



QUÉBEC'S HYDROPOWER RESOURCES
POWERING THE EMPIRE STATE

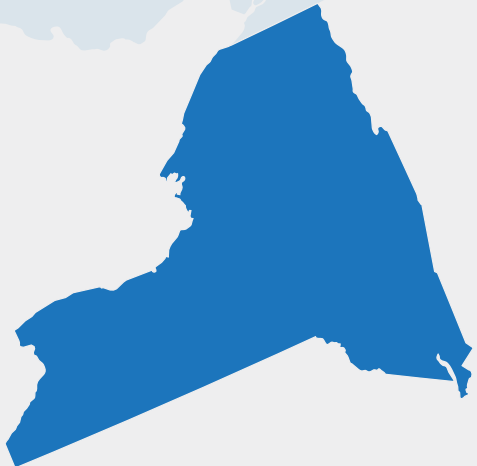
LONG-TERM SOLUTIONS FOR NEW YORK'S CLEAN ENERGY FUTURE

Hydro-Québec, New York's energy partner for decades, offers the reliability, robustness, low-carbon content and flexibility of its hydropower system in the development of solutions to help meet various renewable energy and climate goals.

QUÉBEC HYDROPOWER CAN MEET 25% OF THE REMAINING TARGET QUANTITY.*

GOALS	GHG EMISSIONS REDUCTION	USE OF RENEWABLE ENERGY
STATE LEVEL (from 1990 levels)	40% by 2030 80% by 2050	50% by 2030
NEW YORK CITY (from 2005 levels)	40% by 2030 80% by 2050	100% of city government buildings

QUÉBEC HYDROPOWER CAN MEET THIS ENTIRE LOAD.*



*Based on additional transmission capacity of 1,000 MW.

QUÉBEC HAS THE CLEAN ENERGY NEW YORK IS LOOKING FOR

Firm supply

at all times,
all year round

Clean energy

to support renewable energy and GHG reduction goals

Cost-effective solutions

to promote stable and affordable prices

Hydro-Québec has a century-long history of supplying hydropower to the state of New York, beginning with the construction of the Cedars Rapids Transmission intertie. The company has enough hydropower to supply New York with more clean energy today, but the additional deliveries would require more transmission capacity between the Québec and New York grids.

Enhancing grid integration, through either new transmission infrastructure or upgrades to existing facilities, will improve reliability and cost-effectiveness in New York for decades to come. Interconnected electricity markets are more efficient, using power generated from a range of resources over a much wider geographic area. That lowers the cost of producing and managing electricity for everyone.



ENERGY, CAPACITY AND ENVIRONMENTAL ATTRIBUTES

Hydro-Québec has a fleet of 62 hydroelectric generating stations, including one off-grid station. Power comes from the entire system, not from just one particular generating facility, and is carried over a robust high-voltage transmission system. For this reason, supply is not affected by maintenance or equipment failure at any single facility.

Not only is hydropower a constant, permanently available energy source, it's also flexible. Thanks to its storage capacity, a reservoir generating station can respond instantly to changes in demand. Hydro-Québec uses this feature of its hydropower system to develop solutions in keeping with its customers' needs, such as increasing energy deliveries during high-demand periods in summer and winter, and partnering with developers and system operators to reliably integrate intermittent renewables like wind and solar.

COMPETITIVE AND COST-EFFECTIVE FOR DECADES TO COME

Renewable energy deliveries from Hydro-Québec are among the most competitively priced options available to New York.

The unique characteristics of Hydro-Québec's power system provide the opportunity for competitive and stable energy pricing for customers over the long term.

- Hydropower generating stations are efficient and have very long lifespans.
- Once built, these facilities have predictable operating costs.
- Delivery of large quantities of energy maximizes the value of existing transmission infrastructure and improves the cost-effectiveness of new transmission investment.

Hydro-Québec proposes a competitively priced, high-value product customized to meet the economic, environmental and reliability needs of customers in New York.



QUÉBEC ENERGY FOR A LOW-CARBON FUTURE

Québec hydropower can be part of the solution to the major challenges facing North America in reducing greenhouse gas emissions and ensuring a secure electricity supply.

VAST HYDROPOWER RESOURCES

99%

of our electricity is generated from water

> 500,000 lakes

> 4,500 rivers, **75** of which have been developed for power generation

Hydropower ranks among the lowest-emission generating options per kilowatthour.

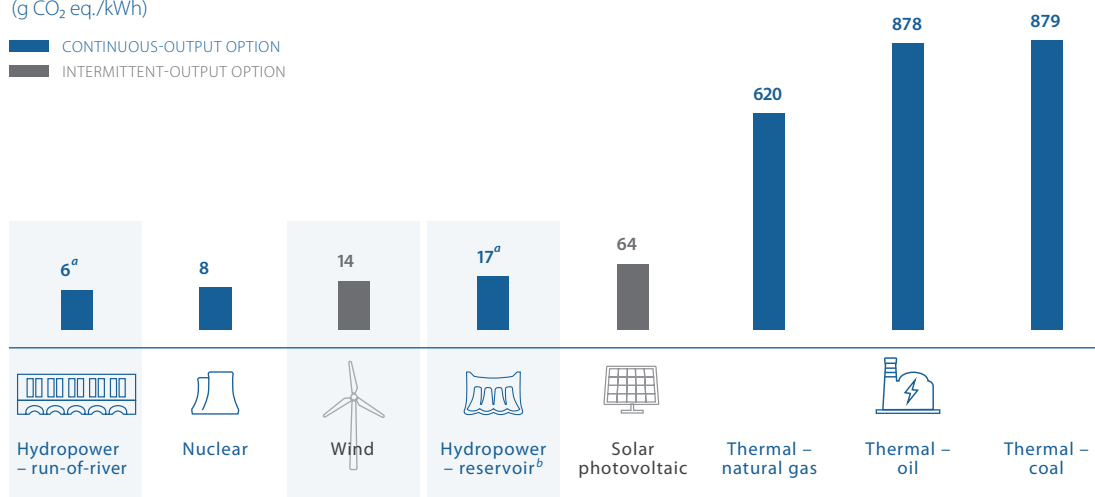
QUÉBEC ELECTRICITY, CLEAN ENERGY PAR EXCELLENCE

GHG emissions – power generation options based on life-cycle analysis

[www.hydroquebec.com/developpement-durable/centre-documentation/pdf/15094A.pdf]

(g CO₂ eq./kWh)

■ CONTINUOUS-OUTPUT OPTION
■ INTERMITTENT-OUTPUT OPTION



a) Hydro-Québec's results.

b) Reservoir hydropower differs from run-of-river hydropower with respect to GHG emissions. After it is impounded, a reservoir releases GHG emissions, the emission rate diminishing gradually over the following ten years. This is why GHG emission rates are higher for reservoir hydropower than for run-of-river hydropower.

HYDRO-QUÉBEC: THE BATTERY OF NORTHEAST NORTH AMERICA

In addition to being a major source of clean energy, Hydro-Québec's vast reservoir system enables it to firm up intermittent renewables, absorb excess generation from surrounding markets and flow that power back onto those grids when it is most needed.

WORKING WITH HYDRO-QUÉBEC OFFERS EXCEPTIONAL ADVANTAGES TO NEW YORK:

- **Clean energy** that will help the state meet its clean energy goals in the most cost-effective way
- **Energy now** – Hydro-Québec's hydropower resources are already in service
- **Enhanced reliability** – Hydro-Québec's vast generation and transmission system supports deliveries
- **Foreseeable long-range operating costs** – Hydro-Québec can offer long-term contracts with competitive pricing far into the future
- **Extensive experience** in operations and maintenance
- **Proven track record** in developing large energy projects

As a region, we've been working together in the energy sector for decades. But Québec can do more to ensure a low-carbon future for the entire Northeast.

