

315/25-kV Saint-Jean Substation and 315-kV Supply Line

Environmental Impact Assessment Summary



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This summary was prepared by Hydro-Québec TransÉnergie and Hydro-Québec Équipement et services partagés in collaboration with Hydro-Québec's Direction – Communications.

The list of main contributors to the environmental impact assessment is provided in Appendix A.

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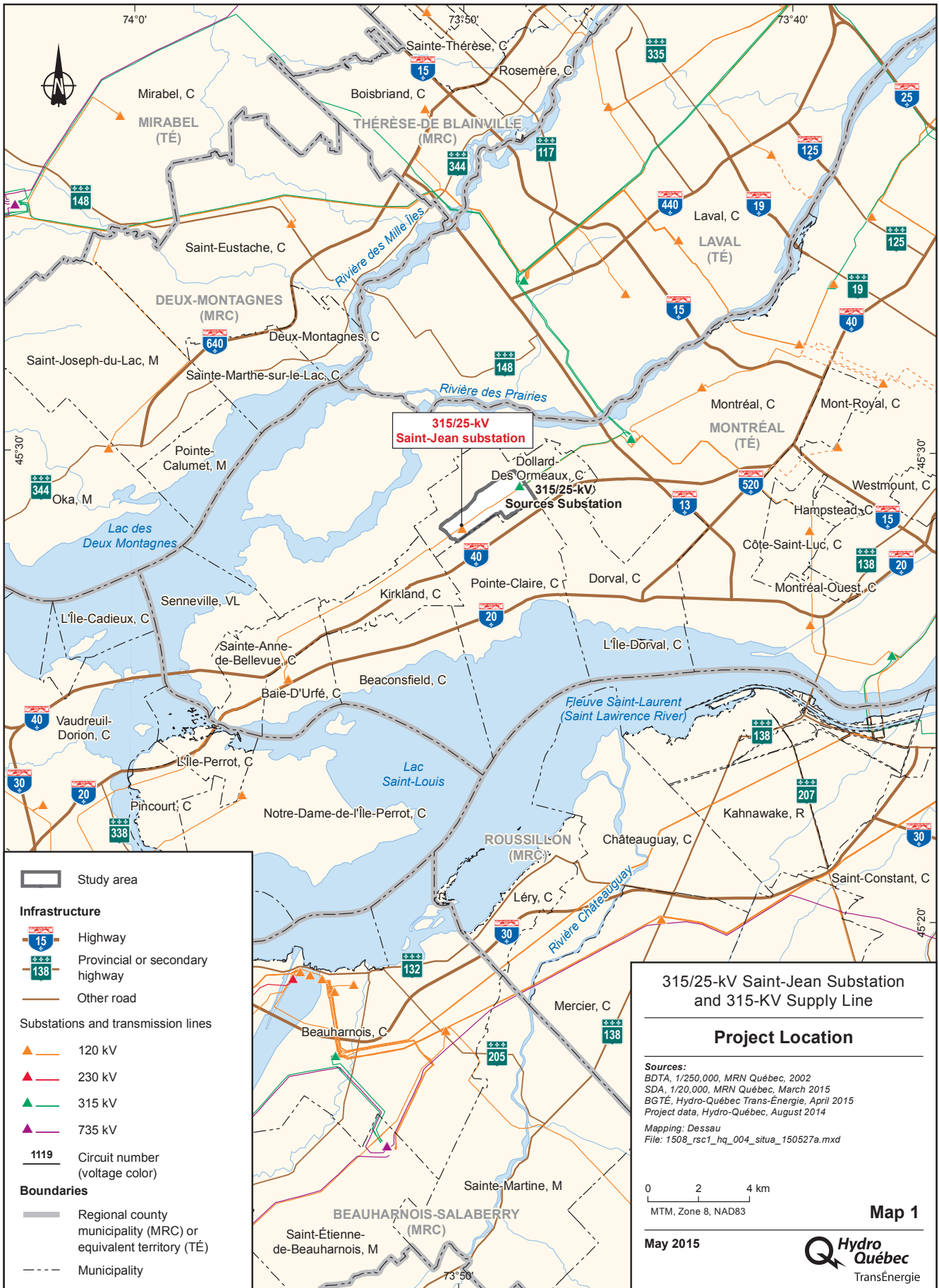
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Study area

Infrastructure

- Highway
- Provincial or secondary highway
- Other road

Substations and transmission lines

- 120 kV
- 230 kV
- 315 kV
- 735 kV
- 1119 Circuit number (voltage color)

Boundaries

- Regional county municipality (MRC) or equivalent territory (TÉ)
- Municipality

315/25-kV Saint-Jean Substation and 315-kV Supply Line

Project Location

Sources:
 BDTA, 1/250,000, MRN Québec, 2002
 SDA, 1/20,000, MRN Québec, March 2015
 BGTÉ, Hydro-Québec Trans-Énergie, April 2015
 Project data, Hydro-Québec, August 2014

Mapping: Dessau
 File: 1508_rsc1_hq_004_situa_150527a.mxd

0 2 4 km
 MTM, Zone 8, NAD83

Map 1

May 2015

Introduction

This document constitutes a summary of the environmental impact assessment filed with the Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (MDDELCC) in accordance with section 31.1 of the *Environment Quality Act* (EQA).

Under section 4 of the *Regulation respecting environmental impact assessment and review*, an impact assessment prepared under the provisions of section 31.1 of the EQA must be accompanied by a non-technical summary published separately. This summary has been produced in both French and English.

The summary covers the following aspects of the project:

- Project Rationale and Description
- Public Participation
- Sustainable Development
- Main Environmental Issues and Description of the Host Environment
- Impacts and Mitigation Measures
- Compliance Monitoring and Environmental Follow-up
- Preliminary Emergency Measures Plan

Project Rationale and Description

2.1

Rationale

The 120/12-kV Saint-Jean substation is located in the city of Dollard-Des Ormeaux^[1]. The satellite station was commissioned in 1957 and services approximately 10,000 customers in the cities of Dollard-Des Ormeaux, Pointe-Claire and Beaconsfield and the town of Kirkland.

Saint-Jean substation is an exterior facility consisting of two interconnected sections, i.e., one 120-kV and one 12-kV. The 120-kV section includes four 120/12-kV 33.3-MVA transformers and is supplied by a double-circuit 120-kV line from Saraguay substation (circuits 1253-1254).

The 315-kV line that currently supplies Sources substation was erected in 1975, six years before the facility was built. At that time, the line ran to Saint-Jean substation and was operated at 120-kV to supply the substation load. The line was designed to supply the growing demand associated with the expanding transmission grid.

In the aftermath of the 1998 ice storm, the transmission towers located between Sources and Saint-Jean substations were dismantled and relocated to the Montérégie region as an emergency measure.

2.1.1

Problems

Obsolescence of Saint-Jean substation

Built in the late 1950s, Saint-Jean substation is now suffering the effects of its aging equipment. The obsolescence affecting Saint-Jean substation is mainly due to the fact that its 120-kV and 12-kV equipment will reach the end of its service life in the next few years, as will its control equipment and analog technology.

Insufficient capacity of the 120-kV line

The double-circuit 120-kV line that feeds Saint-Jean substation also powers Baie-d'Urfé, Dorval, Île-Perrot and Salaberry substations. The line has been in service for 56 years and can no longer supply all of the substations connected to it without overloading.

Insufficient capacity of Sources substation

The 315/25-kV Sources substation is supplied by a 315-kV line that runs through the same right-of-way as the 120-kV line from Saraguay substation. Located about three kilometres east of Saint-Jean substation, the Sources facility supplies electricity to 80% of the city of Dollard-Des Ormeaux, but is nearing the limit of its development capacity. The facility is currently operating at 95% capacity and, based on forecast demand growth, will exceed its capacity by 2028.

2.1.2

Supply scenarios studied by Hydro-Québec

All of the scenarios studied factor in the need to keep the current 120/12-kV Saint-Jean substation in operation throughout the work period to maintain the supply of electricity to Hydro-Québec customers. During the feasibility study phase, the following three scenarios were analyzed with a view to maintaining the substation's long-term operability and anticipating long-term demand:

- Construction of a new 315/25-kV substation on the site of the existing Saint-Jean facility
- Construction of a new 120/25-kV substation on the site of the existing Saint-Jean facility
- Construction of a new 315/25-kV substation at a new site

1. In this document, the name of the city is written in accordance with the official spelling determined by the Commission de toponymie du Québec on January 13, 2006.

SOLUTION 1:

Construction of a new 315/25-kV substation on the site of the existing Saint-Jean facility

Building a new 315/25-kV substation on the current site of Saint-Jean substation would consist in installing two 140-MVA transformers with their associated feeder lines. The substation's 25-kV section would be an exterior facility. The substation load would be transferred to the new 25-kV feeder bays over a period of about five years, after which the 120/12-kV equipment would be dismantled. It would then be possible to install two additional 140-MVA transformers in the substation yard and ultimately increase the facility's capacity to about 540 MVA.

Once completed, the substation would be supplied by an extension of the 315-kV line (circuits 3046-3047) from Sources substation. This new overhead line would run parallel to the 120-kV line, within the existing right-of-way.

The construction of the new substation would involve expanding the current site by about 4,500 m² towards Boulevard De Salaberry. Hydro-Québec would also need to acquire a portion of the land where the current right-of-way is located.

The option to build a new 315/25-kV substation within the current property boundaries was also analyzed. This would entail building the switching facilities in two sections and would require multiple stages of construction, which would significantly increase costs. The possible proximity of the control building and new 315-kV transformers to the property boundaries would generate greater impacts in terms of visual aesthetics and noise levels. For these reasons, the option to build a new substation within the existing substation property boundaries was rejected.

SOLUTION 2:

Construction of a new 120/25-kV substation on the site of the existing Saint-Jean facility

Building a new 120/25-kV substation on the current site of Saint-Jean substation would involve installing new 25-kV sections and three new 66-MVA transformers. The substation's existing 120-kV section would have to be expanded and refurbished. It would also be possible to add three 66-MVA transformers at a later time and ultimately increase the substation's capacity to about 450-MVA.

Given the limited available space, this scenario would require that the switching facilities be installed in two separate buildings and multiple construction stages would be required to interconnect the loads and install additional equipment. This scenario was rejected due to the construction restraints, the longer work period required and the higher cost.

Lastly, the new 120/25-kV substation scenario did not meet the strategic objectives of the grid development plan for the island of Montréal, which provides for the gradual conversion of all electrical facilities to a voltage of 315 kV.

SOLUTION 3:

Construction of a new 315/25-kV substation at a new site

Steps were taken to ascertain the amount of available land in this sector of the island of Montréal. The main difficulty in implementing this scenario in the area within the urban boundaries serviced by Sources and Saint-Jean substations is the acquisition of a new site. This option would also require running a new 315-kV line over a distance of more than three kilometres through a highly urbanized area, from the right-of-way that connects Saint-Jean and Sources substations and extends beyond them.

It became quite clear that using a new site would generate more significant environmental impacts than using the existing one. Therefore, this scenario was also rejected.

2.1.3 Supply scenario proposed by the community

Underground transmission line

Since a right-of-way that complies with applicable siting criteria for a 315-kV overhead already exists, the option to build an underground transmission line was not analyzed in detail.

However, in response to requests from representatives and residents of the city of Dollard-Des Ormeaux, a summary analysis was carried out on the possibility of running an underground line from Sources substation to supply a new 315/25-kV Saint-Jean substation built on the current site. The main findings of the analysis are listed below and explain the considerations that led Hydro-Québec to reject the underground option:

- A parametric evaluation revealed that it would cost \$59 million (in constant 2014 dollars) to build a 315-kV underground line between Saint-Jean and Sources substations, as opposed to \$14 million to build an overhead line supported by lattice towers—i.e., the underground line would cost four times more than an overhead line of equal voltage.
- Two separate underground conduits—one inside and one outside the existing right-of-way—would have to run beneath the streets alongside the right-of-way. This would also involve building concrete encasements and underground chambers every 800 m or so.
- Undergrounding a transmission line is more complex and takes longer.
- Underground lines have less transmission capacity than overhead ones and about half the service life, i.e., about 40 years vs. 80 years.

2.1.4 Power grid solution selected

In order to resolve the problems related to aging equipment and meet the objectives of the grid development plan for the island of Montréal, Solution 1, i.e., converting the existing 120/12-kV Saint-Jean substation to 315/25-kV, has been selected as the most viable option.

Converting the substation to 315/25 kV involves installing new 25-kV sections and two 140-MVA transformers. Over the longer term, it will be possible to add more 140-MVA transformers to the new facility without the need for modifications. Once Sources substation reaches its load capacity limit, the converted 315/25-kV Saint-Jean substation will be able to handle the excess load required to power the city of Dollard-Des Ormeaux.

One of the advantages of converting Saint-Jean substation to 315/25 kV is that this solution is simpler to carry out, requires less equipment and generates fewer environmental impacts than the other scenarios. Lastly, this option is the most cost-effective and is in line with the grid development plan for the island of Montréal, which includes converting other substations similar to the Saint-Jean facility to 315/25 kV.

Figure 1 shows the area serviced by the planned substation.

2.2 Project description

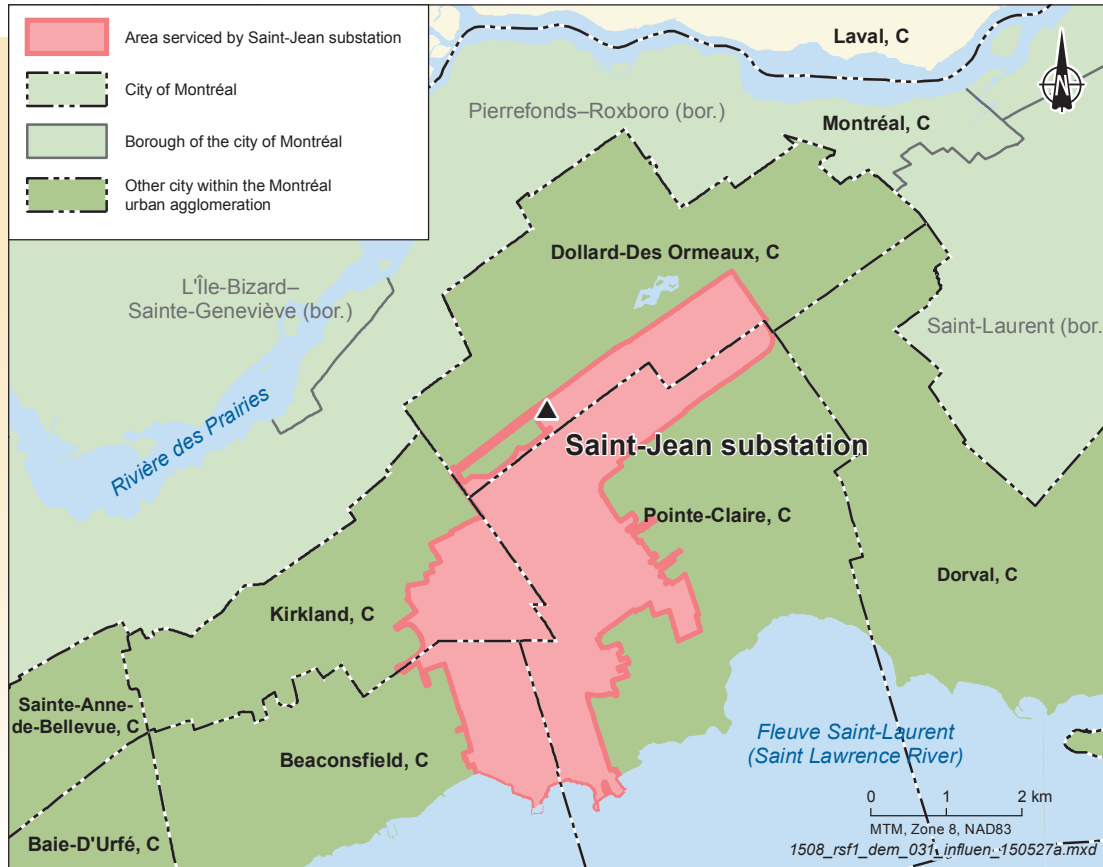
2.2.1 315/25-kV Saint-Jean substation

The 315/25-kV facility will include two 140-MVA transformers, new 25-kV sections and a new building within the substation yard. The control room will be installed inside the planned building, above the new 25-kV switching room.

At the time of commissioning, Saint-Jean substation will be equipped with two 140-MVA transformers, disconnect switches, circuit breakers, current and voltage transformers, surge arresters, rigid busbars and 315-kV feeder bays connected with insulated cables. The rigid busbars will be installed at levels of 7 m and 11.5 m.

In the 25-kV section, the substation will consist of grounding reactors, circuit breakers, current and voltage transformers, disconnect switches, rigid busbars, 25-kV feeder bays and 25-kV capacitor bank startup facilities connected with insulated cables.

Figure 1: Area Serviced by Planned Saint-Jean Substation



The substation yard will occupy an area of approximately 24,000 m² and will be enclosed by an architectural fence on the sides facing Saint-Jean and De Salaberry boulevards and by a chain-link fence on the other two sides. The land will drain through a connection to the city's storm sewer system. There will be no drainage ditches around the substation's periphery.

The site layout for the planned substation is shown in Figure 2.

Landscaping work will be carried out to mitigate the substation's visual impact on the urban area,

particularly on the side where the transmission line right-of-way and houses are located.

The new building will be located inside the substation yard and will face Boulevard De Salaberry, from where it will be visible through fences and vegetation. The objective is to build a conservative-looking structure with as little color as possible. Once the new building and substation are completed, the existing control building will be demolished.

Figure 3 shows simulated views of the planned substation.

Figure 2: Layout of 315/25-kV Saint-Jean Substation

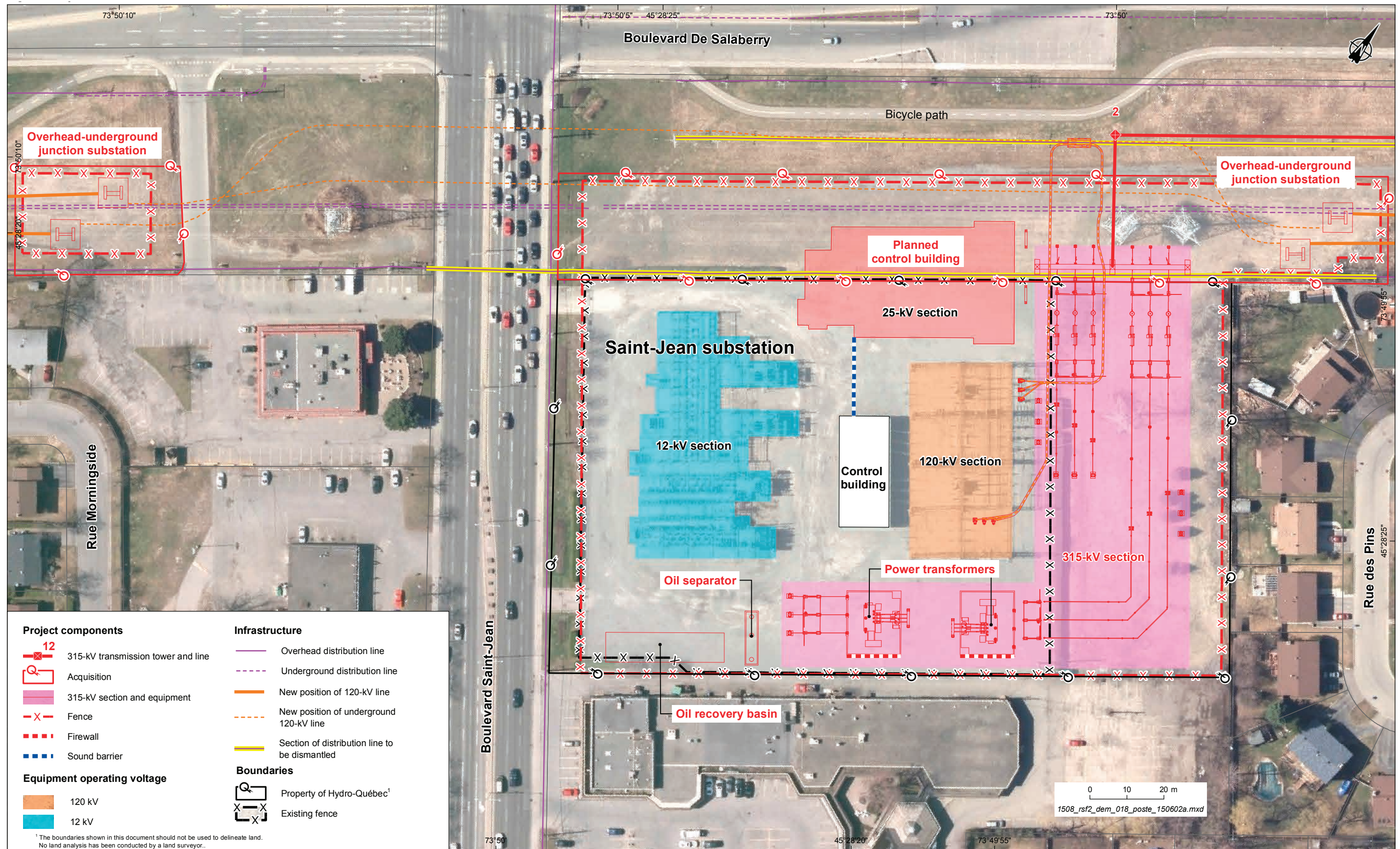
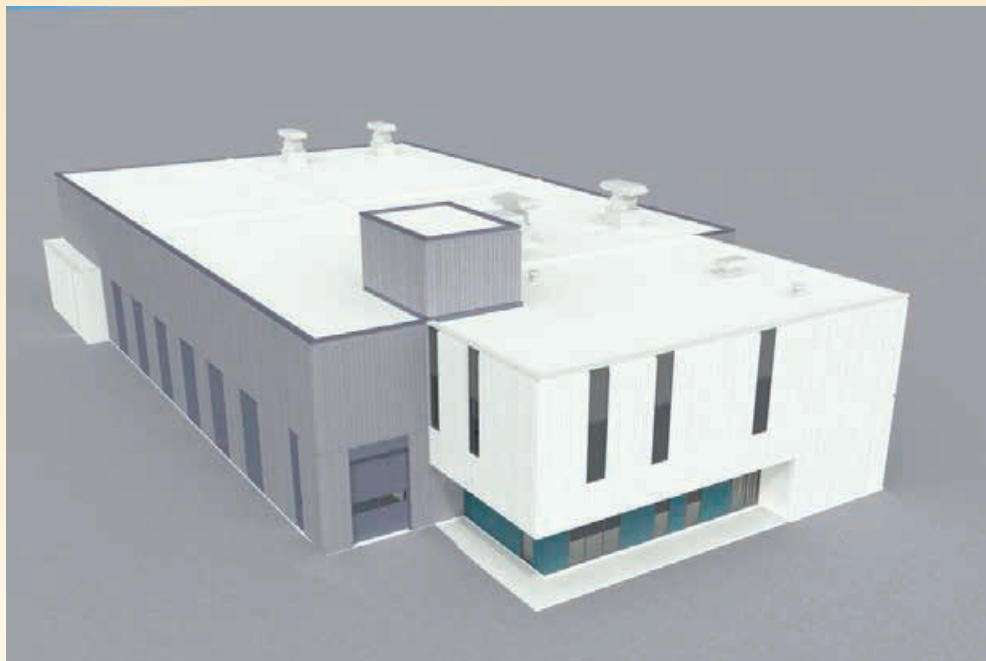


Figure 3: Simulated Model of Planned Saint-Jean Substation



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2.2.2 315-kV supply line

The project calls for construction of a new 315-kV double-circuit supply line extending approximately three kilometres between Sources and Saint-Jean substations. The line will be erected within the rights-of-way of the lines that currently link the two facilities, in the same location as the 315-kV line that ran along the same corridor from 1975 to 1998.

The 315-kV line will run parallel to the existing 120-kV double-circuit line (circuits 1254-1255 and 1254-1253) and will be supported by lattice towers. Two overhead distribution lines will have to be relocated in the current right-of-way.

The planned transmission line will be built on 11 reduced-footprint lattice towers. The landscape analysis revealed that steel lattice towers would be more compatible with the type of steel lattice tower used for the 120-kV line than the tubular model. As part of the project, a new design will be developed

for the four angle and dead-end towers to reduce their visual impact. The transmission line's technical characteristics are shown in Table 1.

Table 1: Technical Characteristics of the 315-kV Supply Line

Characteristic	Description
Type of support structure	Reduced-footprint lattice tower
Number of circuits	2
Number of conductors	12
Minimum clearance above ground	Forested area: 8.1 m Road: 11.2 m
Number of support structures	11
Average span	300 m
Average height of support structures	51 m
Width of right-of-way	61 m

Figures 4 and 5 show the types of towers to be used.

Figure 4: Support Structures and Right-of-Way for Planned Transmission Line

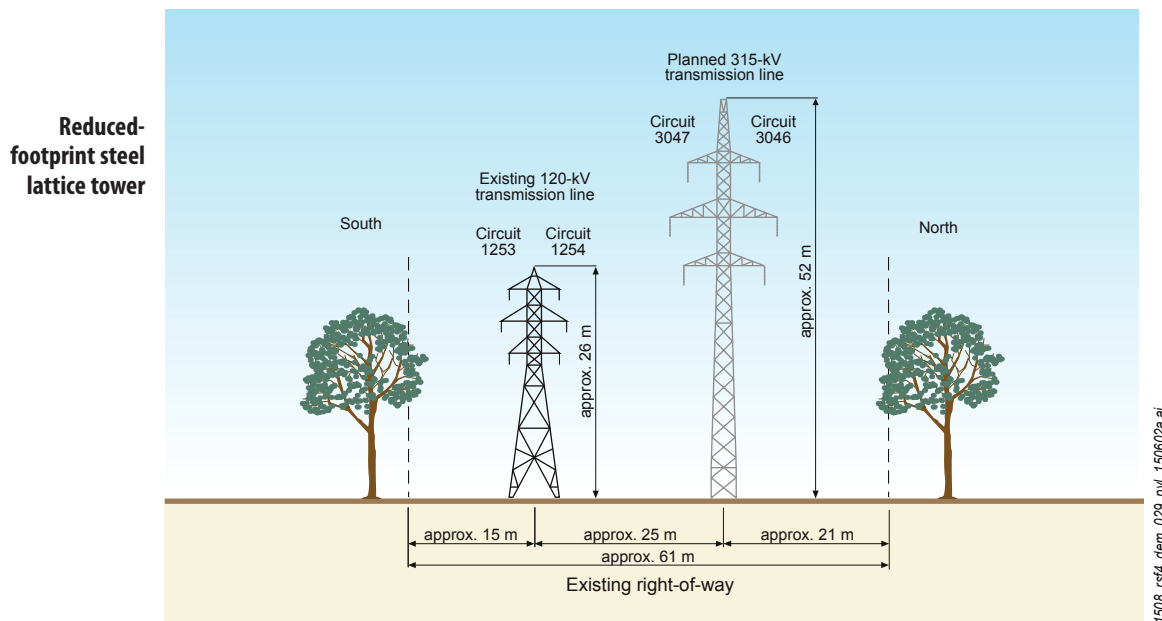
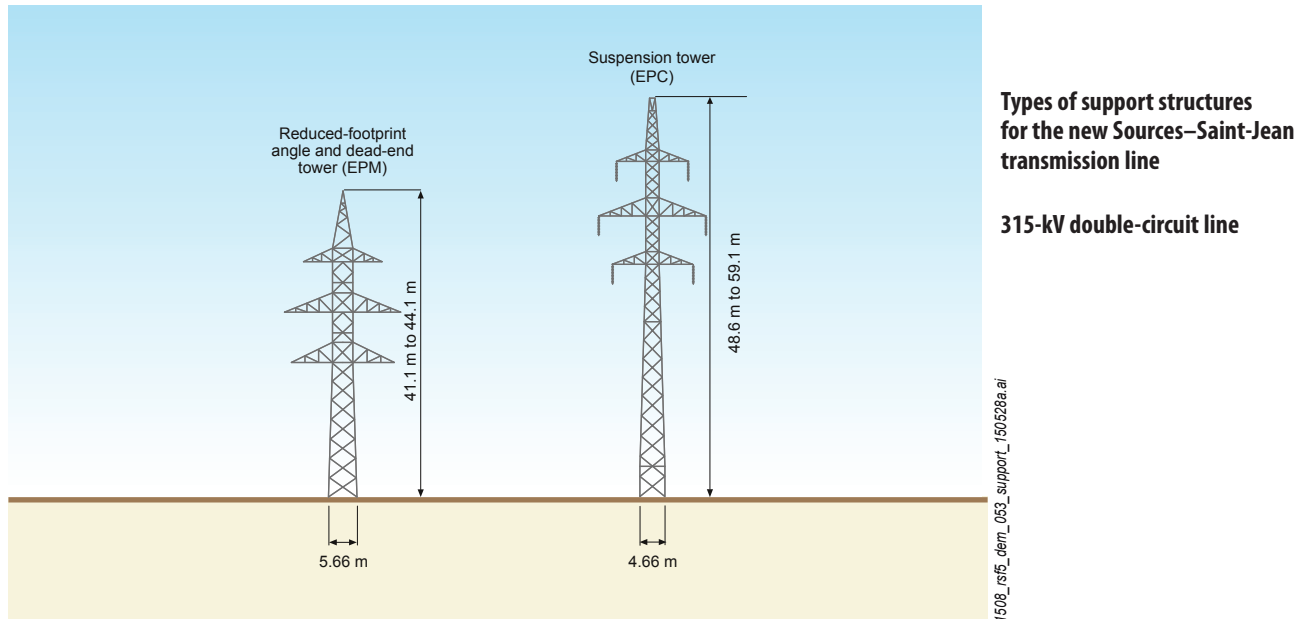


Figure 5: Dead-end and Suspension Towers for Planned Transmission Line



Clearing and pruning

Only trees deemed to be incompatible with operating standards for the future transmission line (i.e., those within the right-of-way that reach a height of more than 2.5 m at maturity) will be pruned or cut down.

Landscaping

The project to build the new transmission line will include landscaping work to create vegetation screens around the perimeter of Saint-Jean substation. Various rest areas with recreation equipment could also be created along the bicycle path within the right-of-way between Saint-Jean and Sources substations.

The location and actual scale of these areas will be determined in concert with the representatives of the city of Dollard-Des Ormeaux and in accordance with Hydro-Québec operating standards.

Access strategy

A number of roads provide direct access to the transmission line right-of-way, as it is located within the urban boundaries of the city of Dollard-Des Ormeaux. Therefore, no new access roads will be required to carry out the work.

2.3 Economic spinoffs and Integrated Enhancement Program

Hydro-Québec wants its facilities to blend harmoniously into the host environment. It sees its projects as opportunities to actively participate in the development of host communities and has set up the Integrated Enhancement Program (IEP) with this intent.

For each new power transmission project covered by this program, Hydro-Québec grants eligible organizations funding equivalent to 1% of the initially authorized value of the facilities covered by the IEP.

Funds granted under the program can be used mainly to improve the environment and certain municipal, community or recreational facilities, and to support regional tourism or development. Enhancement initiatives can also serve to improve the energy efficiency of municipal buildings or buildings of community or group interest, or to mitigate the impacts of existing Hydro-Québec facilities, providing they comply with the program criteria.

In the case of this project, the only organization eligible for such funding is the city of Dollard-Des Ormeaux.

2.4 Project schedule and costs

The work will extend from winter 2016 to fall 2018. The substation and transmission line are scheduled for commissioning in spring 2019. The schedule for the main phases of the project is shown in Table 2.

Table 2: Project Schedule

Phase	Target period
Application for government approvals	Spring 2015
Issuance of government approvals	Fall 2016
Construction of new substation	Winter 2016–2017 to fall 2018
Construction of 315-kV transmission line	Spring to fall 2017
Commissioning of substation	Spring 2019

The total cost of the project is estimated at \$90 million, i.e., \$76 million for construction of the substation and \$14 million for construction of the transmission line.

2.5 Legal context

The project is subject to the prior granting of government approvals, which are governed by the following provisions:

- In accordance with the *Environment Quality Act* (EQA) and the *Regulation respecting the environmental and social impact assessment and review procedure*, a certificate of authorization must be issued upon completion of the environmental impact assessment and review procedure and prior to construction of a 315-kV or higher-voltage switching or transformer substation and a 315-kV or higher-voltage power transmission or subtransmission line more than two kilometres long.
- In accordance with section 22 of the EQA, a certificate of authorization must be issued by the MDDELCC.
- In accordance with the *Act respecting land use planning and development*, a resolution formulating an opinion on the project's compliance with the objectives of the metropolitan land-use and development plan of the Communauté métropolitaine de Montréal and those of the land use and development plan for the Montréal urban agglomeration is required.
- In accordance with section 73 of the *Act Respecting the Régie de l'énergie* and its regulations, authorization must be obtained from the Régie de l'énergie, since the project calls for an investment of more than \$25 million.

Lastly, Hydro-Québec must obtain all servitude and property rights required to carry out the project from the city of Dollard-Des Ormeaux, which owns the land where the expanded area for the future Saint-Jean substation is located.

3

Public Participation

3.1 Objectives and activities

The public participation program was carried out from summer 2014 to spring 2015 with the following objectives:

- Explain the project
- Respond to and follow-up on stakeholders' information needs
- Consult with the community to develop the best possible project in compliance with the regulatory framework that governs the company.

The objective of this communication approach is to strike a balance between Hydro-Québec's objectives and the needs and expectations expressed by the representatives of the community and the owners and residents concerned by the project.

The activities included in the public participation program were carried out in three phases: general information, information/consultation and information on the solution selected.

3.2 General information

The objective of the general information phase was to explain Hydro-Québec's intentions to the elected representatives and the organizations responsible for managing and developing the region where the project is located. It provided the opportunity to explain the project rationale and technical characteristics, the study area, the environmental approach, the public participation process, Hydro-Québec's decision-making process and the project schedule.

Hydro-Québec also used this initial phase to gather the comments and concerns expressed by the community from the very start of the project, with a view to establishing contacts and fostering ongoing dialogue during the environmental impact assessment process.

The general information phase took place in summer 2014. During this period, Hydro-Québec held a meeting with the elected representatives and directors of the city of Dollard-Des Ormeaux and kept the relevant government departments informed by publishing a general information bulletin.

The main concerns expressed related to the following:

- Electric and magnetic fields
- Noise levels in the vicinity of the substation and transmission line
- Visual aspect of the new transmission line
- The possibility of undergrounding the 315-kV transmission line

3.3 Public consultation

The public consultation phase, which extended from fall 2014 to winter 2015, made it possible to verify the extent to which the proposed solutions would be accepted by the community. This phase involved presenting the preliminary results of the environmental and technical studies, gathering comments from community members concerning the proposed solution and presenting the project schedule.

Hydro-Québec produced a public consultation bulletin in both French and English, created a project Web page^[2] and made an Info-project Line available to the public.

Hydro-Québec met with the city councillors and directors on November 11, 2014. The residents concerned were also invited to attend an open house event on December 3, 2014. Lastly, a meeting was held with the executive director of the West Island of Montreal Chamber of Commerce in early 2015.

2. www.hydroquebec.com/transmission-construction-projects/saint-jean-substation/index.html

Discussions during the November 11 meeting with the city council focused mainly on the following topics:

- Choice of an overhead line vs. an underground one
- Difference in cost between building an overhead line and an underground one
- Height of the 315-kV towers vs. that of the existing 120-kV towers
- Possibility of landscaping the areas around the substation and within the right-of-way
- Electric and magnetic fields
- Noise levels generated by the facilities
- Total cost of the project

Hydro-Québec held an open house event in the main hall of the Dollard-Des Ormeaux Civic Centre on December 3, 2014, to present the project to the public and consult with residents living in the vicinity of the substation and along the right-of-way of the existing transmission lines. Approximately 1,000 invitations (along with the public consultation bulletin and an opinion submission form) were sent to residents living near the line right-of-way.

During the event, Hydro-Québec specialists used large-scale visual simulations to present their plans for the new 315/25-kV substation and the existing transmission lines and future transmission line, as well as the types of towers to be used. Participants were also able to consult a map showing the equal-loudness curves (or isophons) generated by the equipment, as well as documentation on electric and magnetic fields. About forty people were in attendance.

Some of the people attending the open house praised Hydro-Québec's transparency and availability in regard to the project and no one questioned the project rationale. Some people expressed a clear preference for an underground line and a few visitors questioned the period allotted for the consultation process, saying that they were not being given enough time to obtain answers to their questions and express their opinions.

After the open house, some 20 members of the public called in to the Hydro-Québec Info-project Line and about 40 submitted their opinions in writing. The main opinions expressed related to the following points:

- Not enough time allotted for the public consultation process
- Concern about depreciation in the value of properties located near the planned transmission line
- Health risks
- Construction of an overhead transmission line in a residential area, rather than an underground line

Hydro-Québec followed up on the comments that had been submitted via e-mail or through the Info-project Line.

A resolution dated December 9, 2014 and unanimously passed by the Dollard-Des Ormeaux city council was filed with Hydro-Québec. The city's official position was presented as follows: "...the Dollard-Des Ormeaux City Council will accept nothing less than an underground transmission line between Sources and Saint-Jean substations (free translation)." In response to the resolution, Hydro-Québec sent a letter to the mayor of Dollard-Des Ormeaux on December 19, stating that the consultation process had begun and would continue until spring 2015. The letter emphasized that, when building new facilities, Hydro-Québec makes every effort to ensure that its projects are environmentally acceptable, economically viable and well-received by the community.

On December 11, 2014, Hydro-Québec received a petition bearing 200 signatures by e-mail from a homeowner living near the site of the future transmission line and acting as spokesperson for a group of citizens who were opposed to the overhead line. Hydro-Québec responded to the spokesperson in writing, reiterating its intention to pursue ongoing dialogue with a view to gathering the opinions and comments of residents concerned by the project. The company's response also stated that the specialists who carry out the economic, environmental and technical studies are dedicated to adapting the project and minimizing its impacts as much as possible by taking the expectations and concerns expressed by the population into consideration. Lastly, Hydro-Québec emphasized that, as a responsible government corporation, it would ensure that any decisions taken in regard to the project would be equitable for all of its customers.

3.4 Information on the solution selected

Information on the solution selected constituted the final phase of the public participation program. The main objective was to inform the people concerned about the option selected by Hydro-Québec, the next stages of the studies, the overall project schedule and the main mitigation measures planned.

On March 16, 2015, a citizens' group opposed to the overhead transmission line (called Build it Underground Dollard-Des Ormeaux) sent Hydro-Québec an e-mail in which they requested a meeting so that they could present their point of view concerning the project. The company held a meeting on April 30 to enable the members of the group to express or reiterate their concerns, most of which related to their preference for an underground transmission line, the issue of electric and magnetic fields, property values along the right-of-way and noise levels.

During the meeting, Hydro-Québec gave a presentation on the solution selected and reaffirmed its intention to build, in collaboration with the city of Dollard-Des Ormeaux, a model transmission line right-of-way that would benefit the citizens.

On April 30, 2015, Hydro-Québec also informed the city of Dollard-Des Ormeaux that it had selected the option to build an overhead transmission line, emphasizing that it has a duty to submit the best possible project, i.e., one that is technically, economically, environmentally and socially sound. The letter also explained that, in order to comply with our regulatory requirements, Hydro-Québec must submit a project that can be carried out at the best possible cost and that it would not be able to do so if it were to build an underground line.

The schedule of communication activities is provided in Table 3.

Table 3: Schedule of Communication Activities

Date	Activity	Publics concerned
General information		
July 8, 2014	Meeting	<ul style="list-style-type: none"> • Mayor and city councillors of Dollard-Des Ormeaux • City directors
August 4, 2014	Correspondence with bulletin	<ul style="list-style-type: none"> • Conférence administrative régionale de Montréal • Ministère des Affaires municipales et de l'Occupation du territoire • Ministère de l'Énergie et des Ressources naturelles • Ministère des Transports • Ministère du Développement durable, de l'Environnement et de la Lutte contre les changements climatiques (direction régionale de l'analyse et de l'expertise) • Agence de Santé et des Services sociaux de Montréal • Conférence régionale des élus de Montréal • Secrétariat de liaison de l'agglomération de Montréal • Carlos J. Leitao, MNA for Robert-Baldwin and Minister of Finance • City of Montréal (ville centre) • Communauté métropolitaine de Montréal • Conseil régional de l'environnement • Administration of the city of Dollard-Des Ormeaux

Table 3: Schedule of Communication Activities (cont.)

Date	Activity	Publics concerned
Public consultation		
November 11, 2014	Meeting	<ul style="list-style-type: none"> • Mayor of Dollard-Des Ormeaux • City councillors • City Manager • Director of Urban Planning and Engineering
December 3, 2014	Open house	Homeowners and residents living near the substation and transmission line right-of-way (approximately 1,000 people invited, about 40 in attendance)
January 8, 2015	Meeting	Executive Director of the West Island of Montreal Chamber of Commerce
January 27, 2015	Meeting	Mayor and City Manager of Dollard-Des Ormeaux
February 5, 2015	Telephone meeting	Mayor of Dollard-Des Ormeaux
March 9, 2015	Meeting	Mayor and City Manager of Dollard-Des Ormeaux
Information on the solution selected		
April 30, 2015	Letter	Mayor of Dollard-Des Ormeaux C.c. to Pierre Arcand, Minister of Energy and Natural Resources and Carlos J. Leita, MNA for Robert-Baldwin
April 30, 2015	Meeting	Build it underground Dollard-Des Ormeaux citizens' group
May 1, 2015	Correspondence	Ministère du Développement durable, de l'Environnement et de la lutte contre les changements climatiques Office of Carlos J. Leita, MNA for Robert-Baldwin
May 1, 2015	Correspondence	West Island of Montreal Chamber of Commerce
May 13, 2015	Correspondence	Responses from Hydro-Québec to additional questions to a representative of the Build It Underground Dollard-Des Ormeaux citizens' group
May 14, 2015	Hydro-Québec project Web site	Posting online of the solution selected
Week of May 25, 2015	Newspapers distributed in the West Island	Hydro-Québec advertorial on the solution selected
May 26, 2015	Correspondence	<p>Letters to the following stakeholders:</p> <ul style="list-style-type: none"> • Conférence administrative régionale de Montréal • Ministère des Affaires municipales et de l'Occupation du territoire • Ministère de l'Énergie et des Ressources naturelles • Ministère des Transports • Ministère du Développement durable de l'Environnement et de la Lutte contre les changements climatiques (direction régionale de l'analyse et de l'expertise) • Agence de la santé et des services sociaux de Montréal • Conférence régionale des élus de Montréal • Secrétariat de liaison de l'agglomération de Montréal • Carlos J. Leita, MNA for Robert-Baldwin and Minister of Finance • City of Montréal (ville centre) • Communauté métropolitaine de Montréal • Conseil régional de l'environnement
May 27 and 29, 2015	Correspondence	Responses to additional questions from Hydro-Québec to a representative of the Build It Underground Dollard-Des Ormeaux citizens' group

3.5 Results of the public participation process

The public participation process enabled the city managers, elected representatives and citizens concerned to present their points of view, express their concerns and obtain answers to their questions concerning the proposed project.

The citizens in favor of an underground transmission line reiterated their opposition to the solution selected by Hydro-Québec on a number of occasions and through various channels. At the end of the process, these individuals continued to adhere to their position, despite the arguments put forward by Hydro-Québec and the measures taken to improve the proposed project. Hydro-Québec intends to pursue an ongoing dialogue to address their concerns, in a spirit of openness.

Every project is unique and the measures taken to promote its acceptability vary, depending on

the expectations of the host environment. At the end of the consultation process, Hydro-Québec considered that it had adequately responded to the questions and concerns expressed by the public and believes that the selected project is still the best option, as it will provide all of its customers with a reliable supply of electricity at the best possible cost and in an equitable fashion.

3.6 Media review

In all, five articles appeared in three West Island newspapers and CBC Radio interviewed a member of the citizens' group opposing the overhead transmission line about the project.

During the week of May 25, 2015, Hydro-Québec published an advertorial summarizing the project in *The Chronicle*, *Cités Nouvelles* and the *West Island Gazette*.

Sustainable Development

Sustainable development aims to meet the essential needs of today's population, without compromising the ability of future generations to meet theirs. It is therefore based on principles of equity toward both present and future generations.

Through its Our Environment policy, Hydro-Québec undertakes to give preference to hydropower, other sources of renewable energy and energy efficiency to meet the needs of its customers.

In terms of its projects, Hydro-Québec subscribes to sustainable development principles based on preserving the integrity of the environment and enhancing social equity and energy efficiency.

In regard to environmental integrity, knowledge of the environment and relations with local authorities enabled Hydro-Québec to develop a project with the least impact on the environment, in accordance with current land-use practices and development strategies.

The company ensured that social equity would be served by implementing a communication program designed to inform the publics affected by the project. In so doing, Hydro-Québec demonstrated its intention to work in cooperation with the community. Various means of communication were set up to meet the target objectives and disseminate information to all publics concerned,

including meetings with elected representatives, correspondence, information bulletins in both French and English, public activities, a telephone information line and a Web site. Analysis of the project options factored in the opportunities available in this area of the island of Montréal and the relationships and interactions between the different stakeholders in the host community and focused on meeting the needs of the population without compromising those of future generations.

Hydro-Québec studied the project to convert Saint-Jean substation to 315/25 kV and power the facility through a 315-kV supply line from Sources substation as part of the overall plan to develop the power transmission grid for the island of Montréal. The plan falls within the overall vision for optimum development of the grid in terms of both economic considerations and land management, and is in keeping with the principles of economic efficiency and sustainable development as they apply to future generations. By building 315/25-kV substations with greater capacity than the satellite 120/25-kV substations will be able to provide when they reach the end of their service life, Hydro-Québec is taking the increasing demand generated by population growth on the island of Montréal into consideration. Gradually converting the system to 315-kV is a cost-effective choice for future generations.

5

Environmental Issues and Description of Host Environment

5.1 Environmental issues

The project to convert Saint-Jean substation to 315/25 kV and rebuild the Sources–Saint-Jean double-circuit transmission line at 315 kV will be carried out in an essentially urban environment and most of the environmental issues associated with the project relate to the human environment.

Given the host environment for this facility and based on the experience gained on this type of project and the information exchanged with elected representatives and citizens of the city of Dollard-Des Ormeaux, the following project-related environmental issues have been identified:

- Visual integration of the substation and transmission line
- Management of noise levels in the vicinity of the substation and transmission line
- Harmonization of the structures with the various residential, commercial and recreational facilities in the area bordering the Hydro-Québec property and servitude
- Management of jobsite activities in an urban environment

315-kV Saint-Jean substation

To allow for installation of the new equipment, expanding the Saint-Jean substation within the current transmission line right-of-way is considered to be the best option. The layout of the equipment within the substation yard factors in the presence of private homes in the vicinity of the substation. Since the substation is located at the intersection of two very busy streets in the city of Dollard-Des Ormeaux, efforts are being made to optimize the planned facility's visual integration into the surrounding area.

Vehicle and machinery traffic at the substation site and on neighboring streets and noise levels around the substation, both during construction and operation of the facilities, were taken into consideration in the environmental assessment of the project (Photo 1).



Photo 1 – Aerial View of Existing Saint-Jean Substation

315- kV supply line

The challenges involved in designing the 315-kV supply line for Saint-Jean substation essentially relate to the harmonious integration of the line into the urban landscape, while factoring in the presence of the 120-kV transmission line and distribution lines, as well as a number of underground infrastructure components (Photo 2).

Building and operating the new 315-kV line will mean that occupation of the right-of-way by neighboring residents will have to be regulated. Such regulation will apply to encroachments (i.e., illegal occupation of the right-of-way) and residential leases for purposes commonly known as “gardening” and “beautification.” Following analysis, occupation of the right-of-way will be standardized and may involve the relocation of such structures as sheds, temporary shelters and fences, as well as the removal of plants deemed incompatible with the operation of the new supply line.



Photo 2 – Aerial View of Transmission Line Corridor

5.2 Host environment

The project study area, which covers approximately 3.84 km², is entirely encompassed within the Dollard-Des Ormeaux city limits. More specifically, the area is bordered by Boulevard des Sources to the east, Boulevard Brunswick and the municipal boundary between the cities of Dollard-Des Ormeaux and Pointe-Claire to the south, Avenue Hastings to the west and Rue Lake to the north (Map 2). The study area is almost entirely urbanized and contains few vacant lots.

Natural environment

The study area features flat terrain and contains no rivers or streams. The plants and wildlife observed in the area include species commonly found in urban environments. No special-status plant species have been identified there. Dekay's brown snake is the only wildlife species likely to be designated threatened or vulnerable identified in the study area.

Human environment

Administrative framework and population

The study area is located in the city of Dollard-Des Ormeaux, which is part of the agglomeration of Montréal, which is itself part of the Communauté métropolitaine de Montréal (Map 3).

In 2011, there were some 49,637 people living in the city of Dollard-Des Ormeaux, 40% of whom were immigrants. Most of the population of Dollard-Des Ormeaux (67%) could converse in both official languages and the majority of residents (62%) spoke only English at home.

Single-family dwellings make up most of the residences in the study area. The city is well served by the local road network and includes several major thoroughfares.

Archaeology

The inventory of Québec archaeological sites carried out by the Ministère de la Culture et des Communications did not reveal any known archaeological sites within the boundaries of the study area. The results of the study of archaeological potential conducted for the environmental impact assessment showed there are areas where evidence of previous occupation might be found. Hydro-Québec will carry out the appropriate archaeological investigations in compliance with applicable regulations.

Landscape

The study area is encompassed within the city of Dollard-Des Ormeaux. The area features a sparse urban fabric (streets and buildings) made up mainly of single-family dwellings. It is transected from west to east by Boulevard De Salaberry and a wide right-of-way containing tower-supported power transmission lines running between Saint-Jean and Sources substations, which constitute particularly significant structures within the study area's landscape.

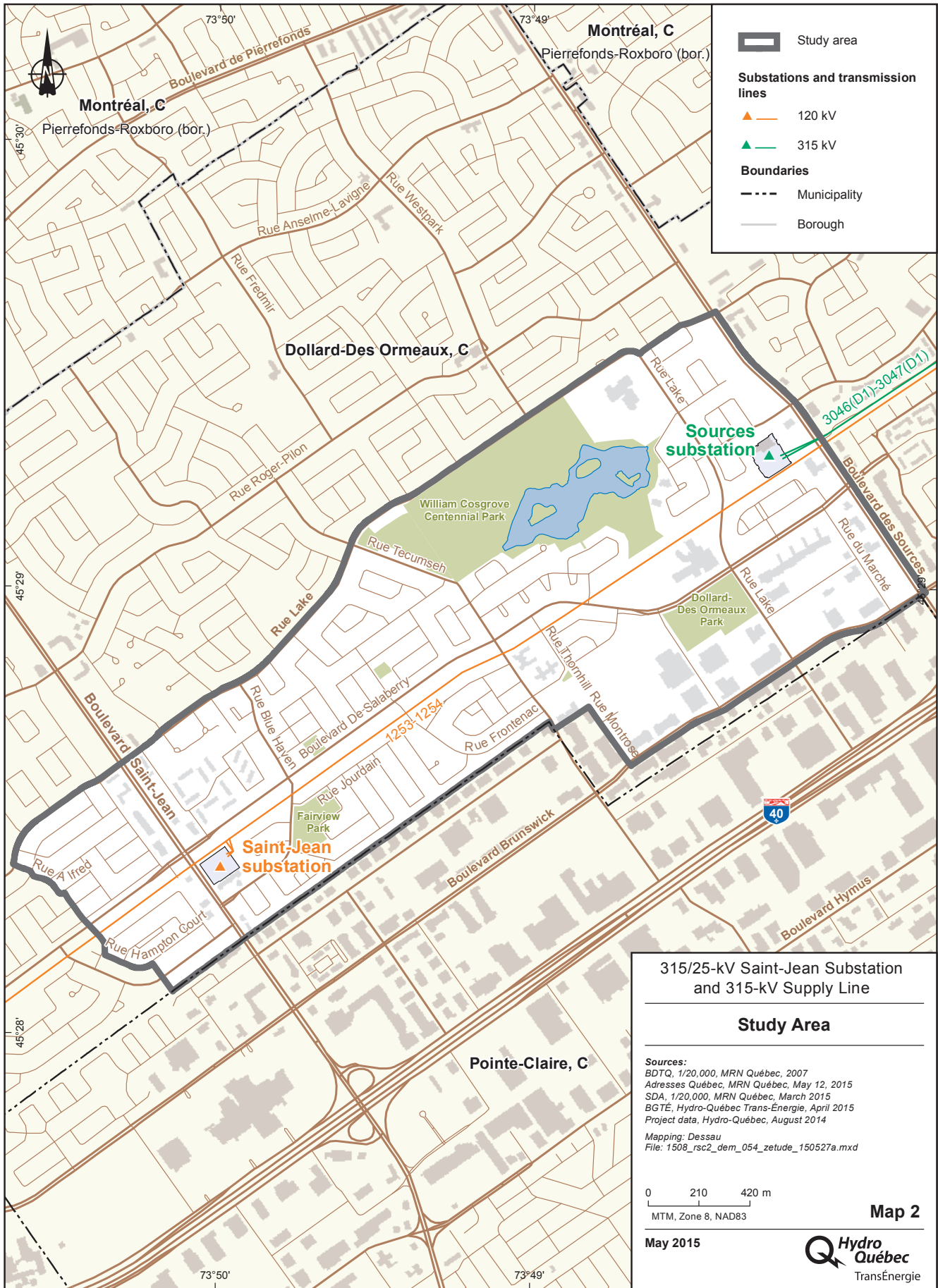
The three main thoroughfares in the study area are Saint-Jean and des Sources boulevards, which feature a number of commercial establishments, and Boulevard De Salaberry, which runs alongside the power transmission corridor and separates the northern and southern portions of the study area.

Another salient feature of the study area is the concentration in its eastern portion of public and educational facilities such as William-Cosgrove Centennial Park and Dollard-Des Ormeaux Park, city hall, the civic centre and École secondaire des Sources.

Urban landscape units

The study area contains the following five urban landscape units (Map 4):

- Commercial – Boulevard Saint-Jean and surrounding area
- Residential – Boulevard Saint-Jean
- Residential – Rue Lake
- William-Cosgrove Centennial Park
- Commercial/industrial – des Sources and Brunswick boulevards



315/25-kV Saint-Jean Substation and 315-kV Supply Line

Study Area

Sources:
 BDTQ, 1/20,000, MRN Québec, 2007
 Adresses Québec, MRN Québec, May 12, 2015
 SDA, 1/20,000, MRN Québec, March 2015
 BGTÉ, Hydro-Québec Trans-Énergie, April 2015
 Project data, Hydro-Québec, August 2014

Mapping: Dessau
 File: 1508_rsc2_dem_054_zetude_150527a.mxd

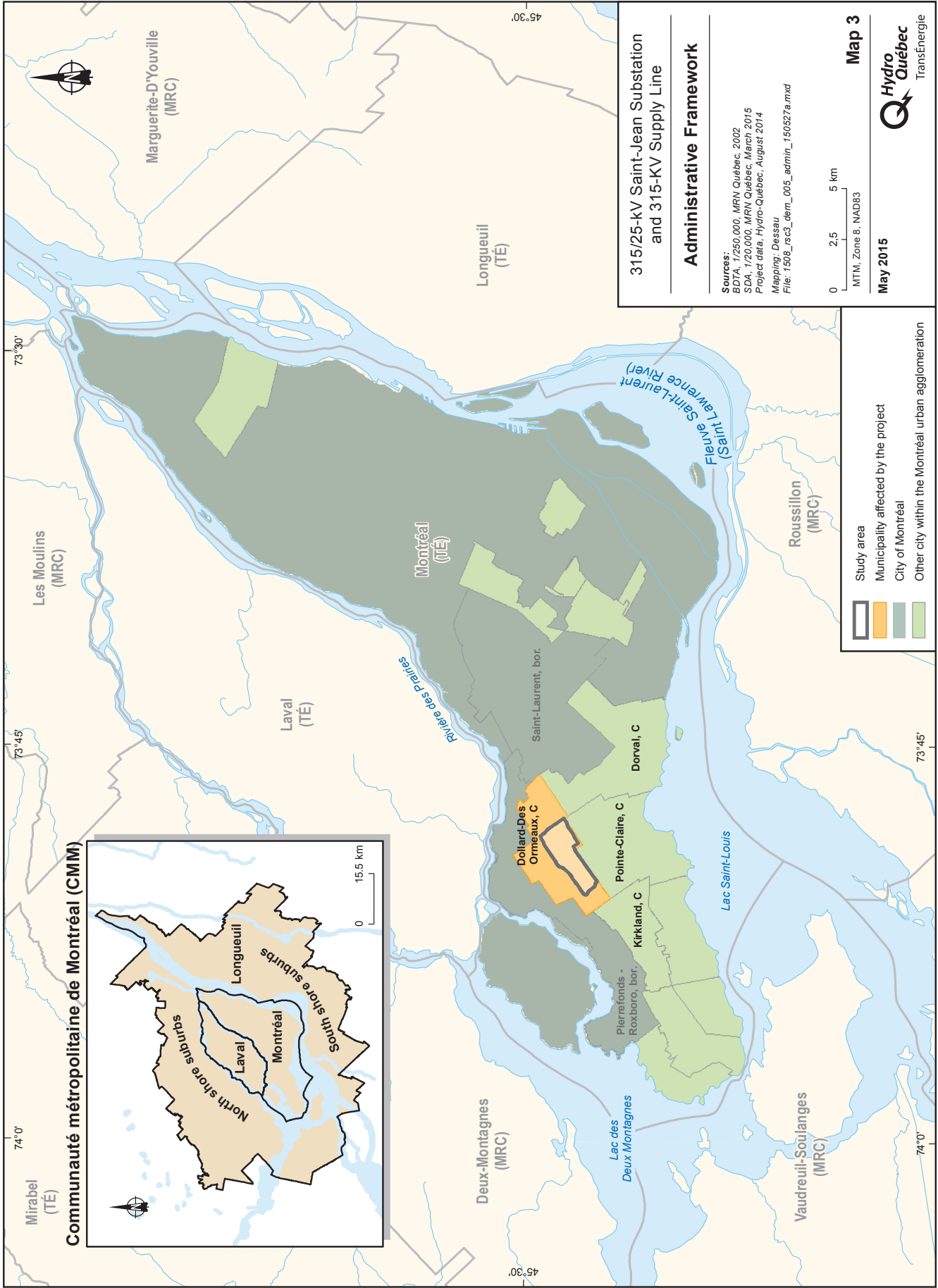
0 210 420 m

MTM, Zone 8, NAD83

Map 2

May 2015





315/25-kV Saint-Jean Substation and 315-kV Supply Line

Administrative Framework

Sources:
 BDTA, 1/250,000, MRN Québec, 2002
 SDA, 1/20,000, MRN Québec, March 2015
 Project data, Hydro-Québec, August 2014
 Mapping: Dessau
 File: 1506_rsc3_dem_005_admin_150627a.mxd

Map 3

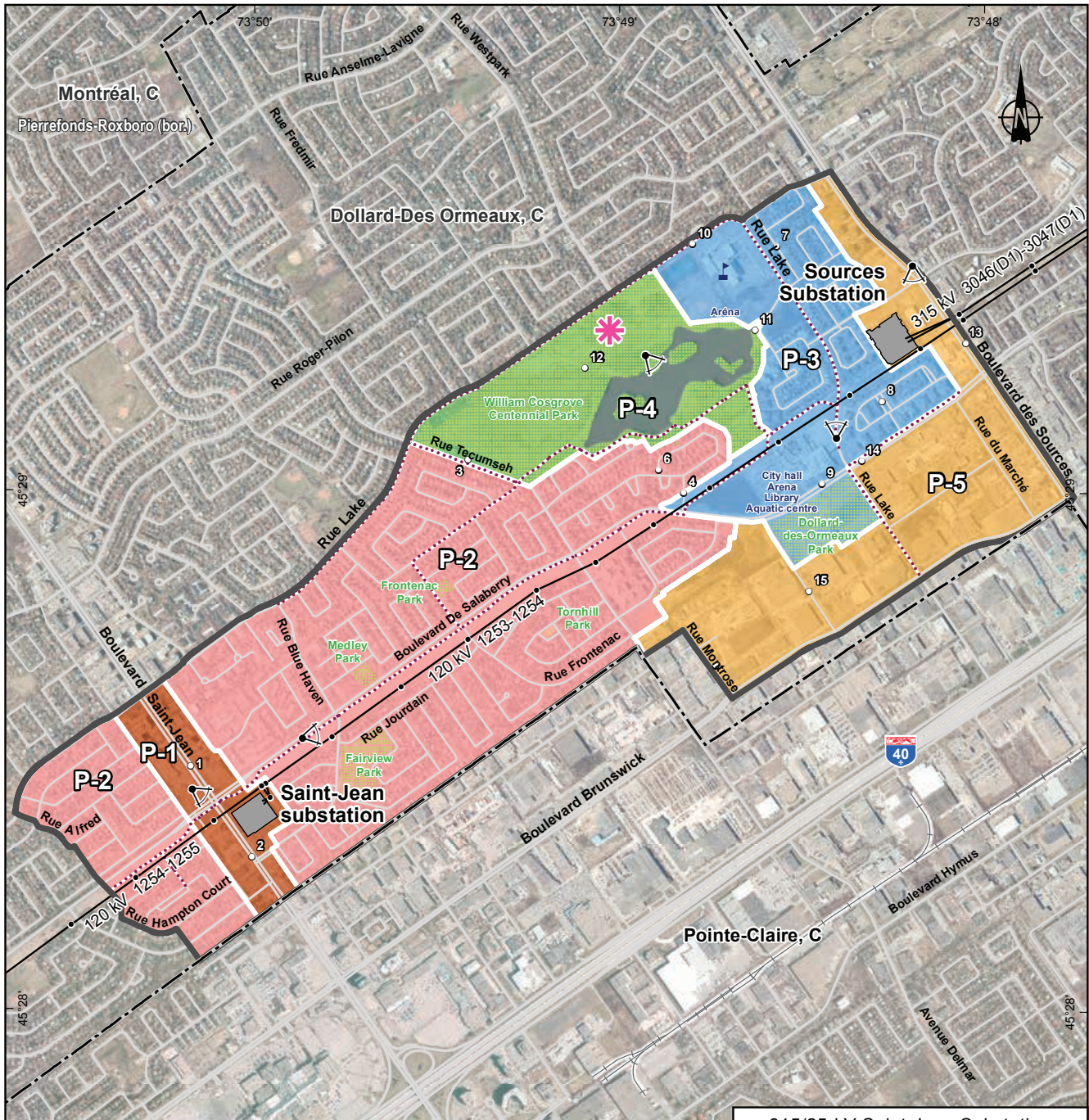
May 2015

0 2.5 5 km
 MTM, Zone 8, NAD83

Hydro Québec
 TransÉnergie

Study area

- Municipality affected by the project
- City of Montréal
- Other city within the Montréal urban agglomeration



Landscape units

- Landscape unit boundary
- P-1 Boulevard Saint-Jean and surrounding area
- P-2 Residential – Boulevard De Salaberry
- P-3 Residential – Rue Lake
- P-4 Parc du Centenaire
- P-5 Commercial/Industrial – Boulevard des Sources/Brunswick
- 1 Photograph (landscape)
- Strategic viewpoint
- Visual field of interest

Recreation and heritage

- Bicycle path
- Park or green space

Infrastructure

- Overhead transmission line and tower
- Highway
- Other road
- Railway

Boundary

- Municipality

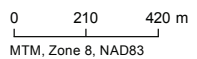
Project component

- Study area

315/25-kV Saint-Jean Substation and 315-kV Supply Line

Landscape

Sources:
 Orthophoto, resolution 25 cm, © CMM 2013, all rights reserved
 Adresses Québec, MRN Québec, May 12, 2015
 NRWN, 1/10,000, NRCan, April 2015
 SDA, 1/20,000, MRN Québec, March 2015
 BGTÉ, Hydro-Québec TransÉnergie, April 2015
 Project data, Hydro-Québec, August 2014
 Mapping: Dessau
 File: 1508_rsc4_dem_004_pay_150604a.mxd



MTM, Zone 8, NAD83

Map 4

May 2015



Impacts and Mitigation Measures

The project to build the 315/25-kV Saint-Jean substation and 315-kV supply line will be carried out in a densely populated urban area containing very few vacant lots.

The environmental assessment conducted for the project made it possible to identify the impacts generated by construction of the substation and supply line, as well as those stemming from the presence of the planned structures in the area. With a view to minimizing these impacts and integrating the substation and transmission lines into the surrounding landscape as much as possible, Hydro-Québec will implement a number of mitigation measures in response to the concerns expressed by the publics consulted and in the interest of equity toward its customers. The company currently applies many of these measures to its substation and transmission line projects (see Hydro-Québec's guide to good environmental practices [Cahier des bonnes pratiques] and standard environmental clauses [Clauses environnementales normalisées]) and in this case, additional measures are being proposed to account for the specific features of the facilities' host environment.

Despite the efforts made to optimize the project and apply mitigation measures, there will be some residual impacts on the natural and human environments and on the landscape.

6.1 Impacts generated by the conversion of Saint-Jean substation to 315/25 kV

The work to expand Saint-Jean substation will have relatively little negative impact on the host environment, since it will be carried out within the boundaries of the substation, on a Hydro-Québec-owned strip of land northeast of the facility and in a section of the transmission line right-of-way.

Jobsite activities

Nearly all of the anticipated negative impacts will stem from the construction work and will essentially relate to noise levels and possible damage to the road network. Mitigation measures will be implemented to minimize noise levels emitted by the jobsite, keep citizens informed and ensure public safety. Any damage to the road network or street furniture will be repaired.

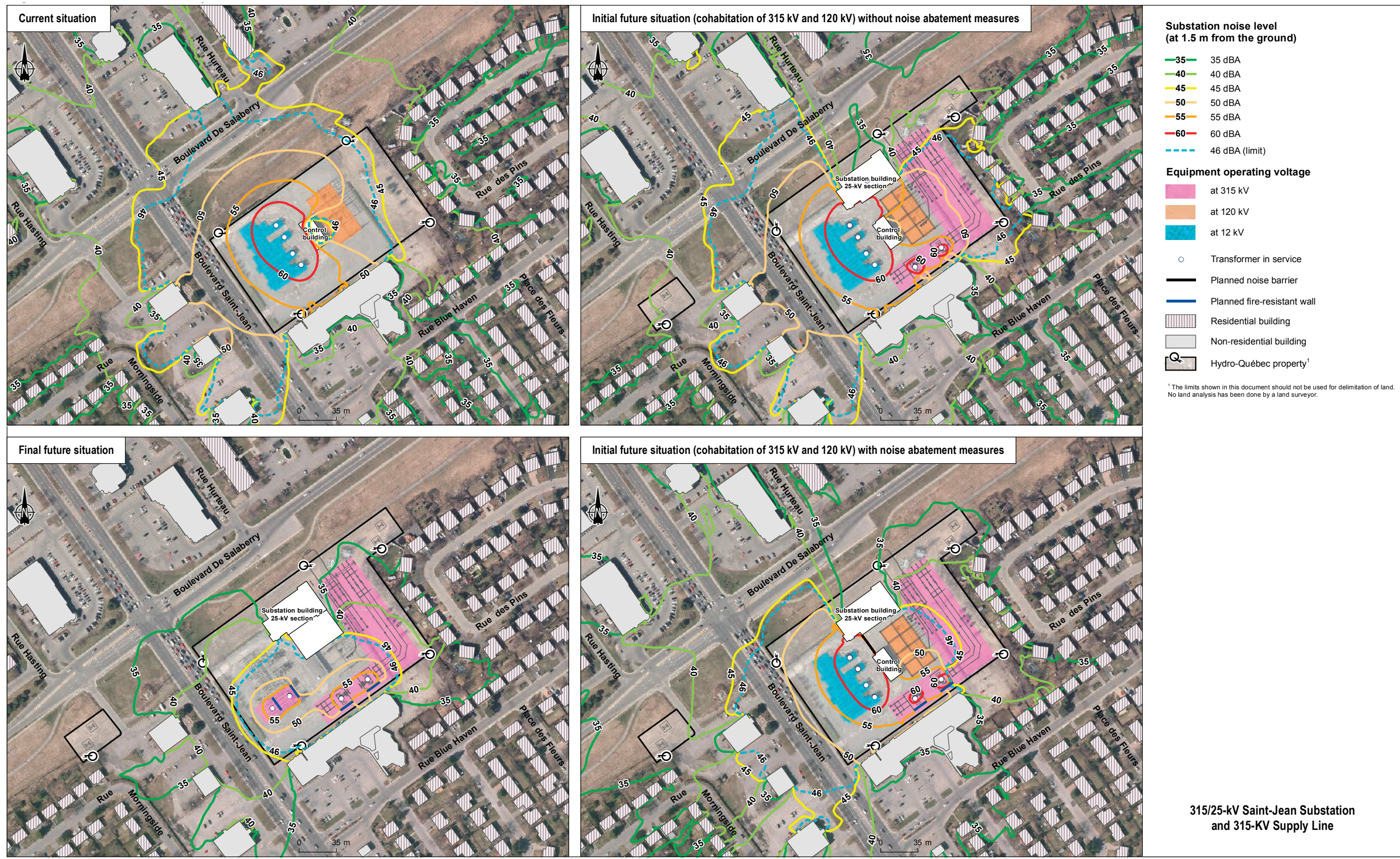
Noise levels

A study of audible noise was carried out to evaluate the noise levels generated by Saint-Jean substation under both current and future operating conditions and to assess the project's noise compliance. Noise levels emitted by the substation were evaluated by modeling the continuous noise propagated by the noisy equipment from the moment of installation.

The noise affecting neighboring residences from the existing 120/12-kV substation has been measured at 46 dBA or lower, which is in line with the noise limits established for single-family dwellings in the vicinity of the substation.

An assessment to establish noise levels when the 120/12-kV and 315/25-kV equipment at Saint-Jean substation are operating simultaneously has shown that noise levels will increase by 1 to 5 dBA and will exceed 46 dBA in the backyards of residences located to the east of the substation. Given this information, noise-abatement measures will be required to ensure the project's noise compliance. However, once the existing equipment has been de-energized, noise levels will be lower than those currently measured. Noise levels generated by the substation at the residences closest to it should ultimately decrease by more than 3 dBA.

Figure 6: Estimate of Noise Caused by Saint-Jean Substation (Current and Future Situations)



1508_rsf6_dem_030_posonore_150527a.mxd

Figure 7: Proposed Landscaping near Saint-Jean Substation – Simulated View from Boulevard Saint-Jean



Work during the initial phase of the project will include the installation of acoustic walls between the existing and new substation buildings and to the east of transformer T14, as well as the installation of acoustic covers around existing 120/12-kV transformers T1 and T2.

Landscape

The project's impacts on the landscape are related to the presence of new equipment in the area. Major efforts will be made to create vegetation screens around the perimeter of the substation and install an architectural fence to limit views of the facility from outside.

6.2 Impacts generated by the new 315-kV supply line

The planned 315-kV supply line will be erected within the existing 120-kV transmission line right-of-way. The supply line will be supported by 11 reduced-footprint rigid lattice towers with an average height of 51 metres. It should be noted that the planned line route will coincide with that of the 315-kV transmission line commissioned in 1976 and dismantled as an emergency measure after the 1998 ice storm.

Landscape

Overall, the 315-kV supply line will have little visual impact on the area, since it will be erected in an existing right-of-way already occupied by a 120-kV transmission line. Furthermore, the fact that the supply line will run parallel to the towers supporting the existing line will make the new towers more compatible with the landscape. Lastly, the choice of reduced-footprint lattice towers will increase visual compatibility, since the neighboring line is supported by the same type of towers.

Building and operating the new 315-kV line will mean that occupation of the right-of-way by neighboring residents will have to be regulated. Such regulation will apply to encroachments (i.e., illegal occupation of the right-of-way) and residential leases for purposes commonly known as “gardening” and “beautification.” Following analysis, occupation of the right-of-way will be standardized and may involve the relocation of such structures as sheds, temporary shelters and fences, as well as the removal of plants deemed incompatible with the operation of a high-voltage transmission line.

The proposed landscaping and recreational equipment, the extent of which will be determined jointly with representatives of the city of Dollard-Des Ormeaux, will enhance the scenic quality of the right-of-way and its use by residents.

Figure 8: Simulated View of Proposed Landscaping in the Transmission Line Right-of-way



Noise levels

A study was conducted to evaluate the noise levels that will be emitted once the planned 315-kV supply is in operation and to assess the project's noise compliance. The study showed that the ambient noise level at night will be 46 dBA near the residences located along the transmission line right-of-way, under dry road conditions with no precipitation. When the road surface is wet, the noise generated by vehicle traffic will increase and the minimum ambient noise level will be 49 dBA. The noise emitted by the planned supply line, which will be below 45 dBA under such conditions, will remain below ambient noise levels in the area. When the conductors are dry, the noise generated by the supply line will be under 30 dBA, which should not be audible, as it is far below the ambient noise level in the area.

Magnetic field

Given that magnetic fields can be measured and their levels are well known in both residential and work environments, exposure to magnetic fields does not constitute a significant issue in this case. Nevertheless, the magnetic field was modeled as part of the project to address the concerns expressed by members of the community. The values obtained show that the intensity of the magnetic field in the right-of-way beneath the conductors is lower when both transmission lines are present than when only one line is present (1.29 μT vs. 1.45 μT). It is relatively uniform along the edges of the right-of-way, regardless of whether it is occupied by one (0.30–0.72 μT) or two (0.48–0.82 μT) transmission lines supported by lattice towers.

Compliance Monitoring and Environmental Follow-up

7.1 Compliance monitoring

Hydro-Québec carries out environmental compliance monitoring of all work performed during the construction of a facility or the installation of equipment. The application of specific mitigation measures at the jobsite is ensured through an environmental monitoring program adapted to the project and its host environment.

Hydro-Québec has also developed an environmental compliance assurance guide to ensure that the selected mitigation measures are properly applied to all project work. The company makes sure that all the information pertaining to its commitments and obligations, the specific environmental protection measures and the jobsite traffic management strategy are included in the guide, which is provided to the contract administrator, the environmental compliance officer at the jobsite and the contractor in charge of the work. The guide is an internal tool that sets out all mitigation measures (standard environmental clauses and special mitigation measures) and specifies the locations where they are to be applied.

Hydro-Québec ensures that the contractor in charge of the work complies with all contract clauses pertaining to the environment. It also ensures that the contractor is well informed of the standard environmental clauses and mitigation measures related to the project.

Prior to the start of work, Hydro-Québec ensures that the contractor has clearly marked out the work areas and the roads that will be used to access the jobsite or circulate within the right-of-way and has applied the measures established during the draft-design phase to protect the environment.

During the work, the Hydro-Québec environmental compliance officer ensures that the conditions set

out in the call for tenders are complied with and that Hydro-Québec personnel and the contractor's employees are properly trained. The officer maintains contact with the landowners concerned and makes sure that Hydro-Québec holds all required authorizations as the work progresses. If additional access routes or any modifications to the company's commitments and obligations become necessary during the course of the work, the environmental compliance officer is responsible for obtaining the required authorizations.

Upon completion of the work, Hydro-Québec transfers responsibility for the commitments set out in the environmental impact assessment to the operator. During operation and whenever maintenance work such as controlling vegetation at the substation site and in the transmission line right-of-way is required, monitoring is carried out to ensure that environmental protection measures and standards are applied.

7.2 Environmental follow-up

The environmental follow-up program makes it possible to measure the actual impact of a project or activity and thereby, further the environmental assessment process. The program also makes it possible to evaluate the effectiveness of the environmental mitigation, protection, compensation or enhancement measures applied and to adjust them as needed, with a view to ensuring continuous improvement.

Given the nature of the impacts generated by the 315/25-kV Saint-Jean substation 315-kV supply line project, the limited and temporary nature of these impacts and the effectiveness of the proposed mitigation measures, it is considered neither necessary nor relevant to carry out environmental follow-up activities other than the noise-level evaluations generally performed during the operating phase.

As part of this project, Hydro-Québec will monitor noise levels generated by the new substation in two stages, which correspond to the situations established in the audible noise study for the following two operating conditions under consideration:

- Initial future situation: following commissioning of the first two 315/25-kV transformers, construction of the buildings and firewalls and implementation of planned noise-abatement measures, with the existing 120/12-kV substation still in operation.
- Final future situation: once the existing 120/12-kV substation is dismantled and the fourth 315/25-kV transformer is commissioned.

It has also been recommended that a noise-compliance monitoring program be set up for the new 315-kV supply line. Noise compliance

will be monitored under operating conditions when noise emitted by the line is at its highest level, i.e., when the conductors are wet (e.g., when it is raining).

The recommended noise-compliance monitoring program will comprise the following activities:

- Evaluate the sound level emitted by the 315-kV line (if possible) and compare it with anticipated values.
- Measure ambient noise within the Hydro-Québec right-of-way and at the boundaries of noise-sensitive areas alongside the line, and compare the levels measured with anticipated values.
- Produce a technical report providing the results of noise measurements, the analysis of measured and anticipated levels and the conclusions stemming from them.

Preliminary Emergency Measures Plan

8.1 Construction phase

During construction of a project, Hydro-Québec implements a number of emergency measures, including a health and safety plan and an environmental emergency measures plan.

All construction sites are provided with guidelines that set out measures such as emergency intervention plans, as well as responders' roles and responsibilities and the intervention equipment required to manage accidental contaminant spills. A communication flowchart providing the contact information for all internal and external responders is posted in the Hydro-Québec trailer and that of the contractor in charge of the work.

The emergency measures plan is also posted in the same locations and describes the steps to be taken in case of an accident, fire, gas leak or other incident. The plan also provides the contact information for the main emergency services. An accidental spill report must be submitted following any contaminant spill.

The emergency measures plan remains in effect for as long as activities are being carried out at the jobsite. The emergency operation plan takes over once the substation is commissioned and the transformers are tested.

8.2 Operating phase

For all facilities in operation, Hydro-Québec implements the Hydro-Québec TransÉnergie emergency measures plan, which covers all risks associated with the operation of a substation and sets out the procedures to follow in case of an accidental spill specific to the substation.

This is a multi-risk plan that covers all possible emergency situations in substations. An analysis of likely events and their local and peripheral consequences is performed and the results are incorporated into the design standards. In the case of a specific event, a special analysis is conducted and preventive, mitigation or intervention measures are applied as a consequence.

The most common situations anticipated in the emergency intervention plan and procedures in the case of an accidental contaminant spill are contaminant leaks, equipment explosions or fires, floods, backwater from runoff, or any combination of these events. The Hydro-Québec TransÉnergie emergency measures plan also applies to events that occur outside the boundaries of its facilities.

Appendices

**A Main Contributors to the
Environmental Impact Assessment**

B Pocket Insert Maps

- A Natural and Human Environments
- B Impacts and Mitigation Measures

Appendix A

Main Contributors to the Environmental Impact Assessment

HYDRO-QUÉBEC

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- Daniel Goulet, Advisor – Scientific Research, Hydro-Québec TransÉnergie (electric and magnetic fields)
- Ulysse Bergeron, Advisor – Environment, Hydro-Québec Équipement et services partagés (soil characterization)
- Franck Duchassin, Acoustic Engineer, Hydro-Québec Équipement et services partagés (sound surveys)
- Angie Cassista, Advisor – Environment, Hydro-Québec Équipement et services partagés (forestry)
- Natalie Nicole, Advisor – Government Approvals, Hydro-Québec Équipement et services partagés
- Dominique Caron, Advisor – GIS II Development, Hydro-Québec Équipement et services partagés (cartography)
- Carlos Valladares, Advisor – SRIS II, Hydro-Québec Équipement et services partagés (cartography)

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- Jocelyne Baril, Advisor – Communication Services – Publishing, Hydro-Québec

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- Antoine Bélisle, Urban Planner – Stantec (socioeconomic studies)
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- Johanne Boulanger, Cartographer – Stantec (cartographic support)
- Christine Boyer, Biologist – Stantec (wetlands)
- Virginie Carignan, Landscape Architect – Stantec (landscape studies)
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- André Moreau, Landscape Architect – Stantec (landscape studies)

Editing

- Jean-Gabriel Malhamé, Technical Reviser
- Patricia Hamilton, Translator

Appendix B

Pocket Insert Maps

A Natural and Human Environments

B Impacts and Mitigation Measures



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



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