

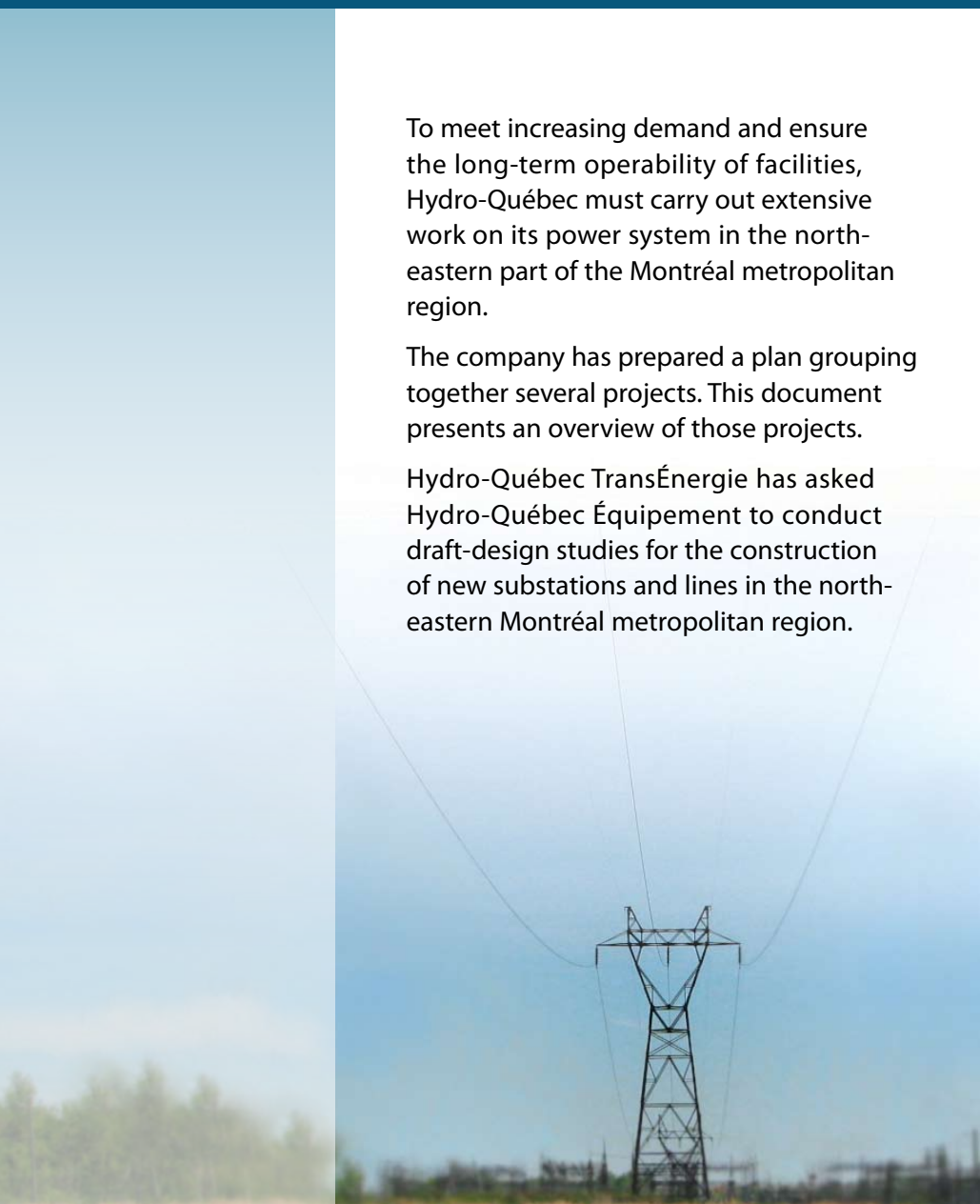
Upgrading of the **Transmission System** in the **Northeast Montréal** Metropolitan Region

GENERAL INFORMATION • August 2009

To meet increasing demand and ensure the long-term operability of facilities, Hydro-Québec must carry out extensive work on its power system in the north-eastern part of the Montréal metropolitan region.

The company has prepared a plan grouping together several projects. This document presents an overview of those projects.

Hydro-Québec TransÉnergie has asked Hydro-Québec Équipement to conduct draft-design studies for the construction of new substations and lines in the north-eastern Montréal metropolitan region.



Justification

Due to growing demand in the northeastern Montréal metropolitan region and the need to refurbish certain equipment, Hydro-Québec TransÉnergie must make significant investments in its transmission system. Since the facilities in question will have a service life of 40 years, the proposed modifications will both ensure short-term service reliability and meet long-term needs.

Existing grid

The Hydro-Québec TransÉnergie transmission system includes facilities at different voltage levels, mainly 315 and 735 kV. The east end of Montréal was configured with 315- and 120-kV facilities in the late 1950s, and the first 735-kV ones were added in 1965.

The satellite substations¹ in the north-eastern Montréal metropolitan region, including Bourassa and Bélanger substations, are currently supplied by two source substations:

- 315/120-kV Bout-de-l'Île substation in Montréal, which supplies the 120-kV substations
- 735/315/120-kV Duvernay substation in Laval, which supplies the 315-kV substations

Duvernay substation also supplies the 120-kV satellite substations in southern Lanaudière.

Background

Hydro-Québec must increase transformer capacity at the source and satellite substations in the northeastern Montréal metropolitan region to be able to adequately meet growth in demand. Several 120- and 315-kV substations are already overloaded. Similarly, the capacity of the 120- and 315-kV transmission lines in the area will be exceeded in the near future.

In addition to issues related to the growth in demand, significant investments are required to extend the service life of several facilities.

Following a comprehensive analysis of the situation, Hydro-Québec concluded that the grid as it is now configured can no longer optimally meet electricity requirements in the region.

Solution for tomorrow's grid

Hydro-Québec's long-term solution to these problems is to continue building the 315-kV transmission system in the east end of Montréal—started in the 1980s with the construction of Langelier, Montréal-Est and Charland substations—and to reinforce the transmission and distribution systems in southern Lanaudière.

The first step will be to increase the capacity of Bout-de-l'Île substation, which will be connected to the existing 735-kV system. Reconfiguring the existing 315-kV system will prevent overload problems and the additional capacity will be used to supply new 315-kV substations.

Bourassa and Bélanger substations will therefore be rebuilt and converted to 315/25-kV and 315/120/25-kV, respectively. They will be connected to the grid by new 315-kV lines built, in existing rights-of-way wherever possible. However, in the long term, modifying the 315-kV system will result in fewer 120-kV lines.

Two new substations will also be built in the Lachenaie area of Terrebonne:

- A new 315/25-kV substation to meet growing demand in the area
- A new 315/120-kV substation to increase the transmission capacity of the 120-kV system that supplies southern Lanaudière and to ease the load on Duvernay substation

In addition, Mauricie substation will become the only supply source for Lanaudière substation under normal operating conditions. This will require the construction of a 315-kV tap line about 5 km long from the Mauricie–Bout-de-l'Île line to Lanaudière substation.

1. Satellite substations are ones that supply the distribution system.

Environmental approach

In the coming months, Hydro-Québec Équipement will carry out engineering studies and detailed environmental inventories to identify the specific technical characteristics of each project and to develop a thorough understanding of the host environment of each substation and line.

The project teams will then identify various possible substation sites and line routes, which will be subjected to comparative analyses based on environmental, technical and economic criteria, as well as community concerns. This comparison will be used to determine the variant with the least impact for each project.

For substations to be replaced, the teams will study the possibility of reusing the existing sites, while aiming for optimal integration of new facilities into the host environment.


Stakeholder participation

Hydro-Québec will set up a community relations program to maintain a dialogue throughout the studies. The company will thus be able to take the concerns and expectations expressed by the public and by key stakeholders into account so as to best adapt the project to local realities.

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2009E661-A



 Printed on paper made in Québec from 100% postconsumer recycled fibre.

Ce document est également publié en français.