PROJECT TO BUILD BROME SUBSTATION AND ITS SUPPLY LINE

Findings of the 69-kV scenario analysis

JULY 11, 2025

Highlights of the consultations to date

A high volume of feedback reflecting a high level of engagement by the community:

- Nearly **500 comments and suggestions** on the interactive map
- Strong participation in our in-person public meetings and webinars
- Numerous emails, calls, postcards and requests for one-on-one meetings
- **Detailed proposal for a 69-kV scenario**

Our commitments as part of the consultation:

- ✓ Review **all feedback**
- ✓ Draft and **publicly release** a consultation report highlighting the main points
- ✓ Take into account community members' comments, concerns and suggestions to develop a **project with the least impact**

OBJECTIVE

To ensure energy security by carrying out the project with the least impact

Strike the optimal balance between:

- Electricity needs and requirements and standards
- Preservation of the territory, landscapes and environment
- Costs and timelines

Collaboration with the community is key.

Service quality and electricity needs

At commissioning, the margins will be very small.

- The 69/25-kV substations would have a margin of 4–5 MW at commissioning with the 33-MVA transformers.

Substation	Capacity	Forecast 2023–31	Overload
Sutton 69/25-kV	44 MVA	40.7 MVA (93%)	2040
Knowlton 69/25-kV	44 MVA	38.1 MVA (87%)	2038

- This near-zero margin could hinder regional development.

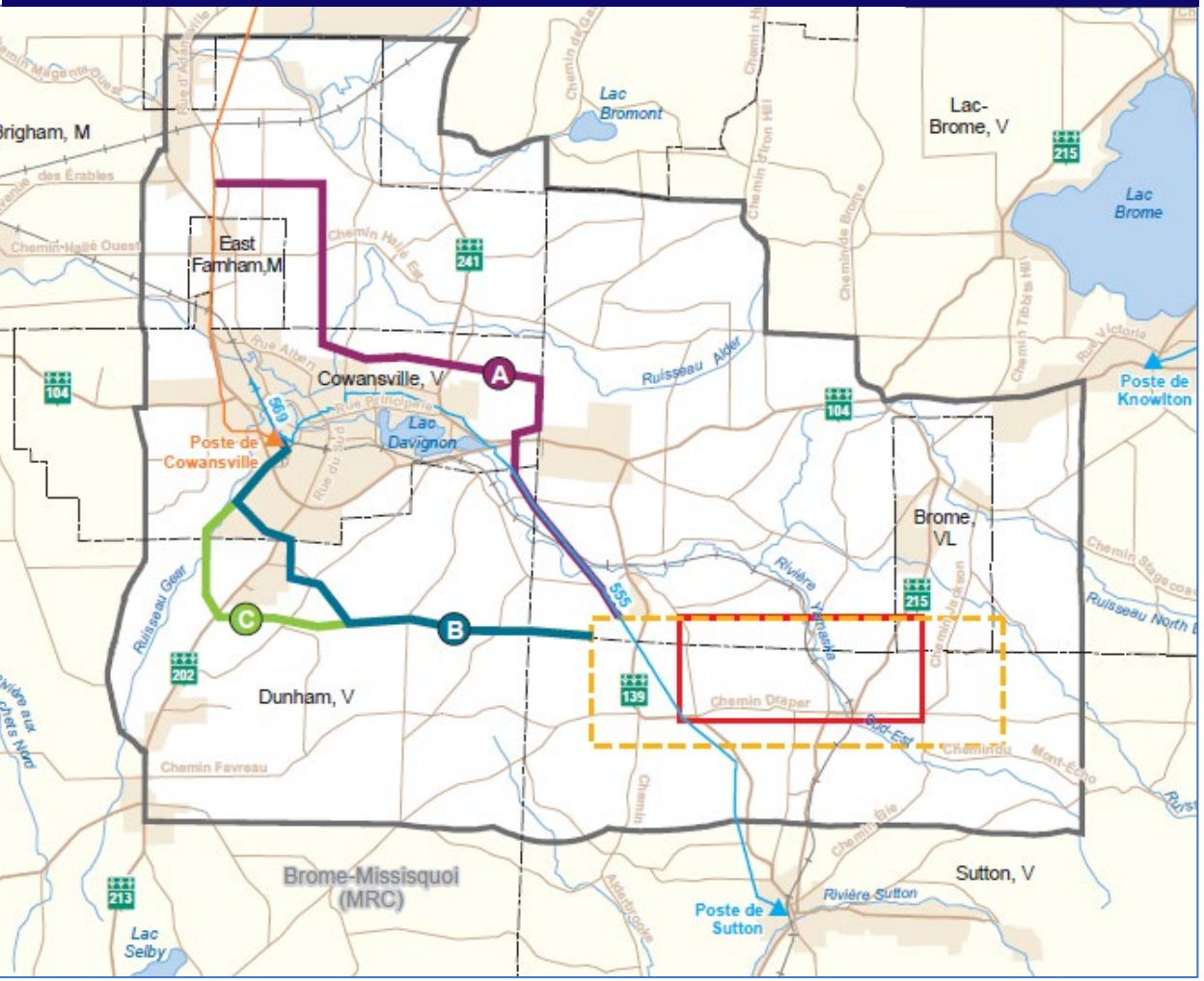
Two more substations and a ± 20 km looping line will be required over the next 10 to 20 years.

- The government's decarbonization policies and targets significantly influence the load forecasts.
- Since the pandemic, there has been sustained growth owing to factors like transportation electrification, the decarbonization of the economy and the influx of permanent residents.
- Hydro-Québec's objective: to ensure a substation's maximum capacity isn't exceeded before the end of its service life.

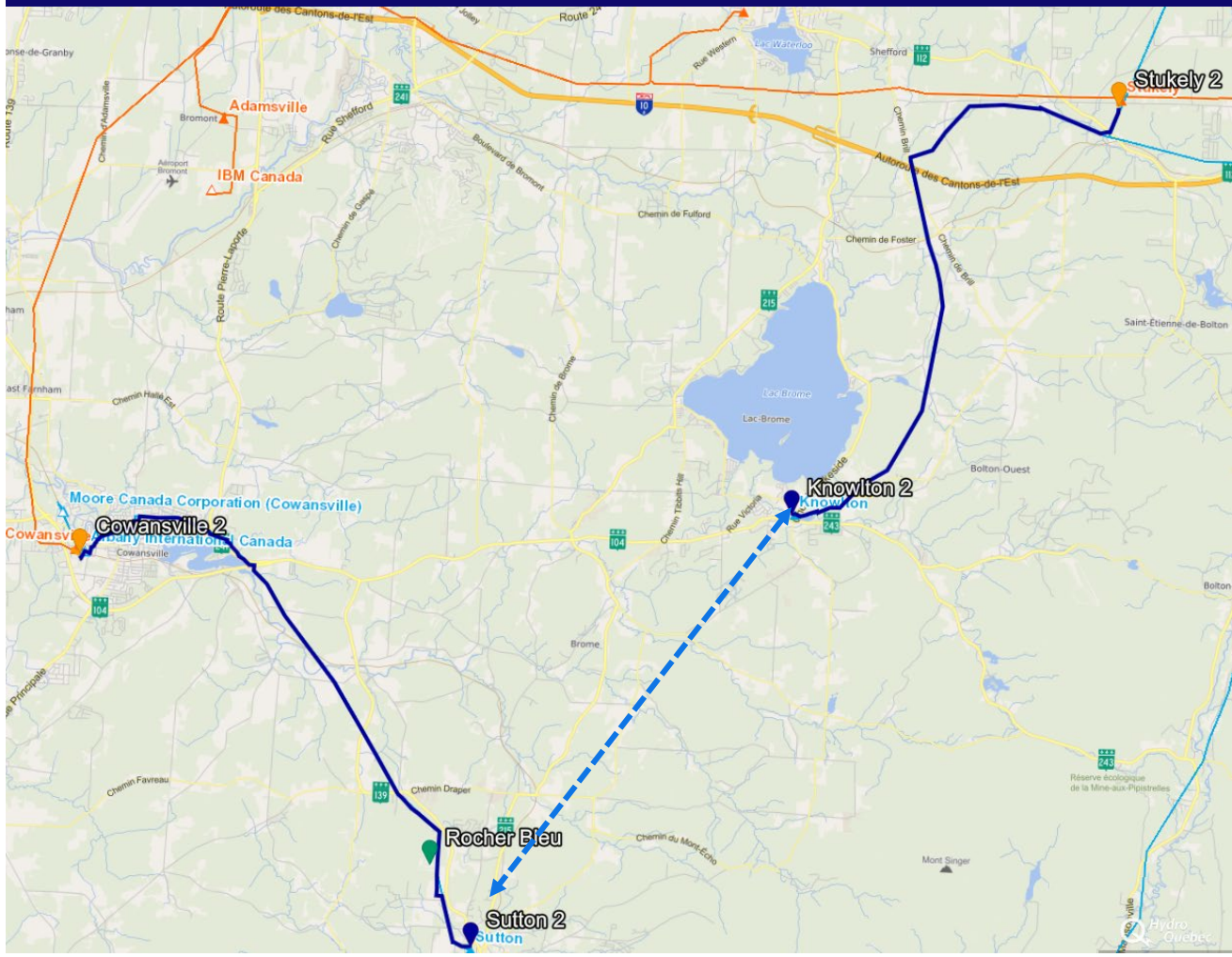
Comparison map

Scenario	120-kV	69-kV
Line	14–18 km	37 km
Substation	120/25-kV: 1	120/69-kV: 2 69/25-kV: 2

120-kV scenario



69-kV scenario



Size of the substations*

	69-kV scenario (proposed)	69-kV scenario (current standards)
	Area	Area
Cowansville 120/69-kV	4,900 m² (70 x 70 m)	19,000 m²
Stukely 120/69-kV	4,900 m² (70 x 70 m)	19,000 m²
Sutton 69/25-kV	2,500 m² (50 x 50 m)	9,500 m²
Knowlton 69/25-kV	2,500 m² (50 x 50 m)	9,500 m²
Total*	**14,800 m²**	**57,000 m²**

* These areas do not include the reinforcements that will be required in the future.

Line routes: Technical data*

Scenarios	69-kV scenario (proposed)	69-kV scenario (current standards)
Type	**Single-pole**	**Single-pole**
Total length of the lines	37.3 km	37.9 km
Average height	16–20 m	20 m
Widening of the right-of-way	20 m	25 m
Total width of the right-of-way	40–45 m	45–50 m
Total right-of-way	± 168 ha (93 ha new right-of-way)	± 187 ha (94 ha new right-of-way)
Average span	150–200 m	75–100 m
Number of support structures	± 225	± 440

*This data does not include the loop between Sutton and Knowlton substations.

Major technical constraints

Impossibility of widening the existing right-of-way within the urban perimeter of Cowansville (± 6 km)

- The 69-kV scenario builds new lines alongside existing lines.
- There is no viable solution to exit the city of Cowansville without opening a new corridor.

Impossibility of rebuilding Knowlton substation on the adjacent site

Impacts on the territory and environment

The proposed 69-kV scenario will make it possible to decrease the height of the support structures adjacent to the current infrastructure.

- Shorter support structures (20 m for 69-kV vs. 36–40 m for 120-kV) are more easily hidden by vegetation.
- Placing new lines alongside the current ones minimizes the need for new transmission corridors.

The four substations will take up more than twice the area required in the 120-kV scenario.

- 69-kV: combined area of **57,000 m²** for the four substations
- 120-kV: area of **24,000 m²** for one 120/25-kV substation

The rights-of-way will be nearly three times wider with 7–9 times more support structures than in the 120-kV scenario:

69-kV:

- Approx. **440 support structures**
- Approx. **94 ha** of new rights-of-way (approx. total: **187 ha**)

120-kV:

- **50 to 60 support structures**
- Total rights-of-way: **59–76 ha**

Costs

Summary of solutions

Scenarios	120-kV	69-kV
Power lines	14–18 km	37 km
Substations	120/25-kV: 1	120/9-kV: 2 69/25-kV: 2

Much larger investments required

- Nearly double the initial investment
- Highest additional costs related to substations

Conclusions

Considering all factors, Hydro-Québec concludes that:

- The 120-kV scenario remains the best solution in terms of sustainability.
- It will have fewer impacts on the territory and the environment and provide sufficient capacity to avoid the addition of more infrastructure.

Hydro-Québec is committed to working with the community to minimize the line's visual impacts.

The 69-kV scenario raises significant challenges and impacts.

- Two major technical issues:
  - Impossibility of widening the right-of-way in Cowansville's urban perimeter
  - Insufficient space to rebuild Knowlton substation
- Additional impacts on the territory
- Near-zero margin at commissioning
- Significant investments
- Greater risks related to timelines and approvals

Proposed next steps

Preserving the landscape is a vital concern.

In the coming weeks

- Publication of the findings of the 69-kV scenario analysis
  - Update of the project website
  - Newsletter to be sent out
- Ongoing work to integrate the landscape

Fall 2025

- Ongoing work with regional tables (elected officials + environment and land use planning)
- Meetings with the community
  - Presentation of the consultation summary
  - Update on the substation site
  - Line route optimization

Winter 2026

- Presentation of the optimized project