Hydro Québec
TransÉnergie

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

# New 735/315-kV Section, Compensation and Line Reorganization at **Bout-de-l'Île** Substation

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 east end of Montréal.

The company has prepared a plan grouping together several projects, including the Bout-de-l'Île substation project. Work planned for the substation includes adding a new 735/315-kV section, adding compensation and reorganizing lines.

Hydro-Québec TransÉnergie has asked Hydro-Québec Équipement to conduct draft-design studies for all of the projects in its plan for upgrading the transmission system in the northeastern part of the Montréal metropolitan region.

# New 735/315-kV Section, Compensation and Line Reorganization at **Bout-de-l'Île Substation**

## Present situation

Located in the borough of Rivière-des-Prairies–Pointe-aux-Trembles, 315/120-kV Bout-de-l'Île substation was commissioned in 1956.

Hydro-Québec is facing growing demand in the northeastern part of the metropolitan region, but its 315- and 120-kV systems cannot carry any additional electricity.

The 315-kV lines that supply Bout-de-l'Île substation cannot meet the increased demand. Action is thus required.

## Preferred solution

Connecting Bout-de-l'Île substation to the 735-kV system will solve overload problems on the 315-kV system.

Work planned for the substation includes adding a 735/315-kV transformer section consisting primarily of two 315-kV feeder bays, three 735-kV feeder bays, two 735/315-kV power transformers and a static var compensator.[1] In addition, the existing 315-kV section will be replaced to increase capacity, and the substation will be connected to the nearby 735-kV line between Duvernay and Boucherville substations. The expansion of Bout-de-l'Île substation will also require reorganization of the 315-kV and 120-kV lines in the vicinity.

When the work is completed, Bout-de-l'Île substation will also be able to supply the existing and planned 315/25-kV satellite substations in the northeastern part of the Montréal metropolitan region.

The preferred solution will meet present needs, while leaving sufficient capacity for future demand.

## Study area

The project study area covers 8 km$^2$ at the northeastern tip of Montréal (see map opposite). It is bordered to the northwest by Boulevard Perras, not far from the Rivière des Prairies, to the southwest by Boulevard Saint-Jean-Baptiste and to the southeast by Autoroute Métropolitaine. In its northeast quadrant, the study area includes the rights-of-way for the 315-kV line (circuits 3017-3050) and the 735-kV line (circuit 7009) that will be connected to the substation. The existing 315/120-kV Bout-de-l'Île substation is in the middle of the study area, which is large enough to study the impacts of expanding the substation and connecting it to the 735-kV line.

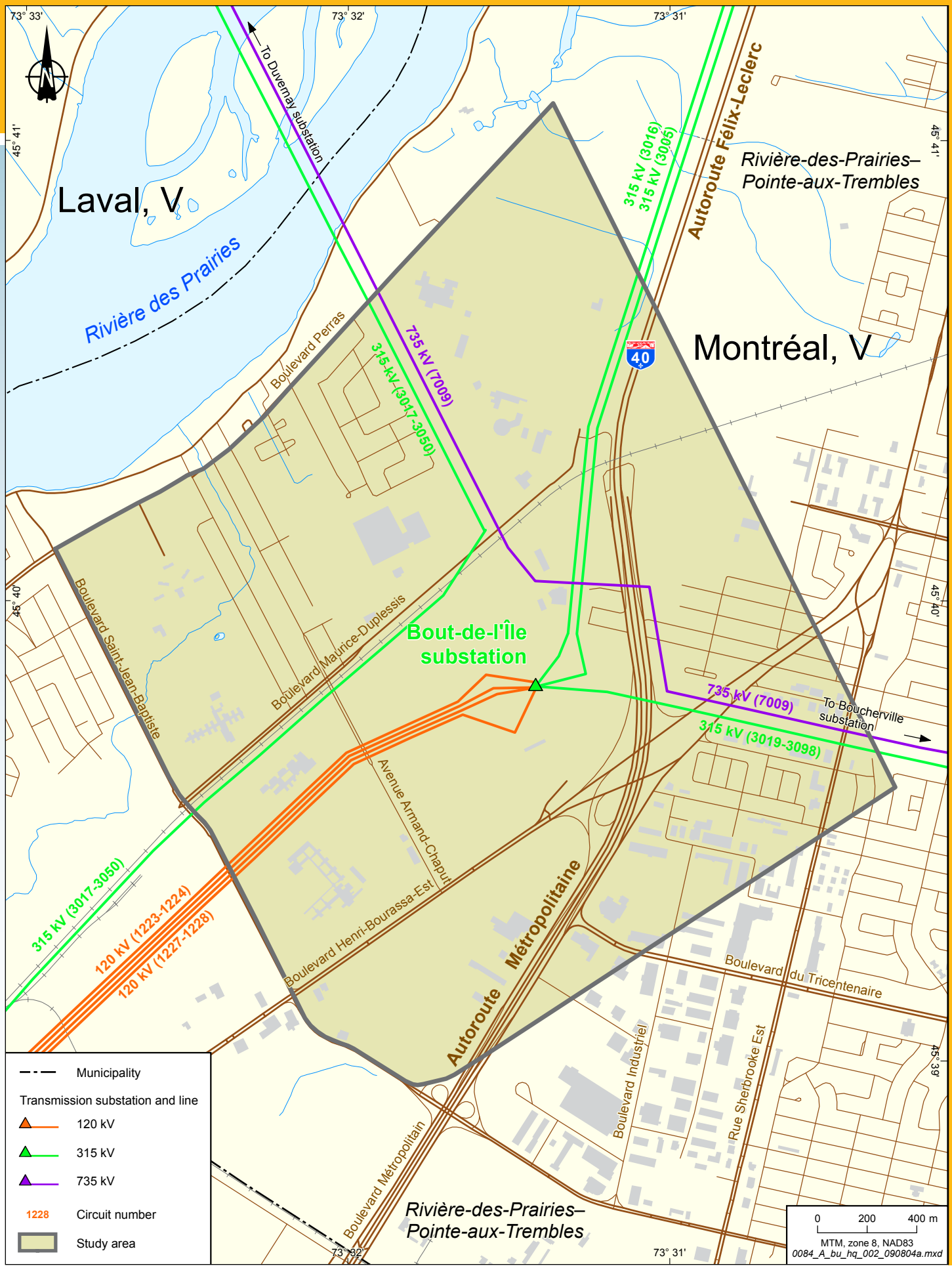
The land potentially affected by the project belongs to the Ville de Montréal and Hydro-Québec.

## Environmental issues

The main environmental issues for the project are as follows:

- Noise levels around the substation
- Visual integration of the expanded substation and reorganized lines
- Land use on adjacent lots

*1. A static var compensator is a device consisting mainly of capacitors that help reduce losses and drops in power system voltage.*


73° 33'
73° 32'
73° 31'
45° 41'
45° 40'
45° 39'
N
Laval, V
Rivière des Prairies
To Duvernay substation
735 kV (7009)
315 kV (3017-3050)
Boulevard Perras
315 kV (3016)
315 kV (3005)
Autoroute Félix-Leclerc
Rivière-des-Prairies–
Pointe-aux-Trembles
Montréal, V
40
Boulevard Saint-Jean-Baptiste
Boulevard Maurice-Duplessis
Bout-de-l'Île
substation
735 kV (7009)
To Boucherville
substation
315 kV (3019-3098)
Avenue Armand-Chaput
315 kV (3017-3050)
120 kV (1223-1224)
120 kV (1227-1228)
Boulevard Henri-Bourassa-Est
Autoroute Métropolitaine
Boulevard du Tricentenaire
Boulevard Industriel
Rue Sherbrooke Est
Boulevard Métropolitain
Rivière-des-Prairies–
Pointe-aux-Trembles
Municipality
Transmission substation and line
120 kV
315 kV
735 kV
1228
Circuit number
Study area
0
200
400 m
MTM, zone 8, NAD83
0084_A_bu_hq_002_090804a.mxd

## Project schedule

| DRAFT DESIGN | |
|---|---|
| General information | Summer to fall 2009 |
| Information and consultation | Fall 2009 to winter 2009–2010 |
| Information on the variants selected | Spring 2010 |
| **PROJECT** | |
| Filing of impact assessment | Fall 2010 |
| Permitting | Winter 2011–2012 |
| Construction | Spring 2012 to fall 2014 |
| Commissioning | Fall 2013 to fall 2014 |

## Environmental approach

In the coming months, Hydro-Québec Équipement will carry out engineering studies and detailed environmental inventories to identify the project's characteristics and to develop a thorough understanding of its host environment.

Once these studies are completed, the project team will be able to draw up variants, which will be subjected to a comparative analysis 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.

## Stakeholder participation

Hydro-Québec is setting 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.

## For more information

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