of penstocks
- Installation of gates at spillway, intake and temporary bypass
- Completion of excavation for powerhouse and concreting for intake and spillway

2019 highlights

- Job creation: 861 person-years (Côte-Nord workers accounted for 39%, Innu workers for 13%).
- Annual investments (including financing): $486 million.
- Contracts awarded in the region: over $19 million (for Romaine-4 and excluding subcontracting).
- One legal noncompliance notice was received; corrective measures have been carried out.
- 19 government approvals were received.

Examples of environmental management in 2019

Mitigation measures

Lake trout
Fourth lake trout stocking in Romaine 1 reservoir: 21,600 juveniles (aged one year and older) were introduced. In September, we caught spawners in Lac Manouane and moved them to a hatchery so that we can continue to produce the fry needed until 2022.

Arctic char
Prior to impoundment of Romaine 4 reservoir, arctic char were transferred to two lakes that will be flooded. These lakes are geographically, physicochemically and biologically very similar to the donor lakes. The presence of potential spawning grounds should also facilitate the establishment and long-term sustainability of the arctic char population.

Brook trout
A rockfill weir was set up at the KP 192 tributary of the Rivière Romaine to restrict the introduction of predators following the impoundment of Romaine 4 reservoir.

Landlocked salmon
The enhancement program for landlocked salmon in the Romaine-4 area continued with stocking carried out in June: close to 7,000 fry were released into the Petite Rivière Romaine and over 800 fry in the Rivière Perugia. In the fall, 44 spawners were caught and moved to a hatchery for artificial insemination. Some 16,000 eggs were incubated.

Fish rescue
Under our regular management mode, we maintain an instream flow of 2.2 m^3/s in the 3.4-km-long bypassed stretch between the spillway and Romaine-3 generating station, to preserve a hydrological link with the reservoir downstream. However, after water discharge, fish can become stuck in depressions. During this second phase of our rescue of fish caught in depressions, 36 fish (of four different species) were caught and released back into the water.

Beaver
In preparation for the impoundment of Romaine 4 reservoir, 54 beavers from 24 colonies were caught and handed over to the community of Ekuanitshit.

Environmental follow-up

Innu land use
In Ekuanitshit and Nutashkuan, the funds provided by the agreements signed with Hydro-Québec continued to promote land use in a variety of ways: assistance with air travel; purchase, construction, renovation and maintenance of family and community camps; and allowances to support the practice of *Innu Aitun* (the Innu way of life). *Innu Aitun* encompasses all Innu practices, customs and traditions, such as hunting, fishing, trapping and harvesting, whether carried out for ceremonial, social or subsistence purposes. The Innu have expressed concern over the end of the financing provided through the Remedial Works Fund and the opening of the territory that will follow the construction of the Romaine project.

Physical and biological oceanography
The follow-ups on the physical characteristics of the Romaine mouth zone, eelgrass beds, softshell clam populations and habitat, and plankton production in marine environment show the strong influence of the saltwater mass, the natural variability of the species studied and the natural dynamism of the coastal environment (wind, waves, tides). No significant changes in the variables studied were noted after the reservoirs' impoundment.

Forest-dwelling woodland caribou
In April, we retrieved the collars used on the females. The final telemetric monitoring results were obtained, completing the data for this 10-year follow-up program. An analysis is under way to document the impact of the construction of a hydropower complex and transmission lines on the behavioral ecology of this cervid.

Atlantic salmon
During the downstream migration study, we caught nearly 900 smolts in the Rivière Romaine, compared to 117 last year. This is the second-largest catch since the start of this follow-up study in 2013. The genetic analysis results, which will be available in early 2020, will provide details on the specimens' source (the Romaine or the Puyjalon, a tributary of the Romaine) and origin (natural spawning or stocking).

During the washup follow-up, where we check whether juvenile salmon are washing up or getting stuck in hollows in the exposed areas, only one fry was found in the 537 hollows inspected.

A total of 144 salmon nests were counted: 87 in the Romaine and 57 in the tributaries. These results are higher than estimated numbers under natural conditions, and have been so since the complex went into operation.

Finally, 132 individuals were caught and tagged with transponders (110 in 2018), then released in a rearing habitat fitted with telemetric antennae downstream of Romaine-1 generating station. As anticipated, preliminary results show that juveniles, which are not very active in winter, favor shallow waters where flow velocities are low (i.e., by the riverbank).

GRI GRI 102-40, GRI 102-42,

Contributing to the energy transition

The energy transition sweeping the globe—which involves replacing fossil fuels with clean, affordable power, making technology more accessible and decentralizing energy sources (solar panels, storage systems, microgrids, etc.)—implies substantial and far-reaching changes to power generation and consumption modes. Besides helping combat climate change, the transition presents Hydro-Québec with exciting new business opportunities, but also a host of new challenges. For example, the potential parity, by 2025, between hydropower and solar energy costs could intensify the competition we face and threaten our market share.

Electronic thermostats: A smart way to reduce heating costs.

In this section

Stakeholders

- Customers
- Suppliers
- Local and Indigenous communities
- Employees
- Investors
- Educational institutions
- Government authorities
- General public

GRI GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2

Materiality analysis aspects

Environmental

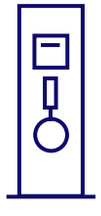
- Atmospheric emissions and impact of climate change

Economic

- Electricity exports
- Contribution to transportation electrification
- Technological innovation
- Management of energy demand
- Spinoffs of projects and operations

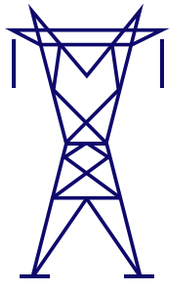
Social

- Relations with Indigenous communities
- Customer service



2,389 ✓

Electric Circuit charging stations ⊕



7,974 MW ✓

Interconnection export capacity ⊕

The energy transition in Québec

75 years ago

Hydro-Québec, a pioneer in hydropower generation, has provided low-carbon energy since 1944, the year of its inception. The post-World War II period was marked by strong demand for household appliances and consumer goods as rural regions electrified and mass consumerism came to Québec. A slogan at the time proclaimed: "If it's modern, it's electric!" During the 1960s and 1970s, the Québec economy was booming, and energy demand was increasing by about 7% annually.

With fossil fuel combustion the primary source of GHG emissions, the energy question is inextricably linked to climate issues. Organizations worldwide are turning to clean electricity to meet their energy needs as part of their strategies to combat climate change.

These new expectations regarding energy represent business opportunities for us, including the chance to increase our electricity sales to businesses as well as to neighboring provinces and states seeking a low-carbon power source.

Renewable energies

With renewables gaining increasing ground in the global energy mix, the race for a sustainable future has entered a critical phase. A scientific report produced in partnership with the United Nations states that global fossil fuel production forecasts for the coming decade are inconsistent with the goal of preventing irreversible climate change—a situation notably due to the growth in natural gas production.

Renewable energy represents the most effective and accessible solution for reducing CO_2 emissions. With most of our output already generated from water, we're off to a good start, and we will continue our research and investments so that we can make an even greater contribution to the fight against climate change.

2019 highlights

- Two experimental solar power plants in La Prairie and Varennes will be built and brought on stream in 2020. The project will help us determine whether solar power is a good match for our generating fleet, our transmission grid and the Québec climate. The two plants will have a combined annual generating capacity of close to 10 megawatts (MW), enough to supply roughly 1,000 homes. (Montérégie)
- Air Liquide announced that it was investing in the construction in Bécancour of the world's largest membrane-based electrolyzer to develop carbon-free hydrogen production. The company chose Québec for its clean electricity, affordable rates and proximity to major industrial markets in Canada and the U.S. (Centre-du-Québec)

Decarbonizing Québec with clean hydrogen

With clean energy and abundant water resources, Québec has everything it needs to support the development of green hydrogen, produced through water electrolysis rather than the methane in natural gas. We intend to support the development of this promising energy source, one that could present interesting opportunities not just here in Québec, but also on export markets. Potential applications include heating for buildings, rail and road transportation, renewable natural gas, carbon-neutral fuels (synthetic hydrocarbons) and ammonia and methanol production.

Like hydroelectricity, clean hydrogen is a pillar of the energy transition. We will invest in R&D in the field, create innovation hubs with partners and join existing hubs.

Commercial and institutional energy consumption per energy source in Québec – 1990 to 2017

Changing cost of solar power systems – Residential market

International energy trends

As citizens took to the streets and students went on strike to save the planet, world energy demand rose at an unprecedented pace: close to 3% in 2018 alone. China, the United States and India account for over two-thirds of the increase. The demand for natural gas jumped by 5.3%, its highest growth rate in more than 30 years. Natural gas alone accounted for nearly 45% of the overall energy consumption hike.

Renewables showed the strongest growth (14.5%), albeit slightly less than in previous years. The cost of solar panels, wind turbines and batteries continued to drop. By 2030, the energy generated and stored by these three technologies is expected to replace coal- and natural gas-generated power in most of the world.

GRI GRI 203-1

75 years ago

At its height in 1920, the Montréal streetcar system boasted some 500 km of tracks and over 900 cars. Limits on fuel and tire purchases imposed by World War II brought old electric streetcars back into service between 1941 and 1944. Today, construction is under way on the Réseau express métropolitain (REM): a major electric public transit project that will have 26 stations and extend for 67 km across Greater Montréal. The Montréal metro, in turn, in operation for over 50 years now and also powered by electricity, carries riders on more than 400 million trips per year.

› We partnered with Nergica, an applied research center and official College Technology Transfer Centre (CTTC) affiliated with Cégep de la Gaspésie et des Îles. One area being explored by Nergica is integrating variable renewable energies like wind or solar into microgrids.

Transportation electrification

Hydro-Québec is working to boost its transportation electrification leadership. In personal transportation, we want to step up the rollout of the Electric Circuit, raise public awareness about the benefits of electric vehicles and continue to develop battery materials. In public transit, we're contributing financially to strategic initiatives and participating in transit authority pilot projects. As for goods transportation and our own mobility needs, we're involved in pilot projects on charging stations and are continuing to electrify our own fleet.

2019 highlights

› This past year saw strong growth in the Electric Circuit, Québec's largest electric vehicle charging network, which now comprises 2,389 charging stations, including 278 fast-charge stations, in all 17 of Québec's administrative regions. ✔ Eastern Ontario is also served by the Electric Circuit, with a total of 20 charging stations, including 12 fast-charge stations. Our aim is to have 1,600 fast-charge stations across the province by 2030.

› We've adopted an electrification plan for our vehicle fleet and increased our number of hybrid or plug-in vehicles, going from 294 in 2018 to 399 in 2019. ✔

› We launched a pilot project on power demand management for recharging the EV fleets used in school transportation. The software being developed uses an algorithm to track different parameters and thus minimize the impact on electricity bills. A prototype is to be tested for one year starting in February 2020.

› We published a charging station installation guide for contractors, electricians, condo associations and apartment building owners.

› We invested $85 million to maintain our 45% interest in Dana TM4 and bolster the joint venture's leadership in electric powertrain systems.

› Together with EBI Énergie, Groupe Crevier, Énergir and the Electric Circuit, we unveiled Québec's first multi-fuel service station. Located in Lévis, the station currently offers both conventional and alternative fuels: gas, diesel, liquefied and compressed natural gas, and electricity (fast-charge stations). Hydrogen will eventually be offered through the underground pipelines previously installed during construction.

Microgrids

Working with the local community in Îles-de-la-Madeleine, Hydro-Québec will roll out a microgrid project that will harness innovative technologies to generate, store and manage energy. The project will be overseen by a committee composed of representatives from Hydro-Québec, Transition énergétique Québec and the municipality of Îles-de-la-Madeleine. The microgrid will feature renewable energy sources, storage batteries and tools for managing buildings' energy use.

2019 highlights

- We launched a call for proposals and then awarded a contract to install a microgrid in Lac-Mégantic. A tour was set up to give a dozen or so potential suppliers the chance to visit the buildings involved and see the site where the equipment—batteries, solar panels, smart-home systems—is to be installed. (Estrie)

TM4 electric motor.

The Dana TM4 joint venture

Established in 2018, the Dana TM4 joint venture develops and manufactures electric motors and controls for commercial, passenger and off-road vehicles.

We made two major acquisitions in 2019 through Dana TM4:

- Dana TM4 purchased the other 50% of the Chinese firm Prestolite E-Propulsion Systems, in which it already held a 50% interest. Rechristened Dana Electric Motor Co. Ltd, this company manufactures and markets electric powertrain systems, particularly for buses and trucks. The transaction will enable Dana TM4 to optimize and expand its operations in China, the fastest-growing market in transportation electrification. To date, Dana TM4 has produced and delivered thousands of motors for electric buses that are currently in use in over 20 Chinese cities, including Beijing, Shanghai, Tianjin, Suzhou, Chongqing and Shenzhen.
- Dana TM4 also acquired SME, an Italian company that develops and markets a line of electric motors and controls for off-highway electric vehicles. SME low-voltage systems are the perfect complement to the Dana TM4 high-voltage product line.

75 years ago

Established in 1953, the first grid in Îles-de-la-Madeleine was supplied by a cooperative-run power plant. The system was nationalized in 1963, at which time Hydro-Québec built a generating station able to power every home on the archipelago. Today, we've launched a project that will bring Îles-de-la-Madeleine onto the main grid in the Gaspésie through undersea cables, a connection that will cut GHG emissions considerably.

Off-grid systems

In 2019, off-grid systems, including Lac-Robertson and Menihek generating stations, produced 451 GWh of electricity for some 20,000 Québec customers. The facilities include 23 thermal power plants (132 MW) and two hydraulic generating stations, Lac-Robertson (21.6 MW) and Menihek (17 MW). Menihek is owned by a third party.

Hydro-Québec is in the process of converting the power supply for off-grid systems to clean energy; the measures will be applied to all off-grid systems by 2025. Our aim is to achieve a 70% renewable supply, by harnessing wind power, connecting remote communities to the main grid and building a run-of-river generating station.

2019 highlights

- In September, we held the 25th Prime Power Diesel Inter-Utilities Conference (PPDIUC), a Canadian Off Grid Utilities Association (COGUA) initiative. A total of 10 firms from Canada and Alaska presented their best practices regarding the energy transition and off-grid systems. (Capitale-Nationale)
- The Régie de l'énergie approved a 6.4-MW wind power supply contract (Dune-du-Nord wind farm) in Îles-de-la-Madeleine. Slated to begin delivering electricity in July 2020, the project will cut GHG emissions by 13%. (Gaspésie–Îles-de-la-Madeleine)
- With the support of the Société d'habitation du Québec and Transition énergétique Québec, we initiated a pilot project on renewables and energy storage in the Nunavik village of Quaqtaq. Solar panels totaling 24 kW and storage batteries were installed on the rooftops of four houses. (Nord-du-Québec)

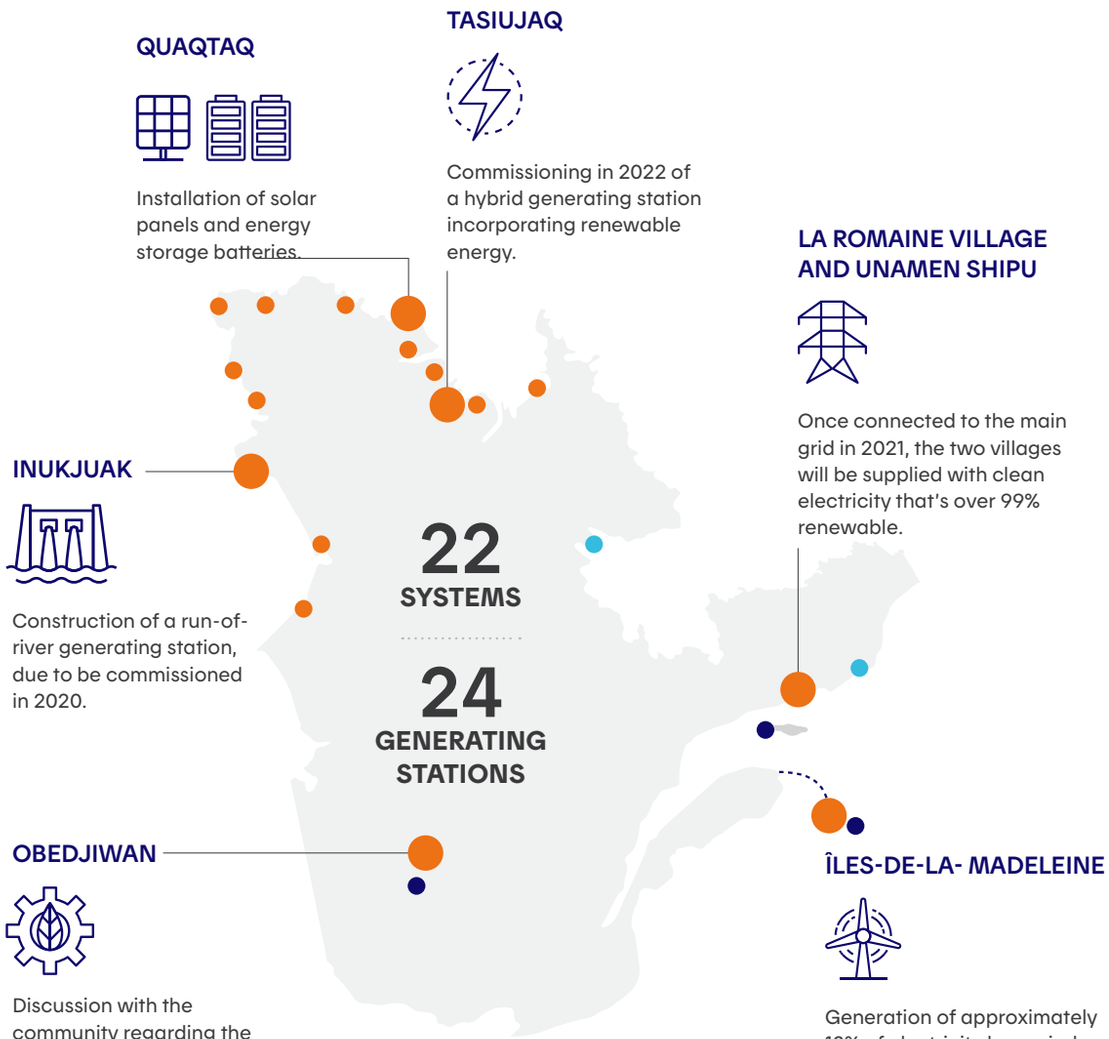
A new run-of-river generating station in Inukjuak

A hydroelectric generating station will be built in the village of Inukjuak, with commissioning scheduled for late 2022. Replacing fossil fuel-generated power with renewable electricity will result in 700,000 fewer tonnes of GHG emissions over a 40-year period.

A mutual electric power supply contract reached with Innavik Hydro S.E.C. to purchase energy produced by this new, 7.25-MW run-of-river generating station on the Inukjuak River has been submitted to the Régie for approval. Under the contract, we will supply the Inukjuak off-grid system with enough renewable energy to meet the community's basic needs along with a major portion of local space- and water-heating needs. Valued at approximately $125 million, this is the first partnership of its kind between an Inuit corporation and an independent power producer.

› We received an $11-million federal grant to support the energy transition of off-grid systems in Québec. The funds will make it possible to incorporate battery storage technologies, renewable energy sources and improved control systems.

Off-grid system development plan



- Two off-grid systems, Schefferville and Lac-Robertson, have already incorporated hydroelectric generating stations.
- To prepare the other facilities to integrate renewables, we're modernizing diesel-fired power plant automation and will be adding storage systems to certain off-grid systems.
- Transition initiatives should be launched in the other systems in the next few years.

The energy transition in Îles-de-la-Madeleine

At present, Îles-de-la-Madeleine is powered by a thermal generating station that consumes 40 million litres of diesel annually and accounts for 40% of Hydro-Québec's total direct GHG emissions. Connecting the islands to the main grid in 2025 will supply them with clean energy, thereby cutting local GHG emissions by 94%.

Working with the local community, we will also roll out a microgrid that will incorporate other renewables, energy storage batteries and tools for managing buildings' energy use. The thermal generating station will be kept as a back-up facility that can be used during equipment maintenance or in the event of outages.

Project timeline

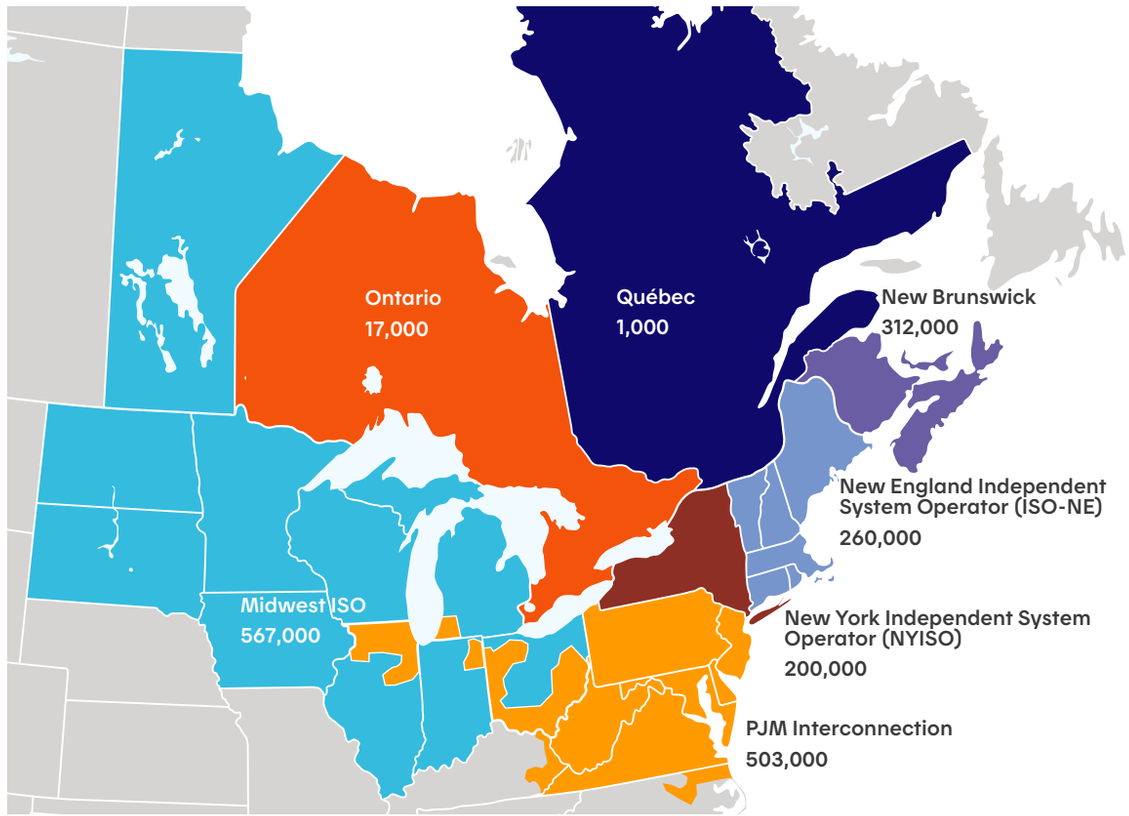
The energy transition beyond Québec

For some 20 years now, Hydro-Québec has been selling electricity on wholesale markets in the U.S. Northeast. Québec hydropower offers a threefold advantage to markets outside the province: reduced GHG emissions, a reliable power supply and very stable prices.

Sales outside Québec also provide the opportunity to sell off our energy surpluses, which currently total close to 18 TWh and could potentially meet part of the electricity needs of Massachusetts and New York City.

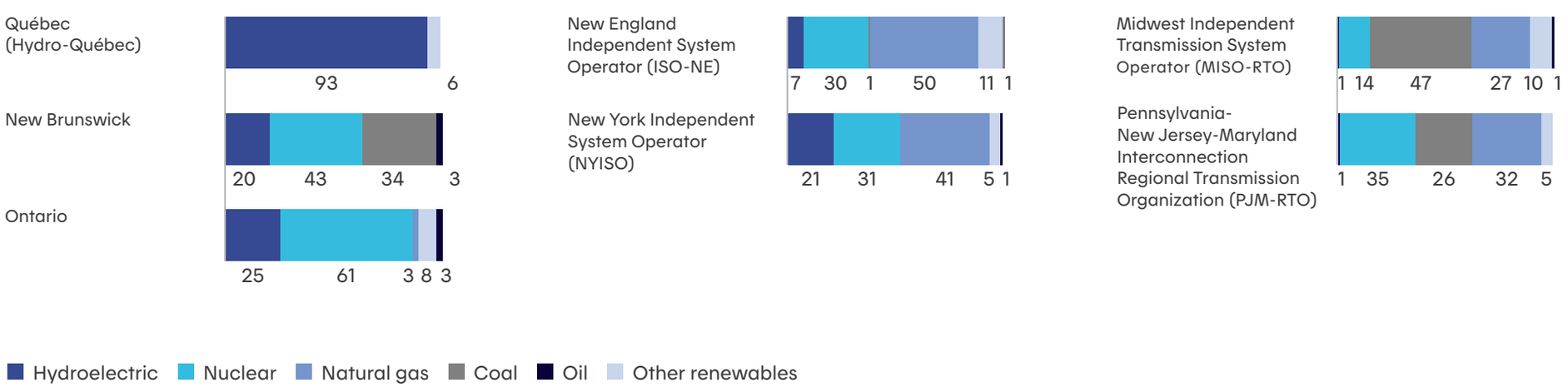
Emission factors in the main export markets – 2019

(metric tonnes of GHG/TWh)



Source: *Regulation amending the Regulation respecting mandatory reporting of certain emissions of contaminants into the atmosphere*, Table 17-1, Gouvernement du Québec.

Main export market energy mixes (%)



Overall total and sum of subtotals may differ due to rounding.

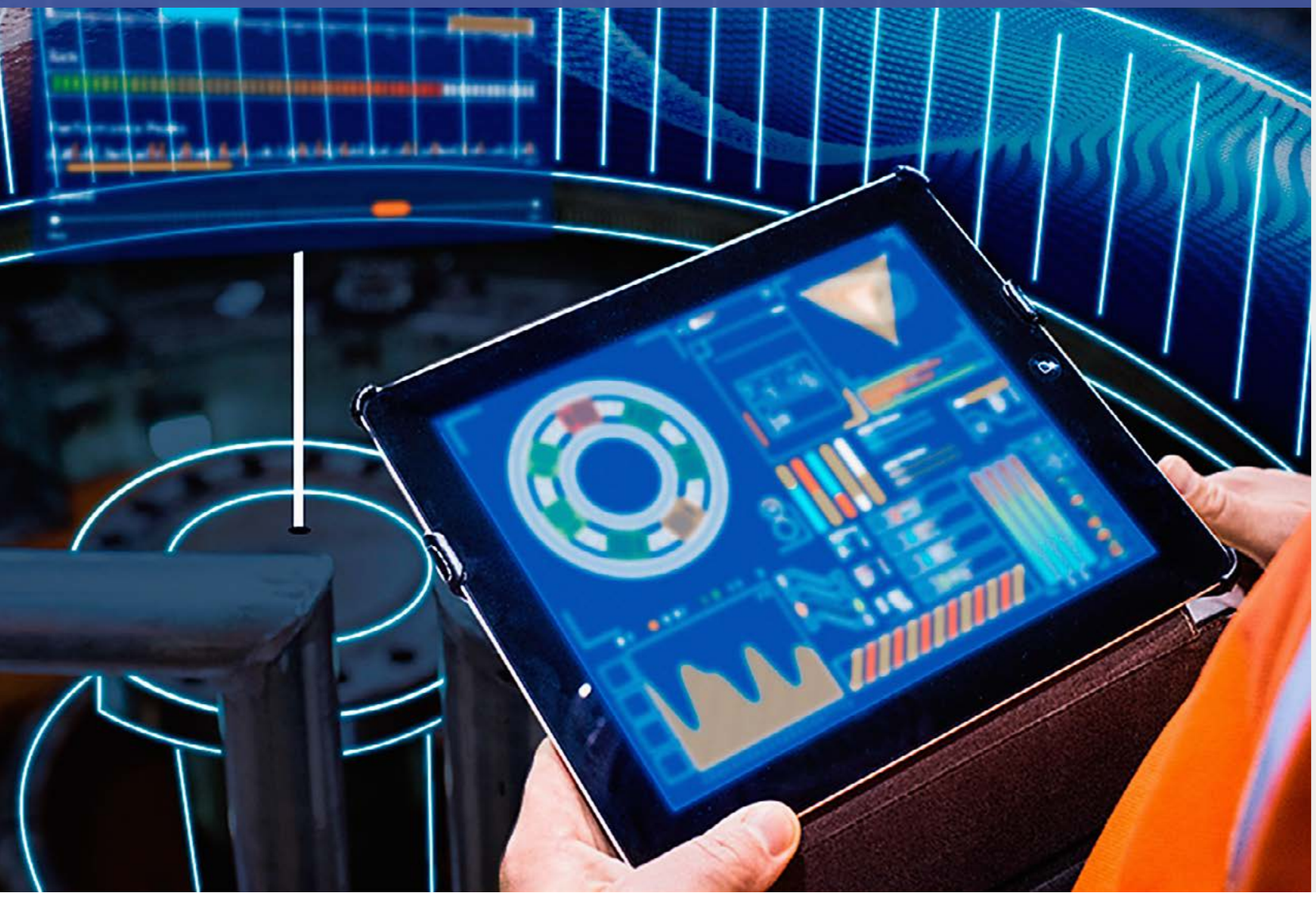
Sources: Independent Electricity System Operator (IESO), Énergie NB Power *Annual Report 2018–2019* and eGRID 2018.

GRI GRI 102-40, GRI 102-42

Continuing to boost profitability and pursue technological innovation

In our *Strategic Plan 2020–2024* submitted at the end of last year, we reaffirmed our ambition to increase our net income to $5.2 billion or more by 2030.

To get there, we must continue to improve our operational performance as we explore new avenues for growth, both in Québec and beyond.



In this section

- Financial results
- New market development
- R&D
- Technological innovation
- Developing partnerships

Stakeholders

- Government authorities
- Local and Indigenous communities
- Investors
- Educational institutions
- General public
- Suppliers
- Employees

Using digital twin technology. “Digital twins” are digital replicas of physical objects, systems or industrial processes.

GRI GRI 102-44, GRI 102-47, GRI 103-1, GRI 103-2

Materiality analysis aspects

Economic

- Technological innovation
- Financial viability
- Electricity exports

Financial results

75 years ago

On December 31, 1944, the Québec Hydro-Electric Commission (which later became Hydro-Québec) posted revenue of $21.5 million, equivalent to $322 million in 2019 dollars. Net income was $9.56 million ($143.5 million in 2019 dollars).

In 2019, we posted net income of $2,923 million, allowing us to pay our shareholder, the Québec government, a dividend of $2,192 million. This result is due to the solid performance shown in all our lines of business, both in Québec and in outside markets, and to sound management of our operating expenses.

Our net electricity exports reached a historic volume of 33.7 TWh and contributed $631 million to net income. In terms of percentages, they represented 16% of our sales volume and 22% of our net income. These results are due to an effective sales strategy, the smooth operation of our generating and transmission facilities, and our vast hydraulic reserves.

$13.9 billion

Total electricity sales

1,165

Number of patents held or pending

Increasing net income and creating wealth in Québec

Hydro-Québec contributes to the Québec government's revenue through dividend payments, water-power royalties, taxes, guarantee fees and contributions to government funds and agencies. In the last three years, our annual contribution averaged $4.2 billion, or $1.3 billion more than anticipated.

Calculating the dividend

2019 highlights

- Revenue from electricity sales in Québec was $12.4 billion ($12.1 billion in 2018).
- Revenue from electricity sales outside Québec was $1.5 billion ($1.7 billion in 2018).
- Net income totaled $2.9 billion ($3.2 billion in 2018).
- We paid a dividend of $2.2 billion to the Québec government ($2.4 billion in 2018).

Increasing net income by 2030

Increasing our net income to $5.2 billion or more by 2030 ($2.9 billion in 2019) represents a sizable challenge that will hinge on a number of variables. For example:

- A 1 US¢/kWh variance in the price of energy on the export markets could raise or lower our net income by $180 million.
- A 10-cent variance in the Canada/U.S. exchange rate could raise or lower our net income by $69 million.
- A 1°C variance from normal temperatures between December and March could raise or lower our net income by $95 million.

Attaining this goal means continuing to act on multiple fronts: seizing growth opportunities both within and outside of Québec, developing the domestic market, increasing exports, prudently adding acquisitions and interests, and promoting our technologies.

Strategic alliance with Innergex

Hydro-Québec will invest a total of $1.2 billion in creating a strategic alliance with the Québec firm Innergex, which has 68 renewable energy generating facilities in Québec, Canada, the U.S., Europe and South America.

Our initial $661-million investment made us Innergex's key shareholder, with a 19.9% interest. We've since committed a further $500 million to co-investment projects to be developed with the firm.

Targeted areas include off-grid systems as well as wind or solar projects that may also involve battery storage or transmission assets.

Sales outside Québec

75 years ago

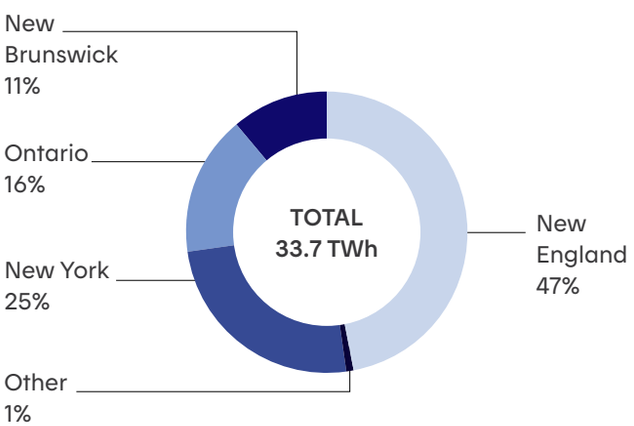
Already in 1945, Hydro-Québec was exporting 2.99 TWh of electricity to the United States. At the end of 2019, net exports totaled 33.7 TWh, contributing $631 million to our net income.

Electricity exports aren't just advantageous economically, they're also environmentally beneficial. This is the thinking underpinning our drive to promote Québec hydropower in neighboring markets, for example through long-term power purchase agreements. Indeed, we've been doing this since the 1980s, primarily with New England, a region that accounts for roughly half of our exports.

2019 highlights

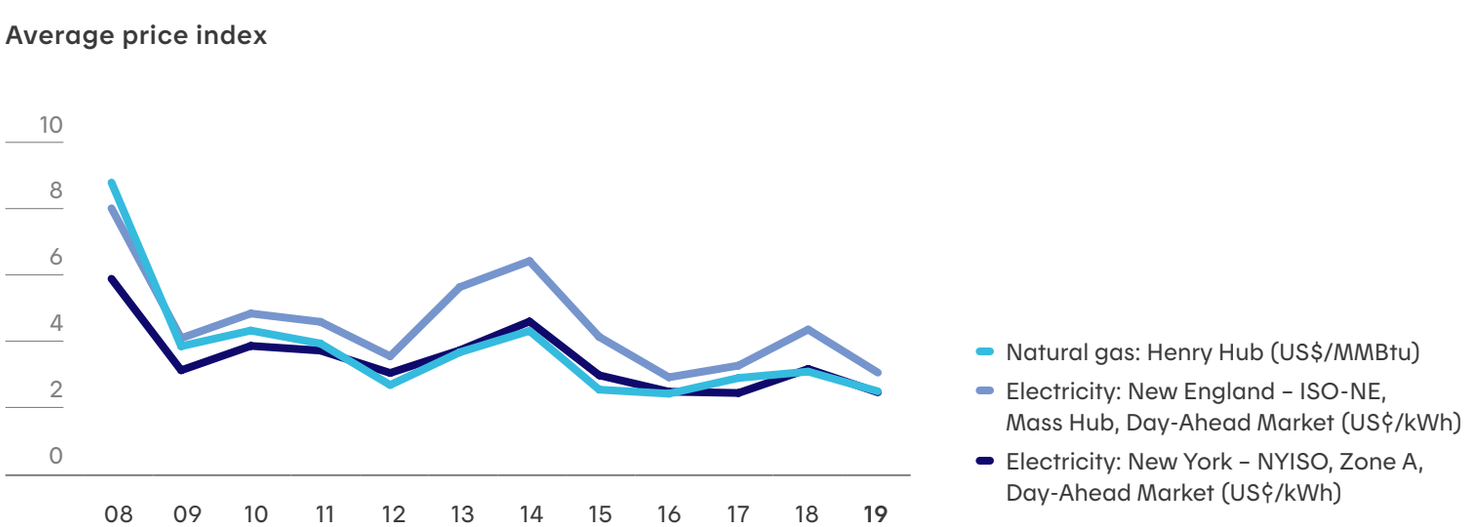
› Talks continued with New York City to supply its municipal facilities with our renewable energy in the next five years. This contract would let us meet 16% of the city's energy needs while cutting its GHG emissions by 5%.

Net electricity sales outside Québec – 2019



Sales for 2016 to 2019

Trends in energy prices on Hydro-Québec's external markets



The Appalaches–Maine Interconnection

In 2018, Hydro-Québec won the Massachusetts request for proposals to deliver 9.45 TWh of clean energy per year from 2022 to 2042. The largest long-term sales contract in our history, the agreement will secure us 20 years of stable income.

The electricity will be delivered through new infrastructure, including a new 1,200-MW interconnection, to be built on both sides of the border. This past year saw a number of key steps receive the green light from Maine and Massachusetts:

- The Maine Public Utilities Commission approved the New England Clean Energy Connect (NECEC), a 230-km transmission line. This is the authorization required to build the future transmission corridor in the state.
- The Massachusetts Department of Public Utilities approved the power purchase agreements signed with the state's power distributors.

Both approvals mark important milestones for Hydro-Québec.

The Massachusetts Department of Energy Resources estimates that emissions avoided throughout the term of the contract will total over 36 Mt of CO_2 eq., which is equivalent to emissions from 413,000 vehicles each year.

New market development

Hydro-Québec is exploring new growth avenues in Québec and abroad with a view to increasing its revenues and income.

Developing new markets in Québec

To market our energy surplus and diversify our industrial customer base, we are pursuing our efforts internationally to attract energy-intensive businesses to Québec, with a focus on leading-edge sectors like data centers and greenhouse growers. In certain cases, we will also provide support throughout the process, including helping them find sites that meet their requirements and offering programs tailored to their needs.

Electricity use by greenhouses

The legalization of cannabis brought with it a significant hike in the energy used by greenhouse growers. Indeed, the agricultural sector is where the creation of jobs per megawatt of installed capacity is highest, with 10 to 20 new jobs per megawatt, compared to less than three in the aluminum industry.

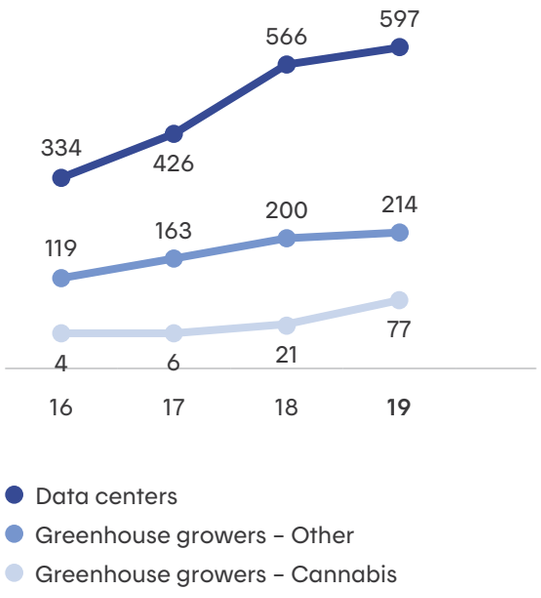
Currently, 16 of Québec's 238 greenhouse operations are indoor or outdoor cannabis greenhouses.

By 2023, yearly energy used by specialist cannabis growers could reach 500 GWh.

2019 highlights

- We continued to recruit data center operators by emphasizing Québec's advantages: renewable, competitively priced energy, a northern climate that minimizes the need for air-conditioning and a business-friendly environment.

Growth in electricity demand from leading-edge sectors (GWh)



The Québec blockchain industry

The Régie de l'énergie has ruled that a 300-MW block can be set aside for the blockchain industry as part of a Régie-approved RFP and selection process. The block includes a requirement to curtail up to 300 hours of electricity use per year at Hydro-Québec's request. In addition, 50 MW have been reserved for projects rated 5 MW or less.

Projects will be assessed based on the following criteria:

- Number of direct jobs in Québec/MW: 30%
- Total payroll of direct jobs in Québec/MW: 30%
- Investments in Québec/MW: 30%
- Energy savings ratio (electricity use avoided through heat recovery/total electricity use): 10%

Technological innovation

Hydro-Québec has banked on innovation from the start. Fifty years ago, we set up a world-class institute for electricity research, the Institut de recherche d'Hydro-Québec (IREQ). This one-of-a-kind facility is where we can conduct experiments on our high-voltage power grid and work with university researchers and equipment manufacturers. Since 1970, IREQ has hosted numerous research initiatives and seen significant technological breakthroughs. Today, IREQ holds over 1,000 patents ✔ and has published thousands of scientific papers, with the focus on three main areas: our customers, our assets and the power system of tomorrow. ⊕

2019 highlights

- We continued developing energy storage systems using Hydro-Québec's patented lithium iron phosphate (LFP) battery technology, one of whose chief advantages is heightened safety. A storage system was installed in Blainville as part of a pilot project using innovative solutions to manage energy in commercial buildings. The system joins those already in use at Hemmingford substation and in the Quaqtaq off-grid system.

› In partnership with the Institut québécois d'intelligence artificielle (Mila), we opened an AI laboratory where we'll work with researchers from different universities on innovative projects related to artificial intelligence and deep learning. The research will focus on such topics as load forecasting, solar radiation forecasting using satellite imagery, real-time object detection for robotic inspection, real-time system capacity limit estimations and generating unit performance prediction.

› This past year marked the first time our LineCore inspection robot was used to inspect a live transmission line. In development at IREQ since 2010, the robot can detect signs of corrosion in the steel core of power line conductors.

› We continued our project to develop digital twins. As digital replicas of physical objects, systems or industrial processes, digital twins offer a host of possibilities for predictive maintenance and infrastructure optimization.

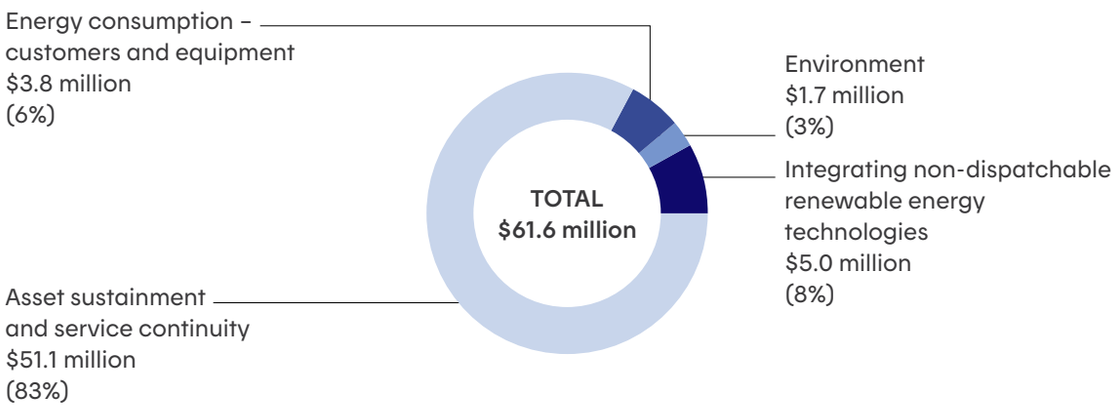
R&D

Hydro-Québec continues to be a top Canadian R&D spender in the electricity industry. With a budget of $102.5 million, ✔ our research institute IREQ develops state-of-the-art technologies in numerous fields related to power systems and renewable energy. Our Center of Excellence in Transportation Electrification and Energy Storage (CEETES), created in 2017 and supported by a budget of $37.8 million, focuses on EV battery materials and other energy storage applications. Income from our patents and commercialized innovations totaled $6.9 million in 2019. ✔

IREQ's high-voltage laboratory.

Video: Innovating for 75 years (W)

Breakdown of IREQ innovation efforts related to sustainability[a] – 2019 ✔



a) Excludes investments in energy storage and conversion.

Exclusive web content

- Technological innovation
- List of our patents

Examples of sustainability-related innovation projects – 2019

Maintenance optimization – oil leaks

Need: Detect oil leaks in distribution system pad-mounted transformers and remedy the situation to avoid any spillage into the environment as well as provide timely intervention.

Objectives:

- Detect leaks: we are studying different sensor options, both inside and outside the transformers, to identify the best detection system.
- Contain the leak until the transformer is repaired or replaced so as to avoid any spillage into the environment
- Improve future transformers.

Result:
A transformer fleet that presents a minimal environmental risk. The project combines short-, mid- and long-term strategies. In 2020, we will test different options and trial one of them in the system on an experimental basis.

Investment in 2019: $0.3 million (year 1 of the project) ✔

New insulation materials for transformers

Need: Be able to predict the condition of transformer insulation, which is essential to assessing service life and planning maintenance and replacement. IREQ research on mineral oil-impregnated cellulose insulation has given us diagnostic tools that can be used to assess our transformer fleet.

Regarding liquid insulation, manufacturers are now offering natural or synthetic fluids. Being biodegradable, these fluids are less harmful to the environment in the event of accidental release. They also have higher flash points than conventional oils, making them safer. Solid materials that can withstand higher temperatures could be used in conjunction with these fluids to further increase safety (reduced fire risk). A life cycle assessment comparing environmentally friendly oils with the mineral oils we use is currently under way.

Objective: Support our activities and reduce operating costs by obtaining safer, more efficient devices that incorporate innovative technologies with a lower environmental impact.

Result: The project will allow us to measure the performance of solid and liquid materials; determine the service life of insulating fluids; identify the maintenance strategies required (regeneration, replacement, degassing, etc.); and develop a strategy for integrating these new oils into company operations.

Investment in 2019: $0.7 million ✔

GRI GRI 201-1

Developing partnerships

We support Québec universities by establishing partnerships with them, awarding them research contracts and funding university research chairs. We also partner with various organizations to develop and commercialize innovations.

2019 highlights

- We teamed up with Mercedes-Benz AG as part of a research and development initiative into solid-state batteries, which could replace conventional lithium-ion batteries over the next decade. The partnership strengthens our R&D in the field of electric vehicles. The work will focus on innovative chemistry that stands to bring about lighter, safer batteries that perform better and have greater autonomy.
- We formed our first partnership with HEC Montréal's Chair in Energy Sector Management. We will contribute to the Chair's work on issues related to sustainable energy resource management by sharing strategic information and participating in the executive table.
- We helped launch a new Polytechnique Montréal research chair in geothermal power, which is working to facilitate adoption of a new technology that offers greater capacity and flexibility. Objectives include ensuring that the technology integrates well into the grid, optimizing its flexibility and rapidly developing expertise. Geothermal energy could ultimately be folded into our energy efficiency programs.

Contributions, commitments, research chair funding and research contracts ($'000)[a]

Educational institution or research group	2016	2017	2018	2019 ✓
Université de Montréal	947	825	840	825
HEC Montréal	0	40	72	25
Polytechnique Montréal	573	345	380	147
Université du Québec en Abitibi-Témiscamingue	1	15	15	15
Université du Québec à Chicoutimi	0	60	297	211
Université du Québec à Montréal	741	695	695	378
Université du Québec à Rimouski	200	210	200	200
Université du Québec à Trois-Rivières	50	174	344	385
École de technologie supérieure	454	169	174	228
Institut national de la recherche scientifique	423	0	0	0
McGill University	1,040	710	900	757
Concordia University	820	795	819	586
Université Laval	903	1,187	1,322	1,281
Université de Sherbrooke	764	481	555	505
Bishop's University	0	0	32	32
Ouranos, Cirano and Institute of Electrical Power Engineering	885	1,333	1,024	1,138
Institutions outside Québec	640	27	207	112
College technology transfer centers	0	0	0	0
TOTAL	**8,441**	**7,067**	**7,844**	**6,825**

a) Includes amounts recorded as donations and sponsorships: $2.6 million in 2016, $2.9 million in 2017, $3.1 million in 2018 and $3.2 million in 2019.

GRI GRI 102-41

Communication on progress

Hydro-Québec first joined the United Nations Global Compact in 2004 and remained a member until it sold all of its international interests and based its operations exclusively in Québec.

In 2018, to affirm our sustainability leadership and look toward joining the ranks of the world's most environmentally responsible companies, we renewed our engagement. This commitment involves pledging to communicate our progress with regard to the compact's Ten Principles, which are grouped around four areas: human rights, labor standards, environmental protection and the fight against corruption.

Sustainable Development Plan 2020–2024

This past year saw the publication of our *Sustainable Development Plan 2020-2024: Drawing on the Past to Shape the Future*. The plan upholds the United Nations Development Programme's sustainable development goals that most closely reflect our industry and projects.

We have accordingly identified 7 goals and 11 targets to help us step up our efforts to apply the United Nations Global Compact principles in each of the four areas.

While every section of the Sustainability Report provides a general picture of our results, the Sustainable Development Plan details the targets and indictors that pertain to each of its 12 strategies. After the first year of the plan's application, we will include a report on its progress and where we are vis-à-vis its goals in our Sustainability Report.

In our actions and decisions, we're making every effort to:

- Better integrate sustainability principles into our operations and improve our sustainability performance
- Continue the dialogue with our stakeholders
- Improve the overall impact of our activities with respect to sustainable development

Human rights

Labor

Go to *Enhancing corporate governance and remaining an employer of choice*

Environment

Go to *Preserving the environment and adapting to climate change*

Anti-corruption

Go to *Enhancing corporate governance and remaining an employer of choice*

GRI GRI 201-2

Accountability in compliance with the recommendations of the Task Force on Climate-Related Financial Disclosures (TCFD)

Impact of climate change on Hydro-Québec's operations

With hydroelectric generation closely dependent on weather conditions, Hydro-Québec is feeling the effect of climate change on its activities. For close to 20 years now, working with Ouranos—a research consortium we helped found—we've been examining scenarios involving the impacts of climate change. The coming years will see us institute measures to adapt to these changes in several areas, including our infrastructure and operations management and our equipment design.

There are a number of ways climate change could affect Hydro-Québec's activities: changes to the natural inflows that supply our generating stations; seasonal shifts in power demand; impacts on plants and wildlife; working conditions made more difficult by heat waves; or extreme weather conditions that can damage generation, transmission and distribution equipment, to name but a few.

Faced with growing evidence of the effects of climate change and extreme weather on our operations, in November 2018 we added climate change to our risk portfolio. For example, we're already seeing system restoration costs rise as a result of more frequent and intense weather events. In 2020, we will conduct a climate-change vulnerability assessment of our assets and activities to get a better picture of the situation overall.

To ensure continuous improvement of our operating performance, we've also made climate change adaptation a key priority of our *Strategic Plan 2020–2024*. We will establish the priority mitigation measures to apply in this regard and produce an adaptation plan that will be updated yearly.

GRI GRI 201-2

Governance

Given the urgency of climate change, in 2019 senior management and the Board of Directors adopted an adaptation response and formed various working committees to tackle the following issues:

- Climate change directly impacts our core mission of ensuring reliable electrical service at the best possible price.
- The rising frequency and intensity of climate events is a trend that will only continue.
- Employees must adapt to the realities of climate change; the company, in turn, must adapt its assets and operations.
- Our climate model must integrate new variables so that we may better grasp future climate change and its impact on our facilities and customers.
- Successfully completing our many projects that are currently starting up or ongoing will require the full cooperation of all of our units.
- We must also adapt to changing laws and regulations.
- Four levels of committee bring together resources from our various business units.

The coordinating committee meets monthly, while the technical/scientific and adaptation committees meet intermittently.

The Management Committee and Board of Directors monitor climate risk management and the work in progress on a quarterly basis.

Trends in different meteorological variables in the coming decades ⊕

Working committees

Committee name	Mandate	Meetings
Governance committee	› Track project progress › Provide clear direction as to priorities › Validate reports to senior management	Three meetings in 2019
Coordinating committee	› Supervise work in progress › Produce progress reports and identify implementation issues › Share best practices	Seven meetings in 2019
Technical and scientific orientation committee	› Commission the required studies › Validate vulnerability assessment tools/methodologies and establish adaptation measures	Three meetings in 2019
Technical adaptation committees (six committees)	› Coordinate adaptation efforts in their respective business units › Assess asset/activity vulnerabilities › Prioritize the adaptation measures to implement, monitor their costs and oversee their application	Ten meetings in 2019

GRI GRI 201-2

Strategy

The four main strategies laid out in our *Strategic Plan 2020–2024* are directly linked to the issue of climate change.

Impact of climate change on the company

Our work with Ouranos has helped us identify the meteorological variables that are liable to shift in the coming decades, along with their potential impact on our operations and the adaptation measures we could envision.

Starting in 2020, we will define climate model scenarios and parameters, the better to assess vulnerable assets and activities. Adaptation costs will be weighed on that basis in consideration of the following factors:

- Climate change-related costs (damage to infrastructures, outages, etc.)
- The cost of solutions, including infrastructure upgrades
- The benefits of adaptation solutions

As of 2021, under our adaptation plan we will deploy the measures selected in line with action priorities (short, medium and long term). An employee awareness and training program will also be implemented in 2020.

Impact of Hydro-Québec's operations on climate change

Since the late 1990s, Hydro-Québec has used ISO 14001-certified environmental management systems to guide any company operations (including those that generate GHG emissions) that could potentially affect the environment.

If climate change influences our strategies and actions, the reverse is also true: many of those strategies could, in turn, have a positive effect on global climate change. Québec's abundance of low-carbon energy presents excellent business opportunities in the short and medium term. For example, our hydropower could quickly and effectively

Strategic Plan strategies

Strategy	Link to climate change
Electrify Québec and be a leader of the energy transition.	**Opportunity** Clean energy promotes electric transportation. Converting fossil fuel-burning systems to electricity helps reduce GHG emissions. The conversion of Hydro-Québec's off-grid systems to cleaner and cheaper energy sources has begun.
Seize growth opportunities in Québec and beyond our borders.	**Opportunity** A clean and abundant energy supply is attractive to energy-intensive industries like data and computing centers seeking to reduce their carbon footprint. It also makes new long-term power purchase agreements a possibility. The load balancing capability of our hydropower generating fleet could support the growth of intermittent renewables like wind and solar.
Develop a culture focused on customers and occupational health and safety.	**Opportunity** Roll out a range of smart-home services and customer programs adapted to climate change. **Risk** Our infrastructures are distributed over a vast territory and are very sensitive to weather. We must continue to keep the grid reliable and offer quality service at the lowest possible cost.
Continuously improve our operating performance.	**Opportunity** Leverage the existing synergies between different teams, particularly regarding expertise and maintaining company assets. Keep power system technologies up to speed with new developments. **Risk** Since inaction will invariably prove more costly, an adaptation plan is vital to mitigating climate change-related risks and better understanding the phenomenon. We must adapt how we operate our most vulnerable assets, protect the physical integrity of at-risk facilities and raise grid resilience. There are foreseeable impacts on our planning and on the design, construction and operation of our structures.

GRI GRI 201-2

help decarbonize northeastern North America. Our clean energy also attracts energy-intensive businesses like data centers to Québec. Lastly, it compares favorably to other energy sources across numerous sectors, from industrial processes to transportation and heating.

Risk management

Setting the adaptation plan in motion will require mechanisms to ensure climate-sensitive decision-making, for example by:

- Monitoring the implementation and progress of the measures laid out in the plan
- Integrating climate risk considerations into our risk-management processes and tools
- Identifying the guidelines and decision-support tools requiring modification and developing a revision strategy

In the coming years, we will also factor in climate risk when updating internal guidelines.

Indicators and targets

Acting locally and internationally, Hydro-Québec intends to remain an energy transition leader by offering solutions for transportation electrification and converting systems powered by fossil fuels to electricity. We're also committed to reducing GHG emissions across the continent, including by exporting clean energy to neighboring markets. To achieve this, we've set ourselves ambitious targets.

GHG emission reduction indicators and targets

Indicator	Target
Avoided GHG emissions in Québec (percentage of Québec government target for 2030 compared to 1990 emission level)	2024 target: 17%
GHG emissions avoided through our long-term export contracts (Mt CO_2 eq.)	2024 target: 4.6 Mt CO_2 eq.
Direct emissions from Hydro-Québec operations	2027 target: 35% reduction
Becoming a carbon-neutral company	2030 target: carbon neutrality

Indicators and targets specific to the adaptation plan will be established once the plan has been adopted.

Go to the carbon footprint page

GRI GRI 302-4

Sustainable Development Action Plan 2015–2020

In July 2015, in response to the Government Sustainable Development Strategy 2015-2020 (in French only), we published our third Sustainable Development Action Plan. Through our initiatives, we aim to contribute to implementing this strategy, the strategy to ensure the occupancy and vitality of territories (in French only) and Québec's Agenda 21 for culture (in French only).

Action	Indicator	Targets and results
		2015 · 2016 · 2017 · 2018 · 2019 · 2020
OVT **1 | Build hydropower projects** ⊕	Cumulative capacity made available by the Romaine project (MW)	2015: 910 (640) · 2016: 910 (910) · 2017: 1,305 (1,305) · 2018: 1,305 (1,305) · 2019: 1,305 ✓ (1,305) · 2020: (1,550)
OVT **2 | Increase the capacity of existing hydroelectric generating stations** ⊕	Cumulative gains in additional available peak capacity (MW)	2015: 36 (36) · 2016: 42 (42) · 2017: 55 (54) · 2018: 61 (60) · 2019: 61 ✓ (60) · 2020: (60)
3 | Continue energy efficiency initiatives ⊕	New annual energy savings (GWh)	2015: 570 (500) · 2016: 534 (500) · 2017: 524 (500) · 2018: 500 (455) · 2019: 500 (478) ✓ · 2020: (500)
OVT **4 | Continue efforts in the field of transportation electrification in Québec** ⊕	Number of Electric Circuit charging stations in service/ number of regions served	2015/16: 577/16 (800) · 2016/16: 794/16 (1,100) · 2017/16: 1,271/16 (1,689/16) · 2018/16: 1,689/16 (2,389/17) · 2019/17: 2,389/17 ✓ (2,500)
	R&D partnership agreements	**1 agreement.** ✓ No target has been set for this indicator.
	Number of patents held	**564 patents.** ✓ No target has been set for this indicator.

OVT Action related to the implementation of the strategy to ensure the occupancy and vitality of territories.

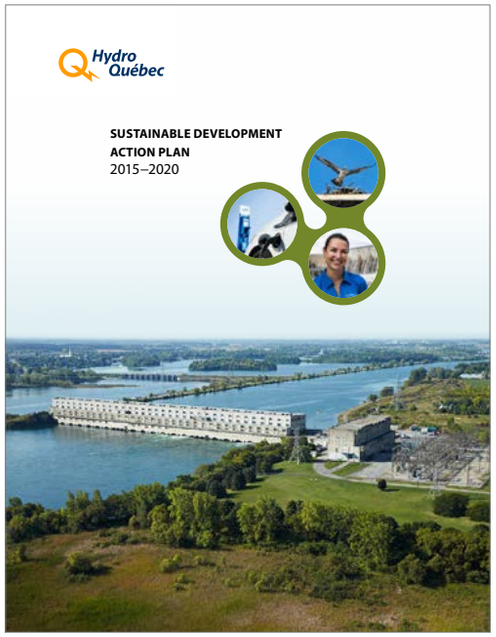
Sustainable Development Action Plan 2015–2020

Action	Indicator	Targets and results					
		2015	2016	2017	2018	2019	2020
C **5 | Publicize the knowledge acquired through Hydro-Québec environmental studies** ⊕	Number of publications on the web	3	3	7	4	7 ✓	
		2	2	2	2	2	2
OVT C **6 | Continue to protect and enhance the company's built, technological and intangible heritage** ⊕	Number of measures carried out by 2020	1	2	3	7	3 ✓	
							2
OVT **7 | Strengthen environmentally responsible management practices** ⊕	Annual GHG emissions from the light-vehicle fleet ($t\ CO_2$ eq.)	25,322	22,852	21,532	21,215	20,346 ✓	
		25,360	25,360	24,733	24,590	24,446	24,302
	Number of videoconferences held annually	6,723	9,266	12,247	17,074	17,015 ✓	
		4,360	4,430	4,500	4,580	4,650	4,720
	Company printers that are print-release enabled (%)	7.6	11.4	16.0	18.4	21.0 ✓	
							15

OVT Action related to the implementation of the strategy to ensure the occupancy and vitality of territories.

C Action related to the implementation of Québec's Agenda 21 for culture.

Sustainable Development Action Plan 2015–2020



Sustainable Development Action Plan 2015–2020 (W)

Action	Indicator	Targets and results					
		2015	2016	2017	2018	2019	2020
OVT 8 | Continue measures that take into account and protect biodiversity and ecosystem services	Number of innovative measures implemented annually to take into account and protect biodiversity and ecosystem services	7 5	7 5	5 5	5 5	5 ✓ 5	 5
9 | Optimize the application of sustainability principles to projects and activities	Number of projects or activities analyzed each year	1 1	1 1	1 1	1 1	 0	 1
OVT 10 | Promote the integration and favorable reception of Hydro-Québec's system equipment	Regional county municipalities (RCMs) that have received the information (%)	2	18	44	72 ✓		90
11 | Integrate the concept of life cycle in our innovation efforts	Number of projects to which sustainability and eco-innovation principles have been applied	1 1	1 1	1 1	1 1	1 ✓ 1	 1
12 | Keep updating the state of knowledge on the life cycle assessment of the electricity distributed in Québec	Number of updates of inventory data on the life cycle of Québec's electricity mix per year	1 1	1 1	1 1	1 1	1 ✓ 1	 1

OVT Action related to the implementation of the strategy to ensure the occupancy and vitality of territories.

GRI content index for 'In Accordance' Core[a]

With regard to the *Materiality Disclosures Service*, the GRI has established that the presentation of the GRI content index is clear and that the references shown for disclosures 102-40 to 102-49 refer to the corresponding sections in the body of this report.

a) More information is provided in the Global Reporting Initiative (GRI) index on the Hydro-Québec website.

b) When a general standard disclosure is dealt with only on the website, the word web is listed.

General disclosures

No.	General disclosures	Page[b]	Omission or comment
GRI 101: General disclosures 2016 GRI 101 does not require any particular disclosure			
GRI 102: General Disclosures 2016			
Organizational profile			
GRI 102-1	Name of the organization	1, 5	
GRI 102-2	Primary brands, products and services	5, 12, 13	
GRI 102-3	Location of headquarters	110	
GRI 102-4	Location of operations	5, 13	
GRI 102-5	Ownership and legal form		Omission: Division II of the *Hydro-Québec Act*, "Constitution of the Company," sets out the nature of Hydro-Québec's ownership and legal form.
GRI 102-6	Markets served	5, 13	
GRI 102-7	Scale of the organization	5, 13-15, 44	
GRI 102-8	Information on employees and other workers	5, 13	Comment: Workforce numbers based on contract type are not available. Total numbers of outside workers by employment type, employment contract and region are not available.
GRI 102-9	Supply chain	9, 32, 44, 45	
GRI 102-10	Significant changes		Omission: No significant changes related to this indicator occurred in 2019.
GRI 102-11	Precautionary Principle or approach	59, 60, 62, 63, 65	
GRI 102-12	External initiatives	10, 19, 23, 24, 64	
GRI 102-13	Memberships of associations	19, 30, 49, 51, 59, 62	
Strategy and analysis			
GRI 102-14	CEO's statement	7, 8	
GRI 102-15	Key impacts, risks and opportunities	4, 12, 14, 15	
Ethics and integrity			
GRI 102-16	Ethical behavior	19, 21	
Governance			
GRI 102-18	Governance structure	19-25	
GRI 102-22	Composition of the highest governance body	19-21	
GRI 102-23	Chair of the Board of Directors	21	

GRI content index for 'In Accordance' Core[a]

General disclosures

No.	General disclosures	Page[b]	Omission or comment
GRI 102-24	Nominating and selecting board members	21, 22	
GRI 102-32	Board of Directors' roles in reviewing or approving the Sustainability Report	21	
Stakeholder engagement			
GRI 102-40	List of stakeholder groups	9, 17, 31, 46, 54, 67, 78, 86	
GRI 102-41	Collective bargaining agreements	95	Comment: The percentage of outside workers covered by a collective agreement is not available (sector supplement).
GRI 102-42	Identifying and selecting stakeholders	9, 11, 17, 31, 46, 54, 67, 78, 86	
GRI 102-43	Approach to stakeholder engagement	9, 11	
GRI 102-44	Key topics and concerns	11, 18, 32, 47, 55, 68, 79, 87	
Reporting practice			
GRI 102-45	Entities included	10, 12	
GRI 102-46	Report content and topic boundaries	11	
GRI 102-47	Material topics	11, 18, 32, 47, 55, 68, 79, 87	
GRI 102-48	Restatements of information		Comment: There has been no restatement of information provided in earlier reports.
GRI 102-49	Significant changes		Comment: There has been no significant change with respect to reporting periods, list of material topics or topic boundaries.
GRI 102-50	Reporting period	10	
GRI 102-51	Date of most recent report		Comment: The *Sustainability Report 2018* was published on May 6, 2019.
GRI 102-52	Reporting cycle	10	
GRI 102-53	Contact point	110	
GRI 102-54	Claims of reporting in accordance with the GRI Standards	10	
GRI 102-55	GRI Content index	103-107	
GRI 102-56	External assurance	108-109	
Electric utilities sector disclosures			
EU1	Installed capacity	5, 12, 13	
EU2	Net energy output	14, 68	

a) More information is provided in the Global Reporting Initiative (GRI) index on the Hydro-Québec website.

b) When a general standard disclosure is dealt with only on the website, the word web is listed.

GRI content index for 'In Accordance' Core[a]

General disclosures

No.	General disclosures	Page[b]	Omission or comment
EU3	Number of customers	12, 13, 48	
EU4	Length of transmission and distribution lines	5, 12, 13	
EU5	Allocation of CO_2 emissions allowances or equivalent	57, 69	
Management approach			
GRI 103: Management approach 2016			
GRI 103-1	Explanation of the material topic and its boundary	11, 12, 13, 18, 32, 47, 55, 68, 79, 87	
GRI 103-2	The management approach and its components	7, 8, 12, 14, 15, 18, 19, 32, 47, 55, 68, 79, 87	
GRI 103-3	Evaluation of the management approach	14, 15	
Economic			
GRI 201: Economic performance 2016			
GRI 201-1	Direct economic value generated and distributed	12, 13, 32, 44, 45, 94	Comment: Salaries and employee benefits are considered confidential information and are not released.
GRI 201-2	Financial implications and other risks and opportunities due to climate change	56, 57, 59, 60, 96-99	
GRI 203: Indirect economic impacts 2016			
GRI 203-1	Infrastructure investments and services supported	40, 41, 81	
GRI 203-2	Significant indirect economic impacts	12, 15, 44, 76	
GRI 204: Procurement practices 2016			
GRI 204-1	Local suppliers	13, 44, 45, 76	
Aspect: Availability and reliability (electric utilities sector disclosures)			
EU10	Planned capacity against projected electricity demand over the long term	68-71	
Environment			
GRI 301: Materials 2016			
GRI 301-1	Materials used		Omission: Hydro-Québec does not measure the weight or volume of recycled materials used.
GRI 301-2	Recycled input materials used		
GRI 302: Energy 2016			
GRI 302-4	Reduction of energy consumption	14, 72-74, 100	

a) More information is provided in the Global Reporting Initiative (GRI) index on the Hydro-Québec website.

b) When a general standard disclosure is dealt with only on the website, the word web is listed.

GRI content index for 'In Accordance' Core[a]

General disclosures

No.	General disclosures	Page[b]	Omission or comment
GRI 303: Water 2016			
GRI 303-1	Water withdrawal by source	14	
GRI 304: Biodiversity 2016			
GRI 304-1	Sites near areas of high biodiversity value	62, 66, 77	
GRI 305: Emissions 2016			
GRI 305-1	Direct GHG emissions (Scope 1)	14, 55-58	
GRI 305-2	Energy indirect GHG emissions (Scope 2)	55, 58	
GRI 305-3	Other indirect GHG emissions (Scope 3)	55, 58	
GRI 305-4	GHG emissions intensity	55, 58	
GRI 305-5	Reduction of GHG emissions	14, 55, 57, 58	
GRI 305-7	NO_x, SO_x and other atmospheric emissions	14, 57	
GRI 307: Environmental compliance 2016			
GRI 307-1	Noncompliance with environmental laws and regulations	14, 76	
Social – Labor practices and decent work			
GRI 403: Occupational health and safety 2016			
GRI 403-2	Work-related injuries, diseases and absenteeism	15, 27, 43	Comment: Hydro-Québec discloses only the work-related accident rate. Other information for this indicator is confidential.
GRI 405: Diversity and equal opportunity 2016			
GRI 405-1	Diversity and equality	29, 30	
Social – Society			
GRI 413: Local communities 2016			
GRI 413-1	Engagement, assessments and development programs	32-40, 63	
GRI 413-2	Impacts on local communities	13, 65, 76	
Social – Product responsibility			
Aspect: Customer health and safety			
EU25	Injuries and fatalities	43	Comment: Information about court decisions, out-of-court settlements and ongoing suits related to disease cases is not available.

a) More information is provided in the Global Reporting Initiative (GRI) index on the Hydro-Québec website.

b) When a general standard disclosure is dealt with only on the website, the word web is listed.

GRI content index for 'In Accordance' Core[a]

General disclosures

No.	General disclosures	Page[b]	Omission or comment
GRI 417: Marketing and labeling 2016			
GRI 417-1	Product and service information	56, 58	
Aspect: Access (electric utilities sector disclosures)			
EU29	Average power outage duration	15, 47	

a) More information is provided in the Global Reporting Initiative (GRI) index on the Hydro-Québec website.

b) When a general standard disclosure is dealt with only on the website, the word web is listed.

GRI GRI 102-56

Independent assurance

To Hydro-Québec Management,

EEM Gestion ESS inc. was engaged to conduct an independent evaluation of Hydro-Québec's *Sustainability Report 2019*, which covers the period from January 1 to December 31, 2019. Our role consists in providing an independent opinion of this Report, the preparation and content of which are the responsibility of Hydro-Québec.

Assurance mission

Our evaluation was conducted in compliance with the requirements of Type 2 assurance as provided in the AccountAbility AA1000 Assurance Standard (2018) for a moderate level of assurance. The following qualities of the Report were reviewed:

- Adherence to the Principles for Sustainable Development in the AA1000 AccountAbility Principles Standard (2018)
- Reliability of the quantitative sustainability performance information (identified in the Report by the ✔ symbol)
- Concordance of Hydro-Québec's performance information with specific indicators drawn from the Global Reporting Initiative (GRI) standard disclosures

Statement of independence

EEM Gestion ESS has policies and procedures in place to ensure that its employees maintain their independence during the execution of its independent evaluations. The evaluation of this Report was carried out by a team of seasoned auditors holding recognized professional certification. The team members confirm that they are independent.

Assurance approach

The evaluation conducted by EEM Gestion ESS between January and March 2020 consisted of the following:

- Interviews with Hydro-Québec managers and executives on current issues and subjects of interest for stakeholders in relation to sustainability. This exercise allowed us to further our understanding of how these issues are considered and presented by Hydro-Québec in its Report, and to validate the degree of Hydro-Québec's adherence to the AA1000 AP (2018) sustainability principles.
- Verification of over 550 data items, including interviews with some 60 employees to better understand the data collection process, the sources of the data and control measures applied.
- Verifications to validate the concordance of data with specific indicators drawn from the Global Reporting Initiative (GRI) standard disclosures.

GRI GRI 102-56

Independent assurance

Adherence to the AA1000 principles

Inclusivity

Hydro-Québec identifies its stakeholders systematically; they include members of industry, civil society and regional communities. Hydro-Québec's various dialogue processes with these stakeholders demonstrates the organization's commitment to social acceptability in its business strategy, which is further materialized by the integration of sustainability principles in its projects and operations.

Materiality

Hydro-Québec has a robust and interactive Materiality Analysis process that covers all of the organization's operations. The process is used to review and prioritize issues, and contributes to the content of the Report. The previous Materiality Analysis, conducted in 2017, as well as a responsiveness exercise conducted with stakeholders in 2019, served as a basis for the *Sustainability Report 2019*.

Responsiveness

To respond to the concerns of external and internal stakeholders, Hydro-Québec has acquired and strategically deployed various tools and resources. The organization prioritizes responsiveness based on its relevant issues and its sustainability challenges. The stakeholders appear to be well served by these processes, including the annual publication of the Sustainability Report.

Impact

Hydro-Québec has a history of systematically evaluating the impacts of its strategies, decisions, projects and activities on the environment and on its stakeholders. These evaluations fuel the organization's dialogue and interactions with the stakeholders. The impacts are documented in the Report and as they relate to the materiality matrix.

Conclusion

The assurance team considers that, based on the assurance approach used, the information contained in the *Sustainability Report 2019* presents a reliable account of Hydro-Quebec's sustainability performance during the period.

Montréal, March 12, 2020

Véronique Tousignant
Lead Auditor
Director of Administration and Partner, EEM Gestion ESS
AA1000 Licensed Assurance Provider 270

Share your comments with us

We would like to know what you think of our report. Please submit your questions and comments.

Units of measure

¢/kWh	cent or $0.01 per kilowatthour
$'000	thousands of dollars
$M	millions of dollars
$B	billions of dollars
V	volt (a unit for measuring voltage)
kV	kilovolt (one thousand volts)
W	watt (a unit for measuring power)
kW	kilowatt (one thousand watts)
MW	megawatt (one million watts)
GW	gigawatt (one billion watts)
Wh	watthour (a unit for measuring electric energy)
kWh	kilowatthour (one thousand watthours)
MWh	megawatthour (one million watthours)
GWh	gigawatthour (one billion watthours)
TWh	terawatthour (one trillion watthours)
MMBtu	one million Btu (British thermal units)
t	tonne (metric ton)
g CO_2 eq.	gram of CO_2 equivalent
t CO_2 eq.	tonne of CO_2 equivalent
kt CO_2 eq.	thousands of tonnes of CO_2 equivalent
Mt CO_2 eq.	millions of tonnes of CO_2 equivalent
Mtoe	million toe (a million tonnes of oil equivalent)
PJ	petajoule (unit of energy equal to 1015 joules)

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Legal deposit – 2nd quarter 2020
Bibliothèque et Archives nationales du Québec
ISBN 978-2-550-86246-8 (PDF)

2020G111A

The original text written in French shall prevail.

Ce document est également publié en français.

www.hydroquebec.com

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2020G111A