Hydro Québec
TransÉnergie

120/25-kV **Gracefield** Substation and 120-kV Lines

INFORMATION ON THE SOLUTION SELECTED • November 2015

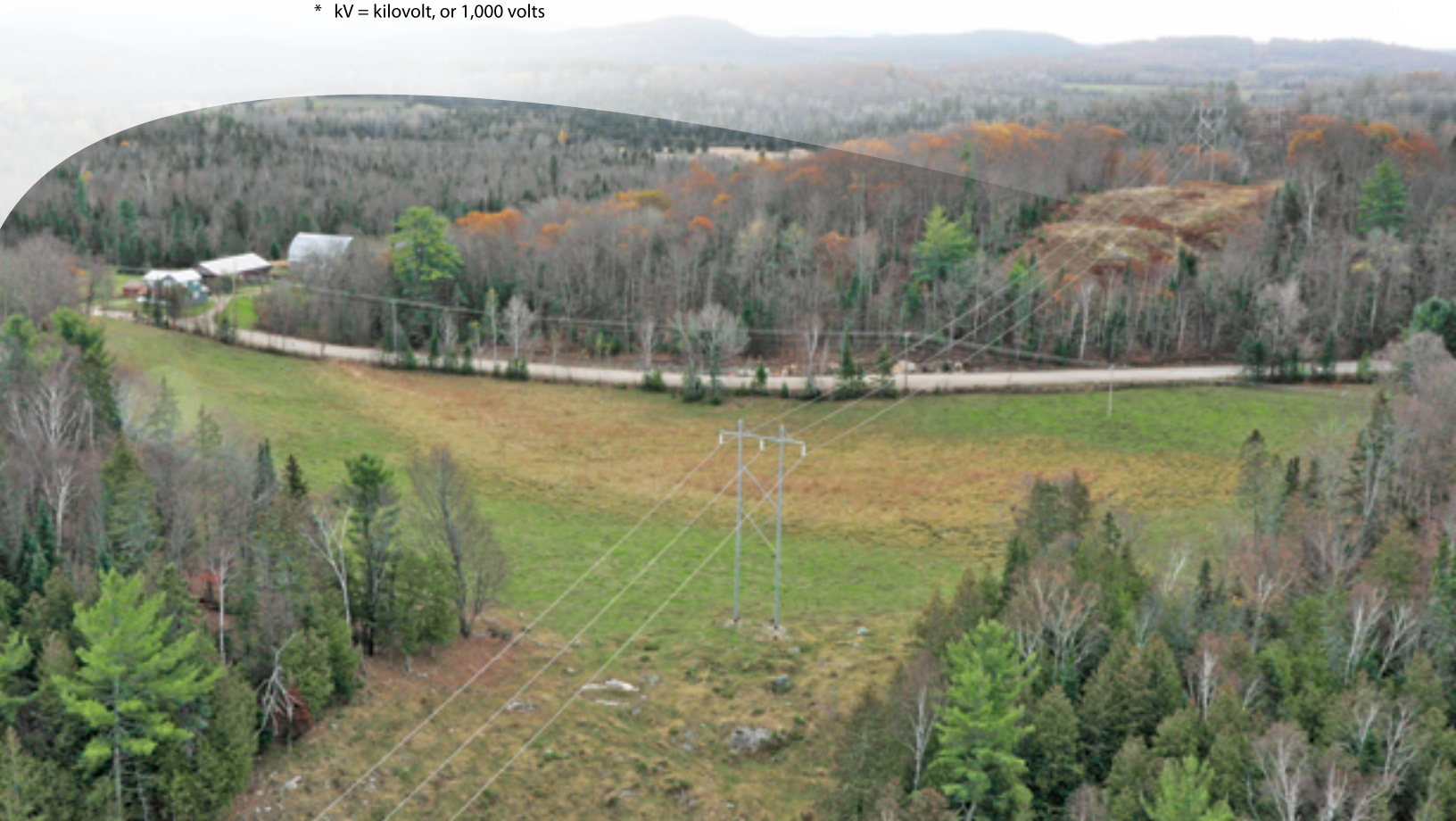
To meet growing demand for electricity, Hydro-Québec conducted draft-design studies in winter 2013-2014 to build a 120/25-kV* transformer substation in Gracefield and rebuild the 120-kV transmission line between Paugan substation, in Low, and Maniwaki substation, in Egan-Sud.

The 65-km line will be rebuilt in the middle of the corridor occupied by the current line. Since the plan calls for adding a circuit, a new 5-km line must be built that follows the existing line from Déléage to the entry to Maniwaki substation.

In addition, a 120-kV line about 5.3 km long must be built to supply the new Gracefield substation.

This bulletin describes the lowest-impact solution selected by Hydro-Québec.

* kV = kilovolt, or 1,000 volts



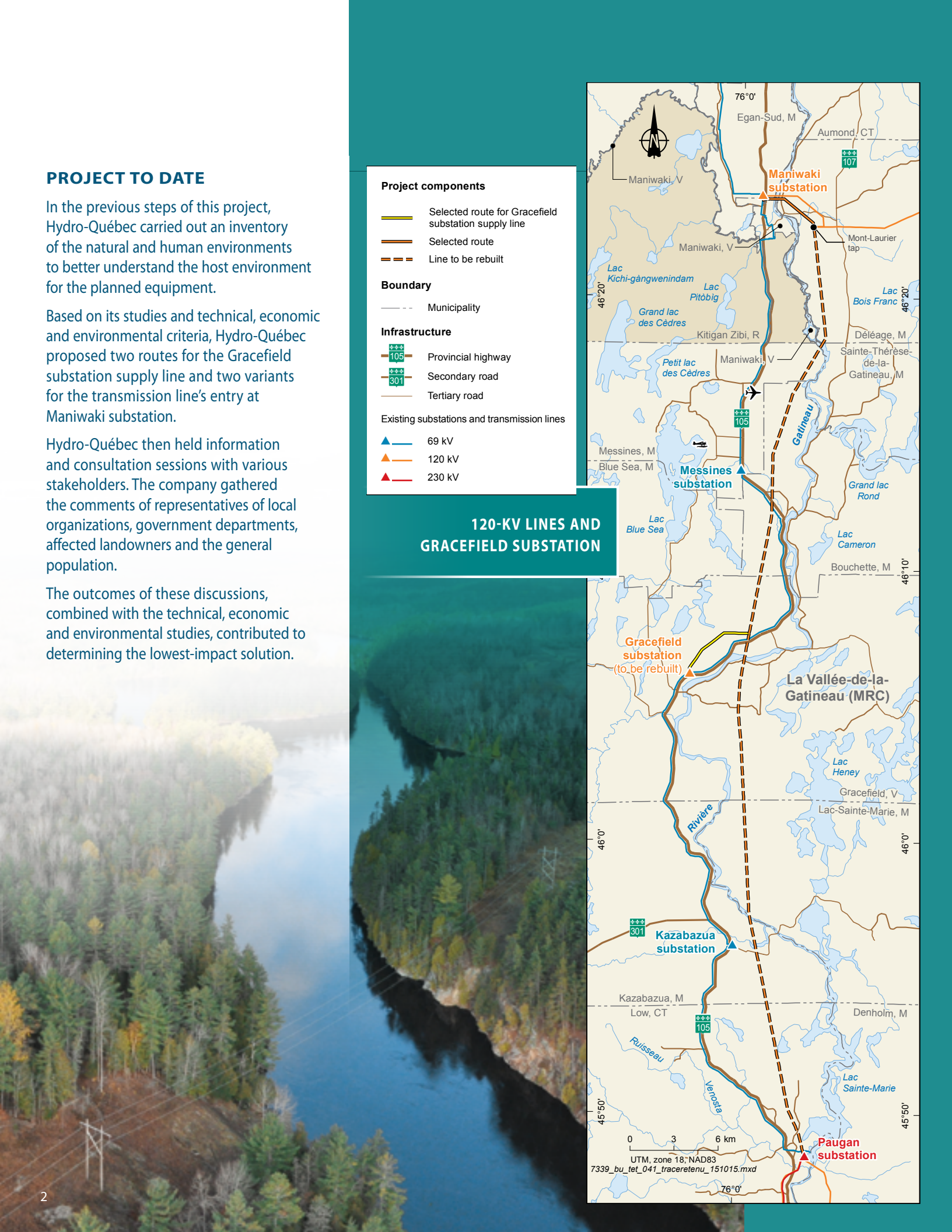
PROJECT TO DATE

In the previous steps of this project, Hydro-Québec carried out an inventory of the natural and human environments to better understand the host environment for the planned equipment.

Based on its studies and technical, economic and environmental criteria, Hydro-Québec proposed two routes for the Gracefield substation supply line and two variants for the transmission line's entry at Maniwaki substation.

Hydro-Québec then held information and consultation sessions with various stakeholders. The company gathered the comments of representatives of local organizations, government departments, affected landowners and the general population.

The outcomes of these discussions, combined with the technical, economic and environmental studies, contributed to determining the lowest-impact solution.



Project components

- Selected route for Gracefield substation supply line
- Selected route
- Line to be rebuilt

Boundary

- Municipality

Infrastructure

- Provincial highway
- Secondary road
- Tertiary road

Existing substations and transmission lines

- 69 kV
- 120 kV
- 230 kV

120-KV LINES AND GRACEFIELD SUBSTATION

Paugan–Maniwaki transmission line

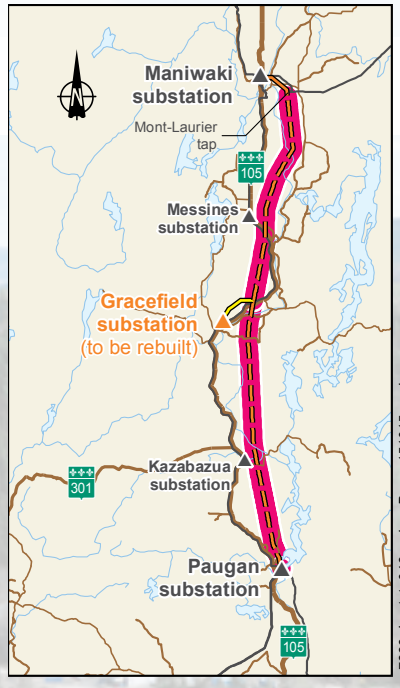
Line segment between Paugan substation and the Mont-Laurier tap

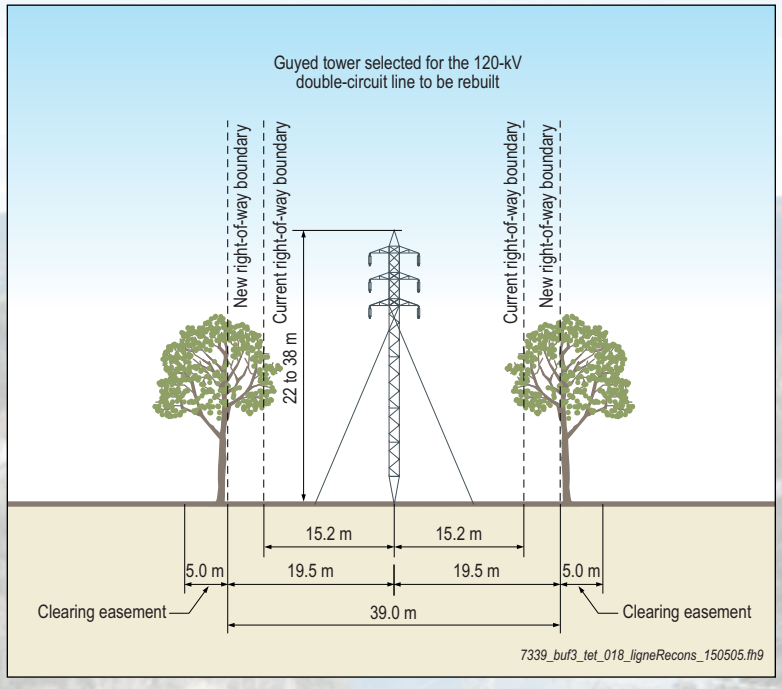
This segment will be rebuilt over 65 km in the middle of the existing corridor. The current line on wooden H-frames will be dismantled before construction begins.

The line will be supported by guyed steel lattice towers in forested areas and reduced-footprint towers in farmland.

To accommodate an additional circuit, the right-of-way must be widened by 4.3 m on either side of the line, for a total width of 39 m.

LINE SEGMENT FROM PAUGAN SUBSTATION TO THE MONT-LAURIER SUBSTATION TAP





Paugan substation

Paugan–Maniwaki transmission line

Line segment between Mont-Laurier tap and Maniwaki substation

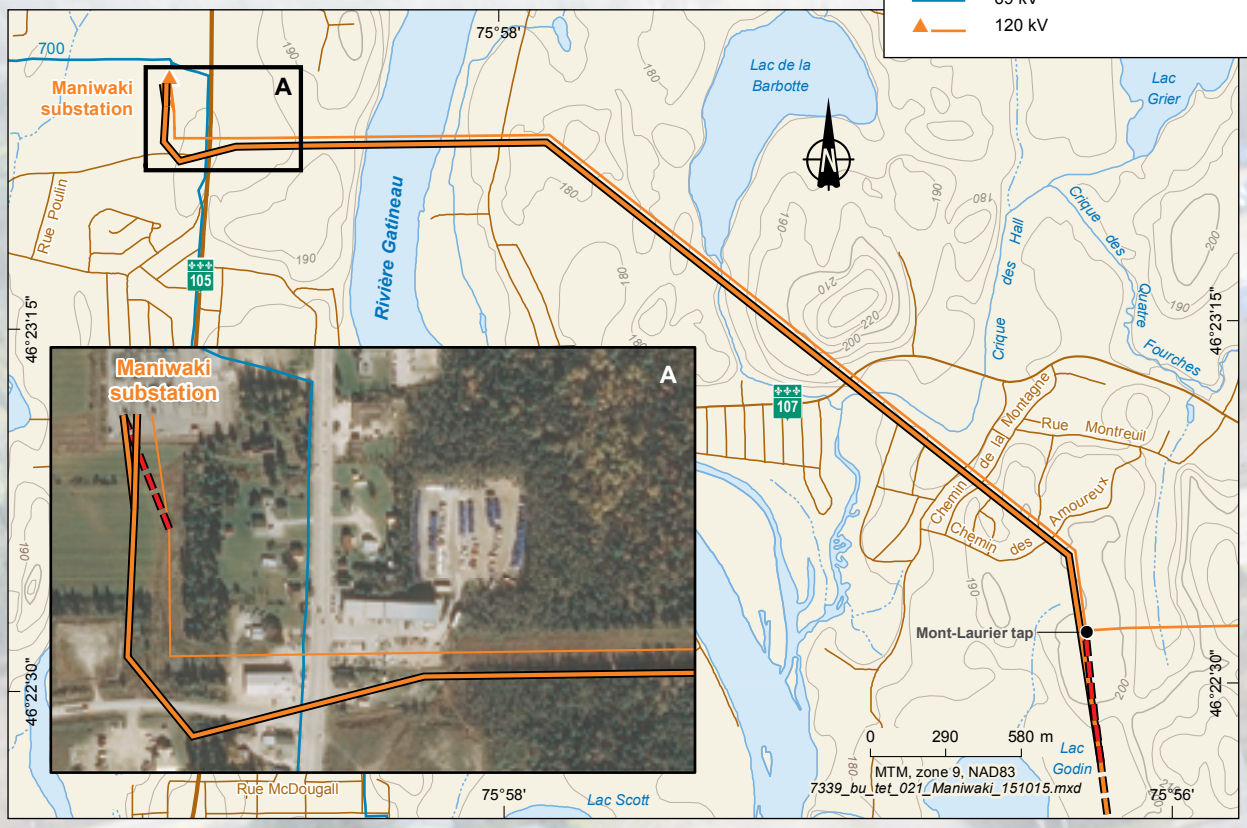
At Déléage, after the Mont-Laurier substation tap, the new line will run side-by-side with the existing line to the Route 105 crossing.

For the entry to Maniwaki substation, Hydro-Québec has selected Variant A, which routes the new line south of the current line, passing between existing buildings. The company optimized this variant based on concerns expressed by local representatives and affected landowners.

The line segment will be supported by four-legged lattice towers as well as reduced-footprint lattice towers.

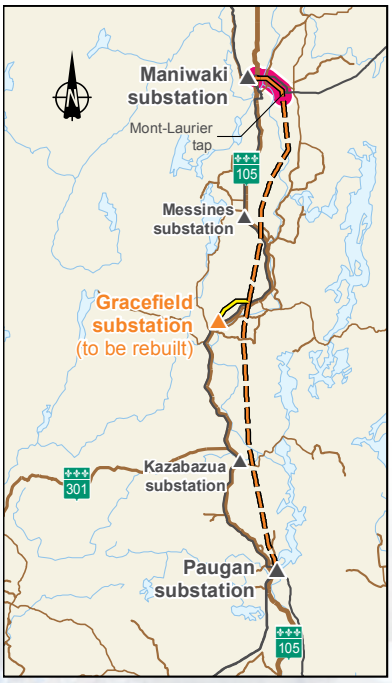
This 4.5-km segment will be built to the west of the existing line and require widening the right-of-way by 26.3 m.

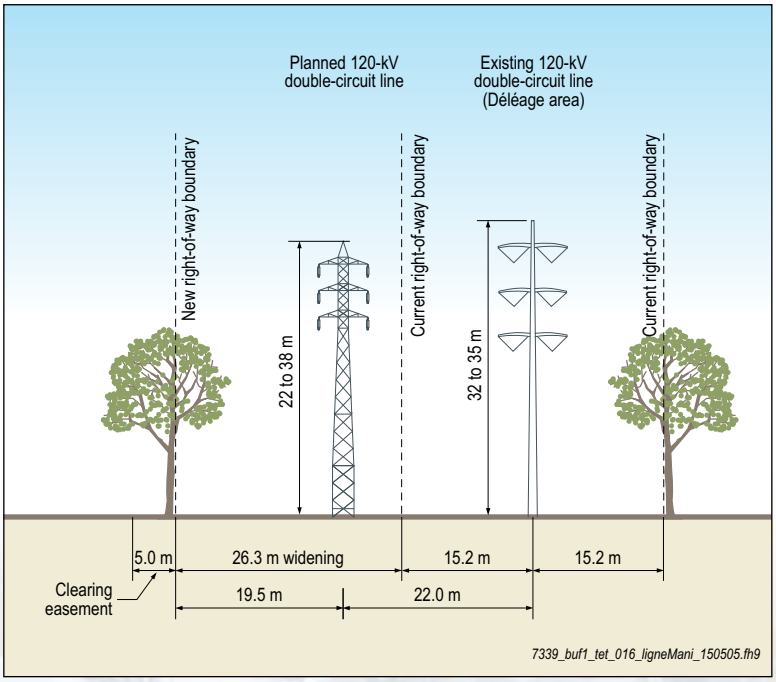
EXPANSION OF THE ENTRY TO MANIWAKI SUBSTATION



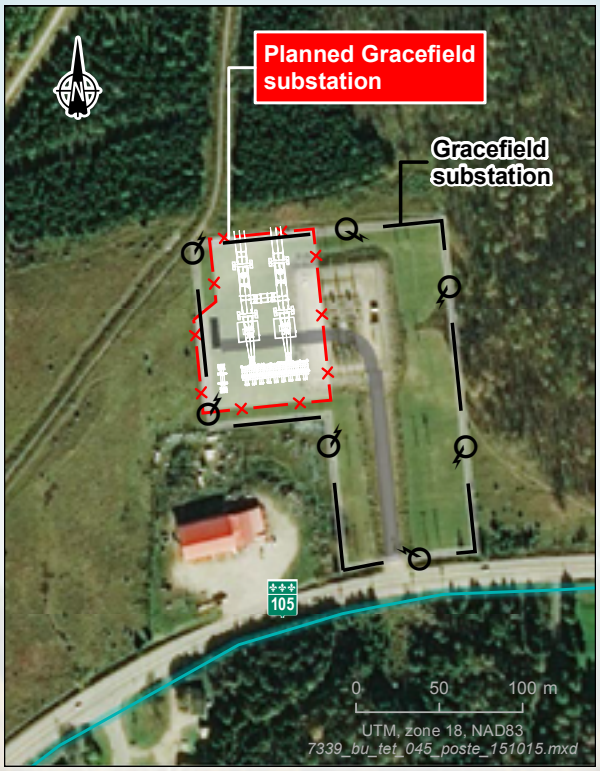
Maniwaki substation

LINE SEGMENT FROM THE MONT-LAURIER SUBSTATION TAP TO MANIWAKI SUBSTATION





Gracefield substation and supply line



Selected substation site

The new 120/25-kV Gracefield substation will be adjacent to the existing substation, near Route 105. This site is close to the load centre and 25-kV distribution system and uses the existing access road and ditches. It minimizes environmental and social impacts by limiting modifications to the landscape.

The fenced area of the planned substation will be about 100 m by 75 m, not including drainage ditches on its periphery. While the planned substation will be built primarily on a lot belonging to Hydro-Québec, the company must acquire part of the adjacent property to accommodate all equipment.

The substation will be supplied by two 120-kV circuits from the main line. A prefabricated building will house the control, protection and telecommunications equipment.

Related work will be required at Paugan and Maniwaki substations to add or modify 120-kV outgoing line structures. This work will take place entirely on Hydro-Québec property.

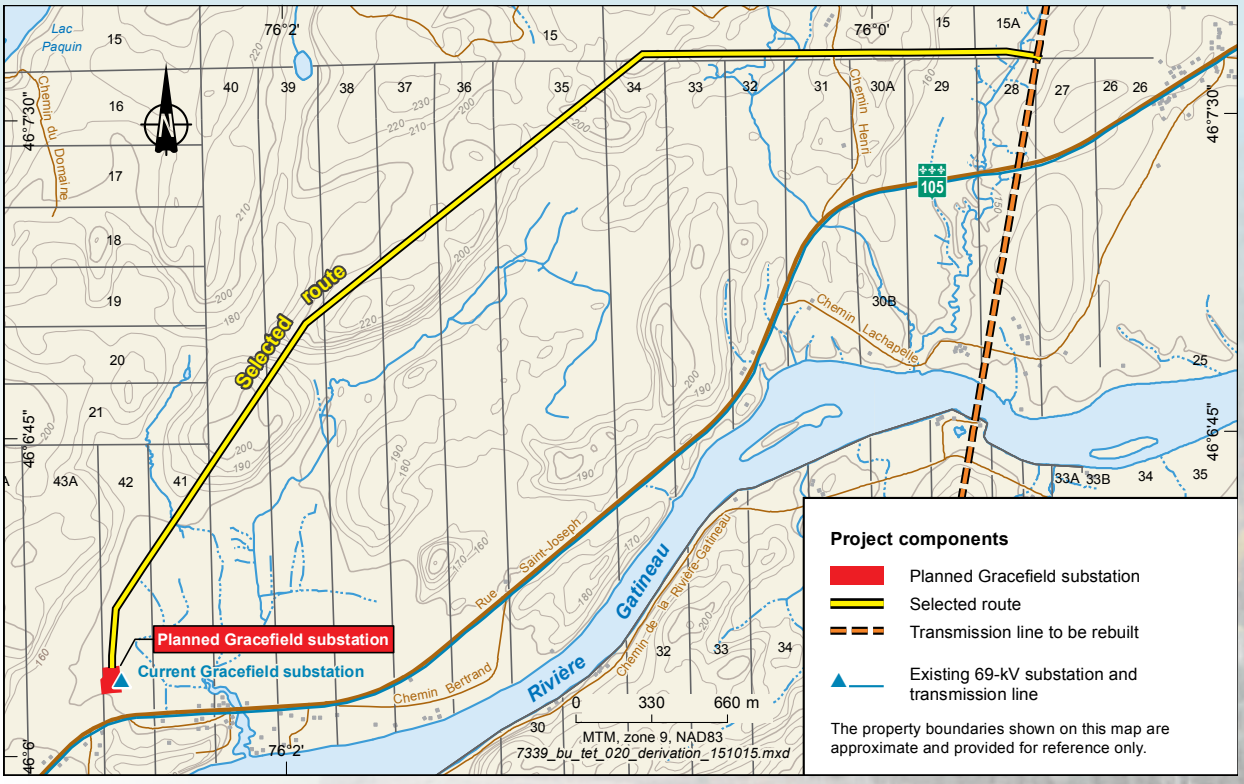
Gracefield substation supply line

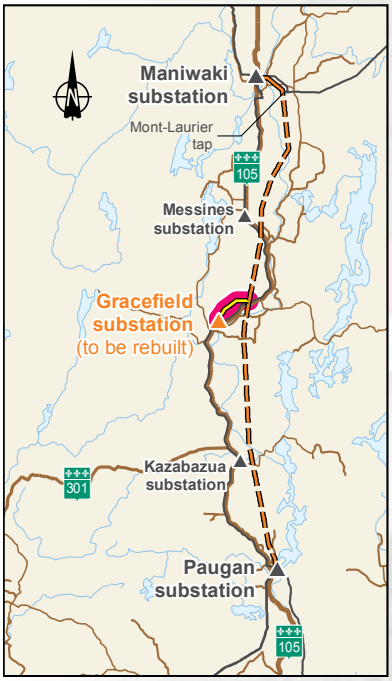
Based on the draft-design studies and the public consultation process, Hydro-Québec selected Route A.

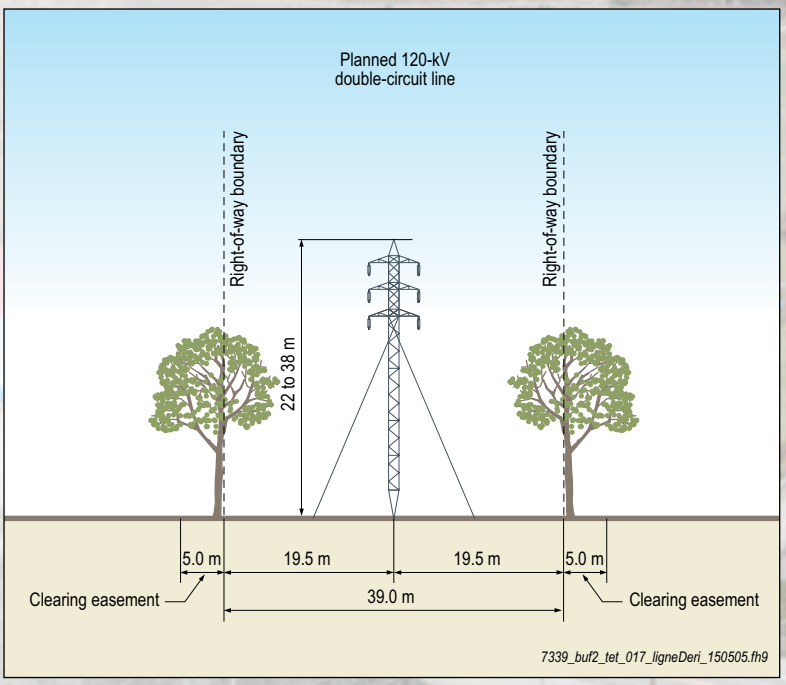
This 5.3-km route runs along property boundaries for about 1.8 km, then crosses Chemin Henri and 800 m further turns to follow the relief for better landscape integration and reduced visibility from Route 105. This route also limits the impact on farmland and some wetlands.

The substation supply line will be supported by guyed steel lattice towers in forested areas and reduced-footprint towers in farmland. The planned right-of-way is 39 m wide.

GRACEFIELD SUBSTATION SUPPLY LINE







Tangible support for community development

Hydro-Québec sees its projects as an opportunity to participate in the development of host communities through the Integrated Enhancement Program (IEP). Once the work has begun, the company grants eligible organizations funding equivalent to 1% of the initially authorized value of the new facilities covered by the IEP.

Schedule

Permitting	2016
Land clearing, dismantling of line and construction of substation and new lines	Fall 2016–Fall 2018
Dismantling of existing substation	2018-2020

For more information

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About the construction work

Hydro-Québec has planned two phases of construction work. The first phase involves building Gracefield substation and its supply line and rebuilding the transmission line between Paugan substation and the Gracefield substation tap.

The second phase consists of rebuilding the transmission line to the Mont-Laurier tap and building the new line segment from the tap to Maniwaki substation.

To minimize the project's impacts, Hydro-Québec will implement a range of mitigation measures, ensure environmental compliance monitoring of the worksite and rehabilitate the sites after construction.

Public participation

Starting in 2014, Hydro-Québec informed and consulted with the various groups affected by the project: official representatives of the communities, local organizations, members of the business community, ministries, affected landowners and citizens.

This process made it possible to develop mitigation measures to adapt the project to local realities, taking into account the results of the technical, economic and environmental studies carried out for the project.

Once the necessary government permits have been obtained, Hydro-Québec will contact the groups affected to present the planned construction schedule.

www.hydroquebec.com/projects/gracefield.html



Ce document est également publié en français.
This is a translation of the original French text.

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