

Transmitting the Energy of Our Goals

Upgrading of the Main Transmission System

Table of contents

3	Upgrading the main transmission system, a pillar of the energy transition	6	735-kV lines: the backbone of Québec's energy system	8	Working together to meet this great collective challenge
5	Generate more clean power helps decarbonize and ensure prosperity for all Quebecers	7	Overview of the study areas	9	Next steps

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Upgrading the main transmission system, a pillar of the energy transition

Our [*Action Plan 2035 - Towards a Decarbonized and Prosperous Québec*](#) calls for the addition of some 9,000 MW of clean energy by 2035. To ensure reliable delivery of this energy to consumers, investment in our transmission system is vitally important. This is an essential condition for securing Québec's energy future.

Between now and 2035, we will invest \$50 billion and build 5,000 km of transmission lines, including nearly 2,500 km of transmission lines (735 kV and 315 kV) on the main grid and approximately 2,500 km of lines operating at lower voltages (between 69 kV and 315 kV) to support regional development and supply local loads.

In the **first phase**, Hydro-Québec is launching the largest electricity transmission project in decades, involving major work on the existing system and the addition of high-voltage infrastructure. The upgrading of the transmission system to 735 kV—a homegrown technological innovation—will play a vital role in this deployment. All in all, nearly 850 km of transmission lines (approximately 675 km at 735 kV, and 175 km at 315 kV) and 5 transmission substations will have to be built. This first phase will mainly enable the integration into the grid of additional energy from major wind power projects, and projects to increase capacity at existing generation stations.

In the **second phase**, to be presented at a later date, the transmission system will continue to expand, mainly to accommodate output from possible hydroelectric developments and other energy sources.

The purpose of this document is to present the areas involved in the first phase, and demonstrate the fundamental importance that will be attached to the social acceptability approach throughout the consultation process. Hydro-Québec will listen to communities. That's what will guide us. Consultations have already begun, and will continue as the projects progress.

Highlights

This first phase in the development of the main transmission system involves:

- consultation and mobilization of more than 25 regional county municipalities (MRC), nearly 200 municipalities and some 11 Indigenous communities from 6 First Nations to develop the project in accordance with the principles of sustainable development;
- constructing around 850 km of high-voltage transmission lines with some 1,600 towers and 5 strategic substations to deliver clean energy to Québec households and businesses;
- optimizing the existing system for the purpose of limiting the number of new infrastructures;
- creating thousands of jobs over a 10-year period;
- over \$10 billion in investment and over \$7 billion in economic spinoffs for the benefit of all Quebecers.

Generate more clean power helps decarbonize and ensure prosperity for all Quebecers

Increased energy efficiency will be essential in the coming years, but will not be enough to meet the growth in demand. Québec must also produce more renewable electricity, with a particular focus on increasing the capacity of existing facilities and commissioning new wind farms. Most of this new output will come from the northern and eastern regions of Québec.

Wind power

Triple wind generation (phase 1)

In accordance with our [Wind Power Development Strategy](#), we intend to play the role of maître d'oeuvre (lead actor) in the development of wind power, in partnership with First Nations, MRCs, municipalities and industry partners. Since the strategy was unveiled, two major partnership agreements have been announced:

- with the Pekuakamiulnuatsh First Nation, the Atikamekw Council of Wemotaci and the Domaine-du-Roy MRC for the development of the Chamouchouane area in Saguenay-Lac-Saint-Jean (about 3,000 MW);
- with the Alliance de l'énergie de l'Est for the development of the Wocawson area in the southwestern Bas-Saint-Laurent region (about 1,000 MW).

These partnerships are in addition to those covering wind farms under development, including Apuiat and Des Neiges.

Hydropower

Increase the capacity of existing hydropower facilities (phase 1)

To maximize the use of existing infrastructure, increasing the capacity of certain hydropower facilities is a priority. We will replace generating units with newer models to achieve significant capacity gains.

Assess the possibilities for new hydropower facilities (phase 2)

The importance of hydropower potential is undeniable, and our expertise and know-how in this field are recognized worldwide. We will work in partnership with First Nations and municipalities to assess the potential for new hydropower facilities.

735-kV lines: the backbone of Québec's energy system

Hydro-Québec's transmission lines are the backbone of its power grid. Invented in 1965 by Québec engineer Jean-Jacques Archambault, 735-kV technology revolutionized the world of electricity. It allows large quantities of energy to be transmitted efficiently over long distances while limiting the number of lines required.

To accommodate and transport the additional energy that will be generated and make it accessible throughout Québec, we need to strengthen our main transmission system and add robust infrastructure. In all, some 850 km of 735-kV and 315-kV transmission lines and 5 transmission substations will be built in 3 areas in the coming years.

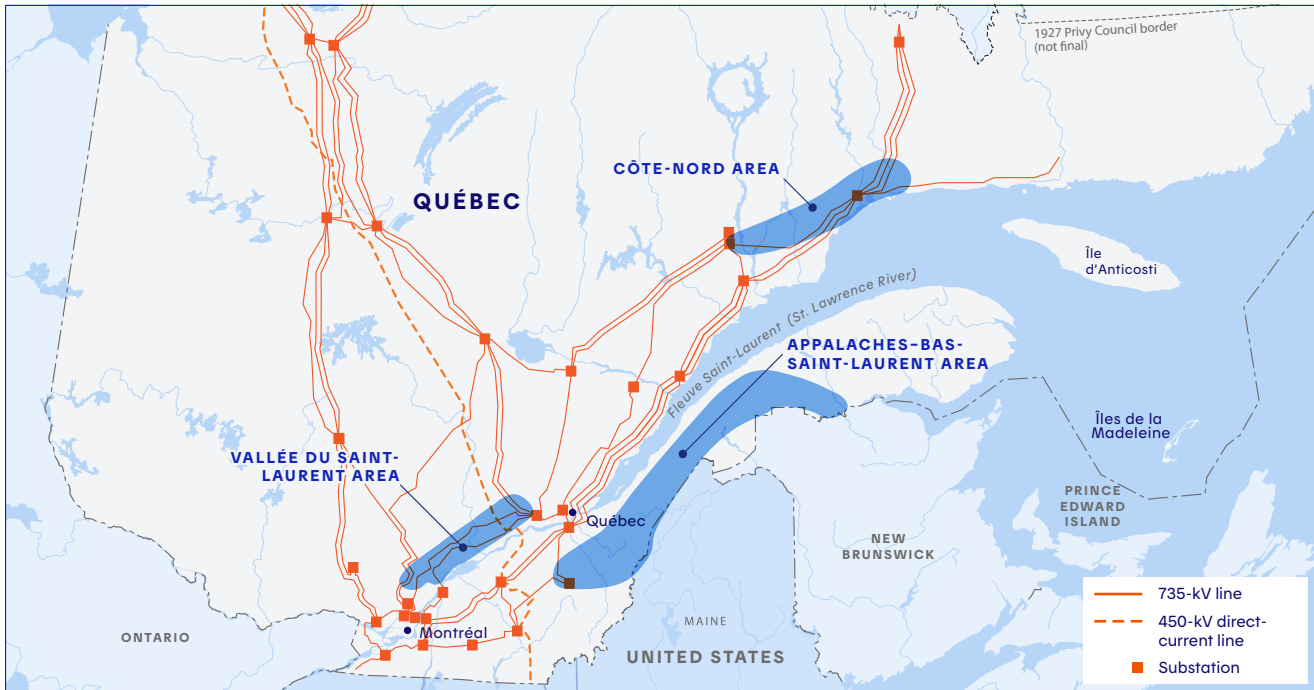
The total capacity of these lines will overcome transmission constraints on the main grid and deliver the additional energy to major load centres. This increase in capacity is estimated at 2,500 MW per line, representing the consumption of around 330,000 households with electric heating.

These large-scale projects, essential to the energy transition, will:

- allow renewable energy sources to be developed in certain regions where transmission system capacity is limited;
- meet the needs resulting from the electrification of transportation and the decarbonization of building heating;
- create wealth and economic spinoffs for households in all regions of Québec, chiefly by supporting regional development;
- maintain the reliability of the transmission system;
- increase the main transmission system's resilience to major weather events such as ice storms and forest fires.

The planned interventions will be deployed in three priority areas: Côte-Nord, Appalaches-Bas-Saint-Laurent and Vallée du Saint-Laurent. At this stage, no line route has been defined.

Overview of the study areas



Objectives – North Shore area

- Integrate the output stemming from the increased capacity of existing generating stations.
- Enable the development of renewable energy sources in the region.
- Support the region's industrial development.
- Improve the grid's reliability and resilience in the face of increasingly intense weather events.

Objectives – Appalaches-Bas-Saint-Laurent area

- Continue the development of wind potential in Eastern Québec.
- Improve the grid's reliability and resilience in the face of increasingly intense weather events.

Objectives – Vallée du Saint-Laurent area

- Enable additional electricity to be transmitted from northern and eastern Québec.
- Increase the transmission capacity of existing 735-kV lines that have reached their limits.
- Secure the electricity supply to major load centres.
- Improve the grid's reliability and resilience in the face of increasingly intense weather events.

Working together to meet this great collective challenge

Upgrading and strengthening the main transmission system represents the largest electricity transmission project in recent decades. This ambitious plan gives us an opportunity not only to innovate in terms of our practices, but also to energize regional economies and create synergies with other players in the sector and with the construction industry, thus maximizing spinoffs and benefits for Québec society.

The scale of the project and the need to build various facilities simultaneously in several regions of Québec present challenges. Hundreds of stakeholders will be consulted, including local and regional communities as well as First Nations, dozens of technical and environmental studies will have to be carried out, thousands of workers will have to be hired, and tens of thousands of tonnes of steel will have to be assembled for the construction of hundreds of towers. In addition, the impacts of climate change will be taken into account, and new infrastructures will be adapted accordingly.

The task will be considerable. The various components of the project will be carried out in compliance with recognized sustainable development standards so as to minimize impacts on the various environments—natural, agricultural, forestry, landscape and human—in accordance with our agreement with the Union des producteurs (UPA) on running transmission lines in agricultural and forest environments and with the *Biodiversity Action Plan* that we have committed to present. The social acceptability of these projects will be among our highest priorities.

To meet this great collective challenge, the collaboration and involvement of local and regional communities and First Nations will be essential. To enable them to contribute to the energy transition and the success of this project, we will honour the commitments we made during the dialogue on the *Action Plan 2035*:

- be transparent and offer greater predictability regarding the various project components;
- show openness and a willingness to listen during consultations;
- pursue rigorous environmental and landscape studies;
- minimize impacts on biodiversity, valued environments and agricultural land, and judiciously determine mitigation measures;
- identify real and potential improvements to the project;
- maintain an ongoing dialogue throughout all stages of project completion;
- maximize economic spinoffs for Québec.

Next steps

Hydro-Québec has initiated consultations to discuss the upgrading of its main transmission system with representatives of First Nations, RCMs, municipalities and various regional groupings.

These consultations are intended to present the areas under study and planned projects, deepen knowledge of the host environments and gather concerns. In the coming weeks and months, Hydro-Québec's project team will continue its discussions with host communities. A variety of activities will be offered, including:

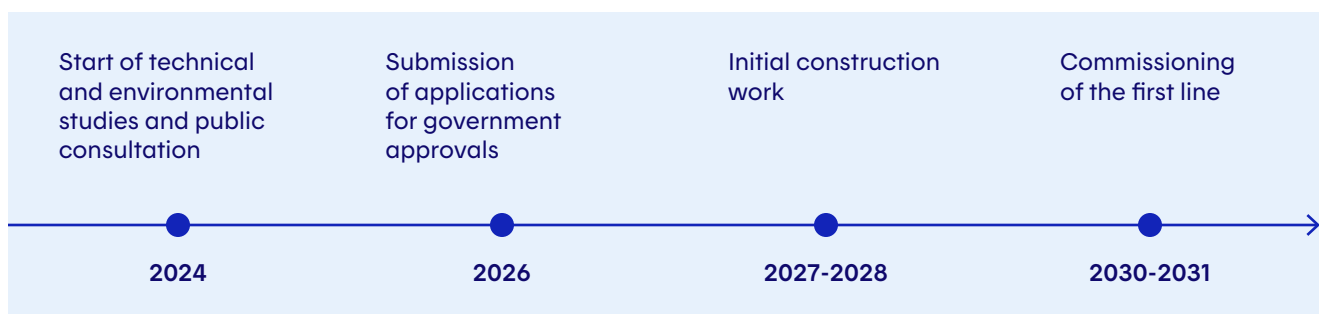
- working meetings;
- themed workshops;
- Open houses for citizens;
- webinars and online consultations;
- technical briefings with the media;
- personalized contacts with potentially affected landowners.

Information provided by the various stakeholders will be invaluable for the completion of technical and environmental studies and will guide us in developing line routes and determining least-impact substation locations.

Hydro-Québec is committed to listening to and being transparent with communities throughout the project's various stages.

The completion schedules for each of the areas are subject to change, depending chiefly on the consultations to be carried out, the required environmental studies and inventories, the obtaining of government authorizations, workforce availability and the scale of the work to be carried out.

Major stages in the upgrading of the main transmission system



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