Eastern Ontario Bulk Plan

August 20, 2026

Connecting Today.
Powering Tomorrow.

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List of Abbreviations

APO	Annual Planning Outlook
APS	Achievable Potential Studies
BES	Bulk Electric System (NERC)
BESS	Battery Energy Storage System
CAD	Canadian Dollar
DESN	Dual Element Spot Network
DS	Distribution Station
EA	Environmental Assessment
eDSM	Electricity demand-side management
FIO	Flow into Ottawa
GS	Generation Station
GTA	Greater Toronto Area
HVDC	High-voltage Direct Current
IBR	Inverter-based resources
IEP	Integrated Energy Plan
IESO	Independent Electricity System Operator
IRRP	Integrated Regional Resource Plan
I/S	In Service
km	kilometer
kV	kilovolt
LMC	Load Meeting Capability
MECP	Ministry of Environment, Conservation and Parks
MSIFN	Mississaugas of Scugog Island First Nation
MVA	MegaVolt-Ampere (Apparent Power)
Mvar	MegaVolt-Ampere-Reactive (Reactive Power)
MW	Megawatt (Real/Active Power)
MWh	Megawatt-hour
NERC	North American Electric Reliability Corporation
NPCC	Northeast Power Coordinating Council
NWA	Non-wires Alternatives
OEB	Ontario Energy Board
ORTAC	Ontario Resource and Transmission Assessment Criteria
O/S	Out of Service
PTO	Provincial Territorial Organizations
RFP	Request for Proposals
SS	Switching Station
TS	Transformer Station
TWh	Terawatt-hour

1. Executive Summary

A reliable and affordable electricity system underpins economic development across Ontario. With electricity demand forecasted to rise significantly, the bulk transmission system requires new investments to support growing communities and expanding industries in every corner of the province.

Through a collaborative and robust planning process, the Independent Electricity System Operator (IESO) is driving and guiding the sector's future with a series of recommendations for transmission infrastructure.

The Eastern Ontario Bulk Plan was initiated to identify near-term actions and longer-term options to ensure the transmission system can reliably support forecasted growth driven by industrial development and electrification. Specifically, the IESO analyzed an increasingly constrained high-voltage transmission system in the eastern region; the grid's ability to enable the connection of potential future generation resources to serve eastern Ontario, including new nuclear in southern and central Ontario; and to strengthen interconnections, particularly for exports, with neighbouring jurisdictions.

These recommendations also complement significant efforts in recent years to strengthen the electricity system in eastern Ontario. This includes recommendations from the 2022 Gatineau Corridor End-of-Life Study, which recommended pursuing additional energy efficiency in Ottawa and a new transmission line from Oshawa to Peterborough, which is expected to be in service by 2029. This plan has also been developed in co-ordination with two Regional Resource Plans (IRRPs), namely the active Peterborough to Kingston regional plan and recently completed Ottawa regional plan. Upcoming planning activities in the St. Lawrence and Renfrew regions will continue to assess local electricity needs and identify regional solutions, with broader transmission needs helping to inform future bulk transmission planning as appropriate.

To preserve flexibility and minimize ratepayer risk, the Eastern Ontario Bulk Plan recommendations are cost-effective and sequenced based on future demand forecasts, procurement outcomes, and policy decisions in two distinct categories. By taking a phased approach, the plan addresses near-term needs that support growth in the short term while aligning larger future expenditures with the progression and confirmation of need. This ensures the province can support reliability and growth while reducing the risk of building too early and incurring additional costs to ratepayers.

Implementation-Ready

Implementation-ready actions are recommendations required by the early- to mid-2030s to improve reliability and enable near-term demand growth. These actions should proceed to immediate development and implementation given that transmission infrastructure development timelines range between 5–7 years.

To address existing and emerging reliability needs, the IESO recommends station upgrades in Ottawa and Belleville; new lines connecting Cornwall–Ottawa and Napanee–Belleville; competitive procurement of new supply resources in the Belleville region to service local needs; and additional electricity demand-side management savings to reduce overall costs.

Together, these recommendations improve transmission capability needed to connect new customers and supply resources and lay a foundation for increased exports.

Future-Consideration

Future-consideration actions are potential reinforcements associated with longer-term demand growth, future generation development, and evolving policy direction. While these recommendations are not immediately required, they offer flexibility and responsiveness to future system needs as they develop while avoiding overcommitting costs to ratepayers. The IESO will continue to monitor system conditions and trigger the development of these reinforcements as needed.

For the Eastern Ontario Bulk Plan, this includes a new transformer station in west Ottawa and Belleville; a new Ottawa–Greater Napanee transmission line; and new lines in Ottawa connecting two existing stations to the new west Ottawa station.

These actions, triggered by increased industrial demand and electrification efforts in the Ottawa and Belleville-Napanee areas, will allow more supply to serve the regions while unlocking future economic development opportunities and export capabilities.

Staged Investment

The estimated cost of the implementation-ready actions is approximately $1.4 billion[1], while future-consideration — staged to align with timing of needs and levels of certainty — is approximately $3 billion. This sequencing supports a timely and prudent delivery of critical infrastructure, aligns with Ontario's long-term goals, and protects against overbuilding.

Given that the IESO is targeting the early-2030s for implementation-ready actions, project timelines are an important consideration. While this plan focuses on identifying necessary infrastructure investments, the approach for constructing the projects — which could include designating a transmitter or a competitive procurement — will be confirmed following completion of this plan.

Engagement

Engagement on the Eastern Ontario Bulk Plan was conducted throughout its development, including public webinars and targeted outreach to municipalities, stakeholders, and Indigenous communities. Feedback received emphasized the importance of electricity demand forecasts and planning uncertainty; timing and need for reinforcements; evaluation of alternatives and system flexibility; environmental and climate-related considerations; and transparency, engagement, and ongoing refinement. This input informed the evaluation of options and the development of the phased recommendations.

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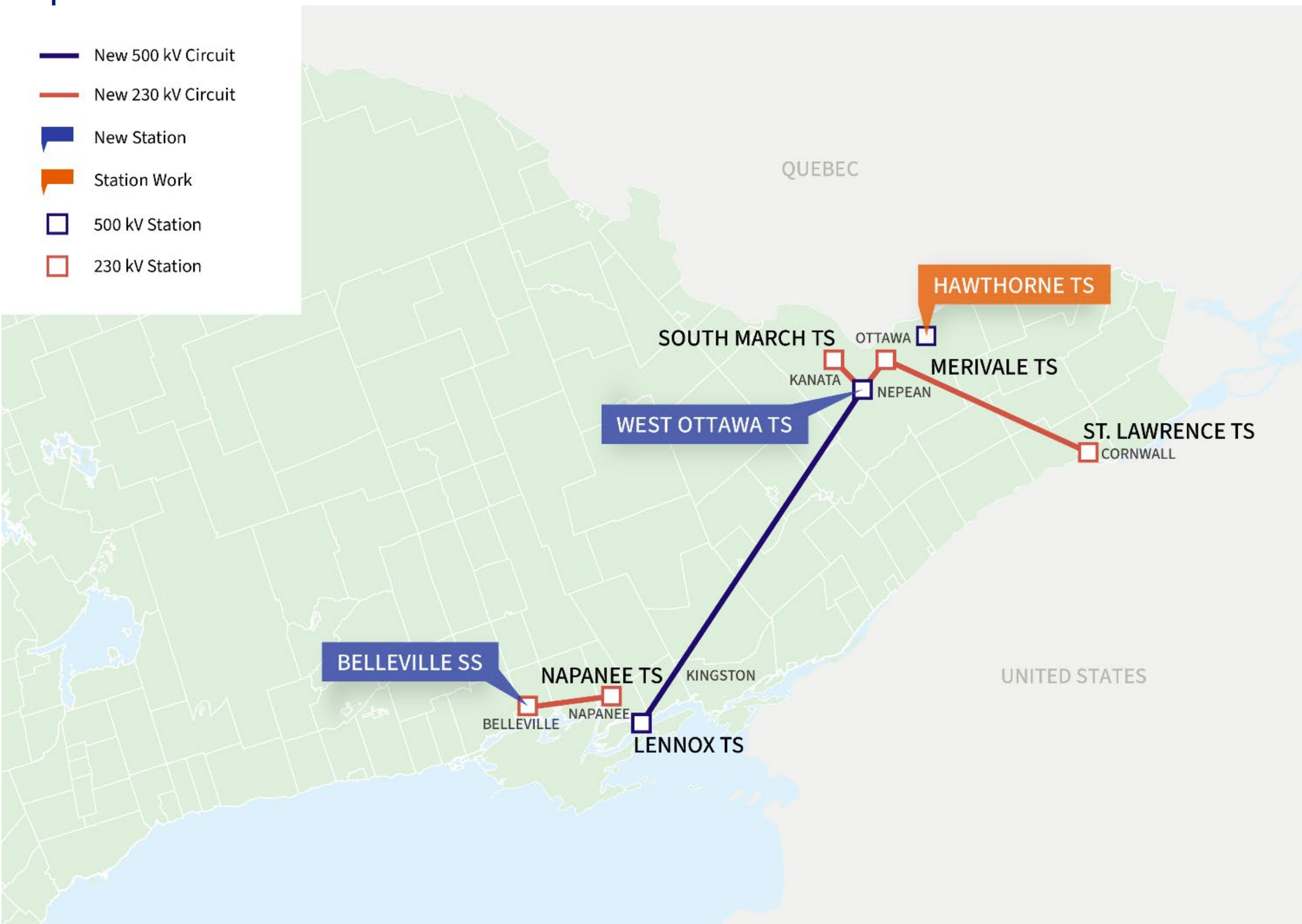
[1] All recommendations are in 2025 CAD with a range of -50% to +100%

Impact

The Eastern Ontario Bulk Plan is a cost-effective and risk-aware transmission planning approach that addresses existing reliability needs, near- and long-term economic growth and electrification, and enables the integration of future supply resources in the Ottawa and Belleville areas. The recommended transmission upgrades increase the overall transfer capability in eastern Ontario to reliably meet growing needs while creating additional optionality for expanded interties and future exports.

Map of Recommendations



Summary of Recommendations

Table 1 | Implementation-Ready Actions

Recommendation	Solution Type	Needs Addressed	Expected In-Service
St. Lawrence TS to Merivale TS	New 230 kV double-circuit line	Enables economic development, electrification goals in Greater Ottawa region and surrounding areas	2032
Hawthorne TS Autotransformer T3	Improve the long-term emergency thermal rating of T3 to at least equal to T1 and T2 and the addition of a circuit breaker between T1 and T2.	Enables economic development, electrification goals in Greater Ottawa region and surrounding areas	2032
Hawthorne TS Dynamic Reactive Power Compensation	New ±200 Mvar reactive power support	Enables economic development, electrification goals in Greater Ottawa region and surrounding areas	2032
Belleville SS	New bulk station New 100 Mvar reactive power support	Enables economic development in Belleville and provides additional reliability	2032
Napanee TS to Belleville TS Line	New 230 kV double-circuit line as an extension to existing circuits X21/X22	Enables economic development in the Belleville-Napanee region and provides additional reliability	2032
NWA - New Supply Resources	New energy and capacity resources in Belleville	Enables economic development and supply capacity in Belleville	2030
NWA -Electricity Demand-Side Management (eDSM)	eDSM of 170 MW in Ottawa and 55 MW in Belleville, Napanee and Picton.	Enables economic development and provides additional reliability, flexibility and resiliency in Greater Ottawa, Belleville and surrounding regions	On-going

Table 2 | Future-Consideration Actions

Recommendation	Solution Type	Needs Addressed	Expected In-Service
West Ottawa 500/230 kV TS	New bulk station New ±200 Mvar reactive power support Connection of existing 500 kV circuits X522A and X523A into the West Ottawa TS Connection of 230 kV St. Lawrence to Merivale TS circuits into the West Ottawa TS	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s
Lennox TS to New West Ottawa TS Line	New 500 kV double-circuit transmission	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s
South March SS to New West Ottawa TS Line	New 230 kV double-circuit transmission	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s
NWA - New Supply Resources	New energy and capacity resources in Ottawa	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s
Lennox TS to Napanee TS Line	Upgrade an existing section of existing 230 kV circuits X21/X22 to a higher thermal rating	Provides supply capacity to enable economic growth in the Belleville-Napanee region	Mid- to Late-2030s

[2] This trigger is without load rejection. Load rejection, as load by the criteria, can increase this value.

Recommendation	Solution Type	Needs Addressed	Expected In-Service
		Trigger: Belleville-Napanee load reaches 550 MW in summer or 720 MW in winter[3]	
Belleville 500/230 kV TS	New bulk station	Provides supply capacity to enable economic growth in the Belleville-Napanee region **Trigger:** Belleville-Napanee load reaches 550 MW in summer or 720 MW in winter[3]	Mid- to Late-2030s

[3] This trigger is without load rejection. Load rejection, as allowed by the criteria, can increase this value.

2. Introduction and Planning Context

The Eastern Ontario Bulk Plan, undertaken by the Independent Electricity System Operator (IESO), assesses the reliability and adequacy of the bulk transmission system supplying areas east of Bowmanville. The plan was initiated in response to growth in electricity demand, driven by industrial development, electrification, and growing interest in the strategic role of Eastern Ontario in supporting province's electricity system and long-term economic growth over the next 20 years.

The Eastern Ontario planning area is broadly composed of four regional planning areas: Ottawa, Peterborough to Kingston, Renfrew, and St. Lawrence. The transmission network spans from the Ontario-Quebec border to the GTA, as illustrated in **Figure 1**.

Figure 1 | Eastern Ontario Transmission Network

2.1 Purpose of This Bulk Plan

The IESO has multiple studies underway to respond to transmission-related priorities identified through *Powering Ontario's Growth*, the Minister's subsequent July 10, 2023 letter to the IESO, and *Energy for Generations: Ontario's Integrated Plan to Power the Strongest Economy in the G7*.

Powering Ontario's Growth outlines priorities and objectives for the continued transition of the electricity system, building on the earlier *Pathways to Decarbonization* report prepared by the IESO in

2022. The Minister's letter directed the IESO to advance work on known transmission bottlenecks and related system needs, while *Energy for Generations* establishes the broader long-term policy direction for Ontario's energy system. Together, these planning drivers emphasize addressing known bottlenecks in the transmission system to enable the connection of new nuclear, hydroelectric, and renewable generation, while also accommodating higher electricity demand associated with electrification, mining and mineral processing, manufacturing, and other energy-intensive industrial uses.

In Eastern Ontario, evolving policy directions and planning drivers intersect with a transmission system that is increasingly constrained and more complex to operate within established reliability standards and planning criteria. This Eastern Ontario Bulk Plan builds on insights from previous studies, including the 2022 Gatineau Corridor End-of-Life Study, which identified the need for transmission reinforcement between Clarington and Peterborough.

This plan is undertaken in response to accelerating electricity demand driven by electrification initiatives and industrial development, which are placing additional pressure on an already constrained transmission system. At the same time, the region is experiencing growing development interest in both new and emerging resource opportunities. While the plan assesses bulk system needs across the broader Eastern Ontario, focused assessments are undertaken for Ottawa and Belleville areas, where previous studies have identified supply constraints.

The outcome of the plan will determine whether there is a need to initiate further development work or to advance firm near- to mid-term infrastructure investments. In addition, the plan explores opportunities to enhance the capability of the transmission system in Eastern Ontario, and to support transfers to and from Quebec. The plan develops and evaluates both wire and non-wire options to address identified needs and recommends preferred solution(s) to ensure the transmission system can support near-term demand growth, enable longer-term resource integration, and preserve flexibility for future development.

2.2 Relationship With Other Planning Work

The IESO is responsible for conducting independent planning for electricity generation, electricity demand-side management and energy efficiency, and transmission in Ontario. In carrying out this function, the IESO undertakes activities to help ensure that the province continues to have adequate and reliable supply of resources and transmission infrastructure to meet Ontario's electricity needs. These planning activities generally include regional planning and bulk system planning, which are separate but interrelated processes: regional planning addresses more localized system issues within the province's planning regions; while bulk system planning focuses on broader provincial or inter-regional issues, such as generation adequacy and the transmission solutions needed to move power reliably and cost-effectively across the province. The IESO also undertakes regulatory compliance studies and reporting in accordance with North American Electric Reliability Corporation (NERC) standards and Northeast Power Coordinating Council (NPCC) criteria.

In February 2021, the bulk power system planning process was formalized through the High-Level Design Overview to improve consistency, timeliness, and transparency of bulk plans development and implementation. As part of that framework, the IESO uses the Annual Planning Outlook (APO) as the primary reporting vehicle to summarize forecast bulk system reliability issues over the next 20 years. Since 2022, the APO has also described how the IESO intends to address each identified bulk issue, whether through a bulk system plan, resource procurement, or other planning activity. System issues identified in the APO that require a bulk system plan are referenced in the APO Schedule of Planning Activities, which communicates the anticipated timelines for initiating those studies.

2.2.1 APO Co-Ordination

This bulk plan has been developed in co-ordination with the IESO's 2026 Annual Planning Outlook to ensure alignment with province-wide assumptions related to demand growth, generation supply mix, electrification trends, and policy direction arising from Powering Ontario's Growth and Pathways to Decarbonization. The APO provides a consistent and transparent foundation for system assumptions and supports coherence across bulk, regional, and resource planning processes.

For this assessment, the APO was used as the primary source for system-wide assumptions. Recognizing the uncertainty associated with industrial and residential development, as well as the timing and scale of electrification initiatives in Eastern Ontario, this bulk plan also incorporates sensitivity analyses as established in the APO baseline. Multiple demand scenarios were evaluated to test system performance under a range of plausible future conditions. This approach is particularly important in both areas, where forecast uncertainty is heavily influenced by large industrial projects and the pace of electrification.

2.2.2 Regional Planning Co-Ordination

Co-ordination between the Eastern Ontario Bulk Plan and active Peterborough to Kingston and recently completed Ottawa Integrated Regional Resource Plans (IRRPs) provided an opportunity to strengthen the analysis and outcomes of each planning process. This co-ordination included alignment of demand drivers and regional assumptions, such as major industrial developments, electrification trends, and population growth, to ensure consistency between regional and bulk system assessments. It also included incorporating regional insights into bulk system modelling particularly where IRRP analyses identified localized constraints, operational challenges, or emerging needs with potential implications for bulk transmission interfaces. Furthermore, the upcoming planning activities in the St. Lawrence and Renfrew regions will continue to assess local electricity needs and identify regional solutions, with broader transmission needs helping to inform future bulk transmission planning as appropriate.

The plan also benefited from co-ordination of engagement inputs, including feedback from Indigenous, municipal, and stakeholder engagement conducted through regional planning processes, where relevant. In turn, the findings of this bulk plan may inform future regional planning discussions where bulk transmission capability influences local planning options or development potential. This co-ordinated approach helps ensure that regional and bulk planning activities are mutually reinforcing, avoid duplication of analysis, and support more integrated planning outcomes for the Eastern Ontario area.

2.3 Plan Area and System Overview

The Eastern Ontario area includes municipalities and townships, Indigenous communities, Tribal Councils and Provincial Territorial Organizations (PTOs), Métis communities, and major industrial loads whose electricity supply depends on the broader Eastern transmission system. Detailed community and engagement information is provided later in the report and supporting materials.

The primary transmission supply to Eastern Ontario is provided through four 500 kV circuits extending from Bowmanville Transformer Station (TS) to Lennox TS. In addition, a 230 kV network serves various load centers across Eastern Ontario and offers supplementary interconnections to the Toronto zone. The region also features interties between Ontario, New York, and Quebec, supporting cross-jurisdictional power flows and system reliability.

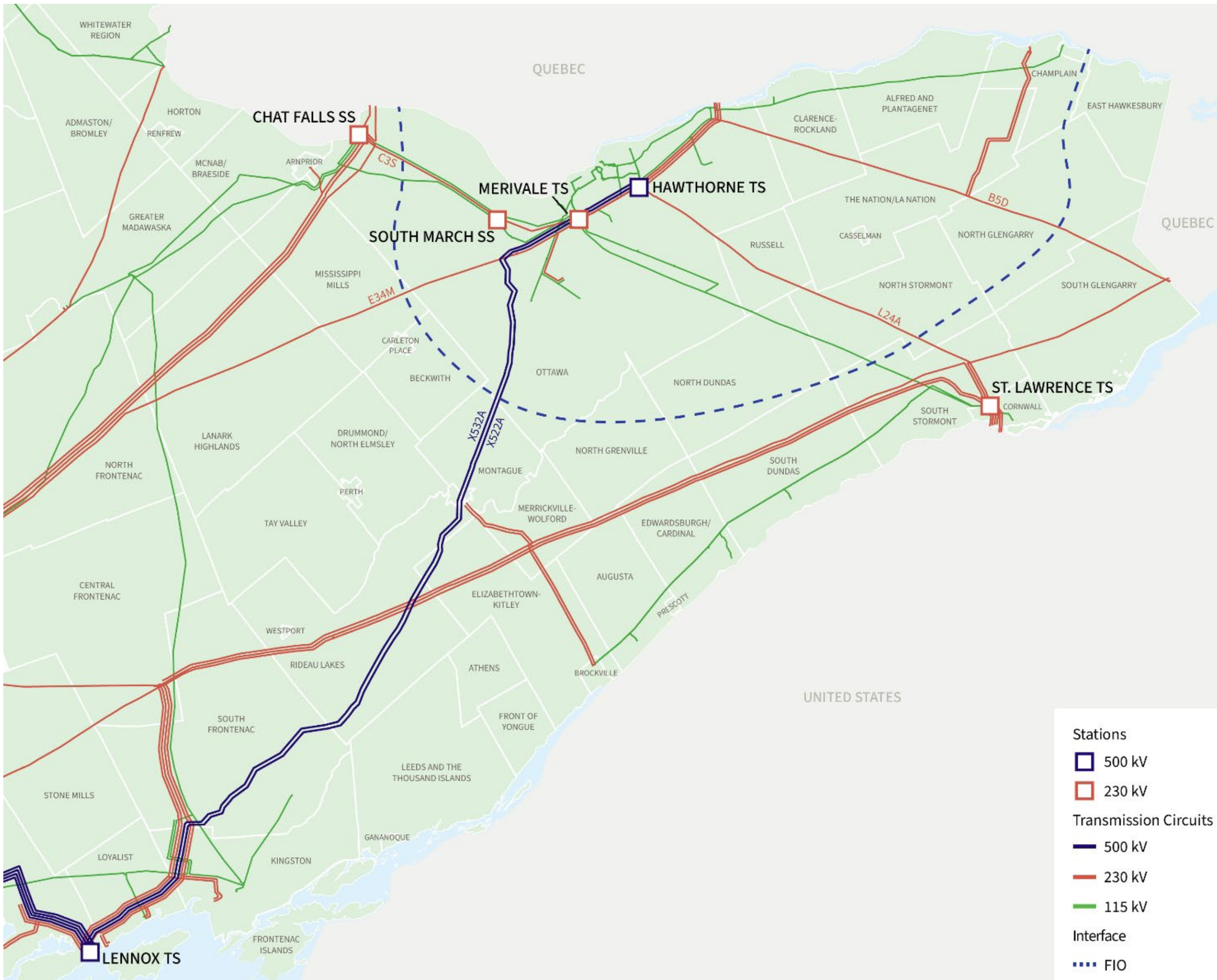
This study focuses on two key sub-regions within Eastern Ontario: Ottawa and Belleville, as both areas are projected to experience substantial load growth driven by ongoing economic development initiatives and decarbonization objectives.

The Ottawa region is supplied by a network of 500, 230 and 115 kV transmission lines emanating from Dobbin TS (Peterborough), Lennox TS (Greater Napanee) and St. Lawrence TS (Cornwall). This network forms what is known as the Flow into Ottawa (FIO) transmission interface[4]. **Figure 2** provides a geographic diagram of the Ottawa area, including the approximate geographic boundary of the FIO interface. Electricity demand in this summer-peaking area has been steadily growing and historically reached approximately 1,800 MW. There are a number of different supply resources in the surrounding area that help support Ottawa load, including approximately 360 MW of hydroelectric generation located on the 115 kV system on the Madawaska River, 70 MW of gas-fired cogeneration facility located in the city, and three interties with the Quebec system. The installed capacity of supply resources in the area is largely energy-limited and variable in nature. As a result, installed capacity does not translate into dependable all-hour supply, and transmission capability into and across the area is critical in maintaining reliable supply. Over the next five years, three major BESS projects in the Ottawa area are expected to come into service and they will improve the Ottawa's electricity system's reliability and increase the region's load-meeting capability. Further details are provided in Section 5.

The Belleville region is primarily served by Belleville TS, which is supplied by 230 kV transmission circuits T25B and H23B from Clarington TS and Hinchinbrooke TS (Central Frontenac), respectively. Electricity demand in this summer-peaking area has been steadily growing and historically reached approximately 170 MW. There is a small amount of local supply resources, mostly embedded within the distribution system. To improve station capacity to the region, a new dual element spot network (DESN) transformer station is currently being constructed to support Belleville's forecasted load growth and is expected to be in-service in 2026, as recommended in the 2021 Peterborough to Kingston IRRP.

[4] An interface is defined as a collection of circuits and/or transformers which form the boundary of an area. Usually associated with a MW flow limit which if exceeded would result in a criteria violation.

Figure 2 | Flow into Ottawa Interface



2.4 Planning Framework Used in the Plan

2.4.1 Plan Objectives and Approach

This bulk plan addresses the reliability needs that arise in Eastern Ontario due to anticipated industrial and economic load growth, electrification, and the limitations of the existing transmission system. To develop the plan, the IESO performed a technical assessment to analyze the transfer capability of major transmission interfaces and identify bulk system needs in the Eastern Ontario area. The assessment had two main objectives:

- examining the ability to reliably serve demand in Eastern Ontario in accordance with planning criteria; and
- evaluating how additional transmission reinforcements could enable exports given the existing transmission limitations and established criteria.

These objectives reflect both the scale of the forecast demand growth in the area; and the fact that the existing system is already constrained by limited redundancy, aging infrastructure, and a high degree of operating measures. In addition to those objectives, the plan also considered the following items:

- enabling new supply resources in the Eastern Ontario area;
- operability challenges related to voltage performance;
- reducing long-term reliance on remedial action schemes; and
- additional needs that emerge through the bulk planning analysis

2.4.2 Purpose of Transmission Interfaces and Load-Meeting Capability in Planning

When planning and operating the bulk electricity system, the IESO manages power flows to ensure that reliability criteria are met and that undesirable outcomes such as equipment damage, uncontrolled cascading outages, or widespread system separation are prevented. To support this, transmission interfaces are used in planning to represent the maximum allowable transfer of power between areas of the power system. An interface generally represents a defined grouping of transmission circuits, transformers, and associated facilities that connect one portion of the system to another. Rather than assessing individual lines in isolation, interfaces provide a practical way to evaluate system performance under a range of operating conditions, including peak demand, low-generation periods, and transmission contingencies.

Load-Meeting Capability (LMC) is a planning metric used to quantify the maximum amount of electrical demand that can be reliably supplied to a defined area of the power system, given: the existing and committed transmission network, local generation, applicable reliability criteria (e.g., NERC and NPCC standards), a defined set of credible contingencies and assumed system operating conditions. LMC represents the load supply limit of a region under planning conditions.

Both the interface limits and LMC are used to identify transmission-limited areas, assess future reliability risks due to demand growth, electrification, or asset retirement, and trigger regional and bulk system reinforcements. Many limits in this area are not driven solely by thermal capability, but also by voltage performance, system stability, and operability considerations. These characteristics underpin the need for a comprehensive bulk system assessment.

For the purposes of this plan, the principal interface used is the Flow into Ottawa (FIO) and the Ottawa area load as the Ottawa's electricity system's LMC. Together, these provide the basis for assessing both the broader regional supply requirement and the localized sub-area needs within the plan area.

2.4.3 Planning Criteria

The assessment of transfer capability and system needs in this bulk plan is conducted in accordance with applicable reliability standards, including:

- NERC standards;
- NPCC criteria, where applicable[5]; and
- Ontario Resource and Transmission Assessment Criteria (ORTAC).

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[5] In portions of the Eastern Ontario area designated as NPCC-impactive, more stringent planning requirements apply. In all cases, the assessment adopts the most restrictive applicable criterion to ensure system reliability.

At a high level, the assessment considers thermal loading, voltage performance, and stability margins under the applicable planning contingencies. These criteria are used to determine how much power can be transferred into and within the plan area while maintaining acceptable system performance under both all-elements-in-service and outage conditions.

In the Eastern Ontario area, the practical significance of these criteria is heightened by the weak and radial nature of the transmission system, the energy-limited characteristics of much of the internal generation, and the historical reliance on remedial action schemes to maintain operability. The purpose of this bulk plan is, therefore, to identify where reliability criteria are not met, reduce long-term reliance on remedial action schemes; and improve the inherent robustness and operability of the transmission system. Detailed criteria, assumptions, and methodological parameters are documented in the supporting appendices.

2.5 How This Plan Is Organized

The Eastern Ontario Bulk Plan outlines the IESO's plan to maintain a reliable, affordable, sustainable electricity supply to support the Eastern Ontario area; and is structured as follows:

- Section 3 outlines the Demand Outlook Scenarios.
- Section 4 provides an overview of the Existing Supply.
- Section 5 analyzes Transmission System Capability and Reliability Needs for the existing system, discusses the issues, and identifies the bulk system needs.
- Section 6 presents an Evaluation of Options, including wires options and non-wires alternatives.
- Section 7 concludes the plan findings and states the Conclusion and Recommendations.
- Section 8 describes the Future Enablement.
- Section 9 recaps Community and Stakeholder Engagement activities to date.

3. Demand Outlook Scenarios

This section describes the electricity demand outlook for the Eastern Ontario area over the study period. Its purpose is to establish the scale, location, timing, and uncertainty of expected demand growth that will place pressure on the bulk transmission system. The demand outlook presented here provides the foundation for the assessments of system reliability, operability, and transmission needs.

The section begins with the broader APO-based provincial growth context used across the bulk studies and then describes the regional demand outlook for the Ottawa and Belleville areas as these two areas are expected to experience the most significant demand growth. It focuses on what demand is expected to occur and why, rather than how the transmission system responds to that demand. The translation of demand into reliability needs and transmission constraints is addressed in subsequent chapters using the planning framework described in Section 2.

3.1 APO Co-Ordination and Provincial Growth Context

The APO forecasts electricity demand, assesses the reliability of the electricity system, identifies capacity and energy needs, and explores the province's ability to meet them. The first step in the APO is developing a demand forecast that represents what electricity usage in Ontario may look over the next 25 years. In the 2026 APO, multiple demand scenarios were presented to better reflect the range of uncertainties in factors such as electrification, economic development, and government policy and their impact on electricity demand. APO analysis is conducted yearly to ensure that planning information is up to date and changes in economic drivers, policy, and industry are reflected.

The majority of load growth in the east is due to growth in the industrial sector, with some new industrial loads; increasing demand from commercial and residential sectors due to population growth and the electrification of some buildings; and transportation electrification.

The bulk plan used the 2026 APO for the basis for this forecast, and supporting methodology and demand forecasting module can be found on the IESO's website.

3.2 Regional Context for Demand Growth

Within the broader APO-based provincial planning context, Ottawa area electricity demand is shaped by underlying community and commercial needs and broader electrification trends. The 2025 Ottawa IRRP forecast was influenced by municipal electrification and decarbonization targets, customer connection requests, and ongoing engagement with other groups such as Invest Ottawa. These factors signal a broader shift toward increased electricity use across the city, with particularly strong momentum within specific sub-areas of Ottawa as described in the 2025 Ottawa IRRP.

3.3 Demand Outlook Scenarios

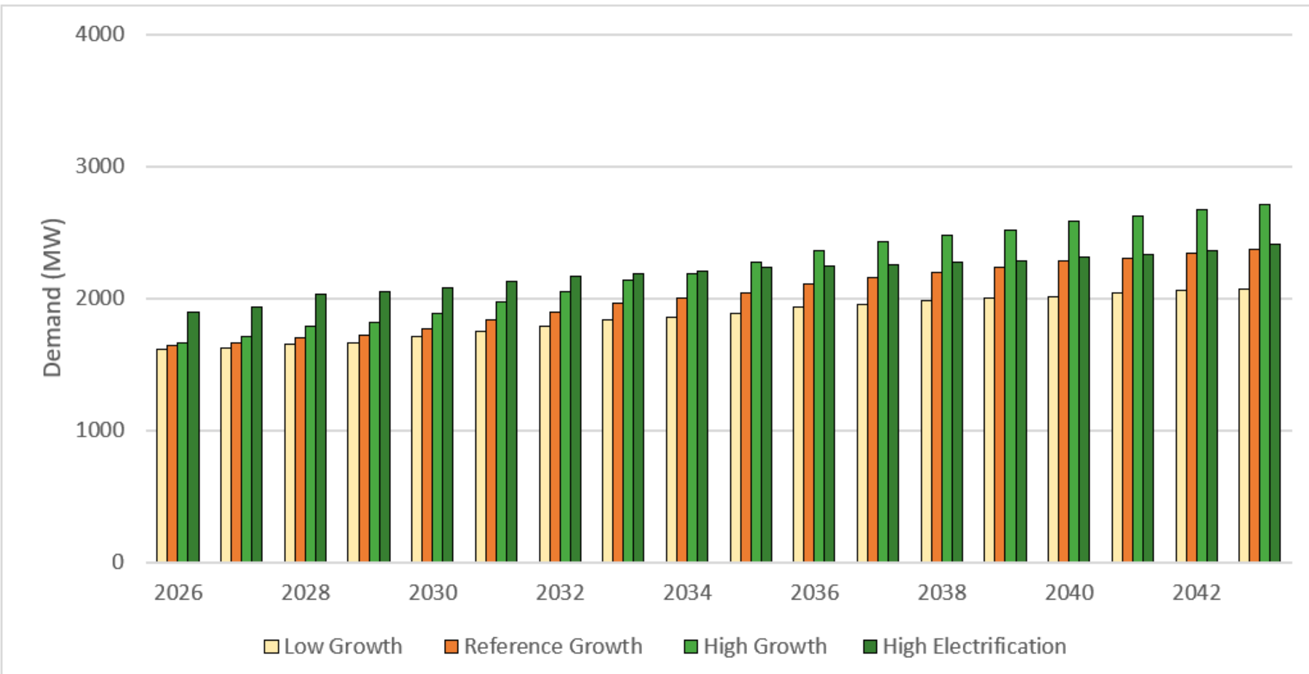
To reflect the uncertainty associated with demand forecasts, the bulk plan uses four demand outlook scenarios for Ottawa and two for Belleville. These scenarios are intended to provide a practical planning range for assessing transmission needs under both expected and more aggressive growth conditions. The use of multiple scenarios is particularly important in this plan because large industrial projects and higher electrification can materially affect both the scale and the location of future demand.

3.3.1 Ottawa Area Demand Forecast

Four demand forecast scenarios were developed for this plan based on the 2026 APO and the 2025 Ottawa IRRP: low, reference, high, and high-electrification. The low, reference, and high scenarios are sourced from the 2026 APO. The high-electrification scenario is derived from the Ottawa IRRP and adjusted to align with a 2026 base year.

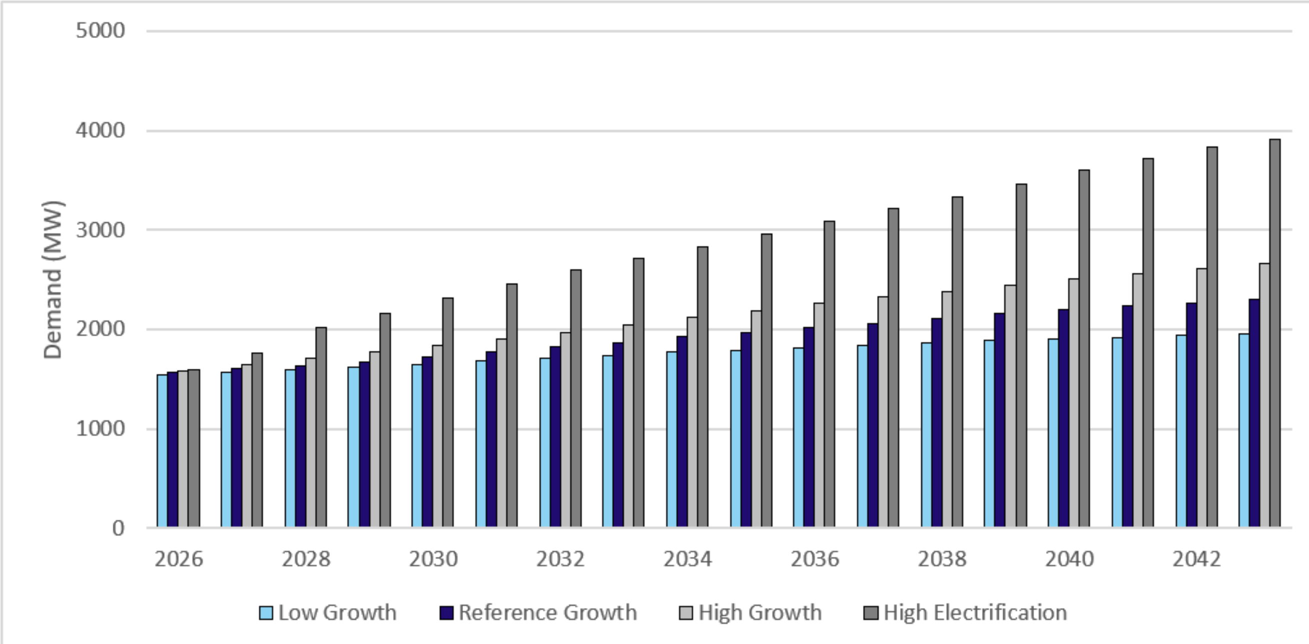
A comparison of the four summer forecast scenarios is shown in **Figure 3**. Over the forecast horizon, the Ottawa summer peak demand is projected to range from 2,075 MW to 2,712 MW by 2043. The 2025 summer peak was approximately 1,800 MW.

Figure 3 | Ottawa Area Peak Summer Demand Forecast



A comparison of the four winter forecast scenarios is shown in **Figure 4**. Over the forecast horizon, the Ottawa winter peak demand is projected to range from approximately 2,000 MW to 3,900 MW by 2043. The 2025 winter peak was approximately 1,600 MW. There are significant differences between the APO-based load forecast and the Ottawa IRRP forecasts due to much higher level of electrification assumed in the Ottawa IRRP. The IRRP integrated electrification as a core assumption from the outset. Load forecasting was developed in collaboration with Hydro Ottawa and Hydro One Distribution, incorporating multiple scenarios with varying degrees of electrification. The selected reference forecast balances feasibility and risk, and reflects a likely trajectory of sustained load growth, winter-peaking demand, and increased system complexity. The IESO's APO incorporates a more balanced approach to the amount of expected electrification. Further details of the IRRP forecast are described in the 2025 Ottawa IRRP.

Figure 4 | Ottawa Area Peak Winter Demand Forecast



3.3.2 Belleville Area Demand Forecast

The station-level demand forecast for Belleville TS was developed as part of the upcoming 2026 Peterborough to Kingston IRRP. The main driver of demand growth is the development and expansion of industrial loads served by the local distribution companies. Additionally, there remains potential for additional large customer connections and stronger industrial development in the area; to reflect this uncertainty, a high-growth scenario was developed.

Under the reference growth scenario, winter peak demand at Belleville TS increases from 190 MW in 2026 to about 300 MW by 2044, while summer peak demand increases from approximately 170 MW to 265 MW by 2044. This corresponds to an increase of 58 percent in winter peak demand and 56 percent in summer peak demand over the planning horizon.

Under the high-growth scenario, which reflects both the increased industrial loading alongside potential transmission-connected industrial customers, demand growth is more pronounced. Winter peak demand increases from around 190 MW in 2026 to 520 MW by 2044, while summer peak demand increases from 170 MW to 480 MW over the same period.

Figure 5 | Belleville Area Peak Summer Demand Forecast

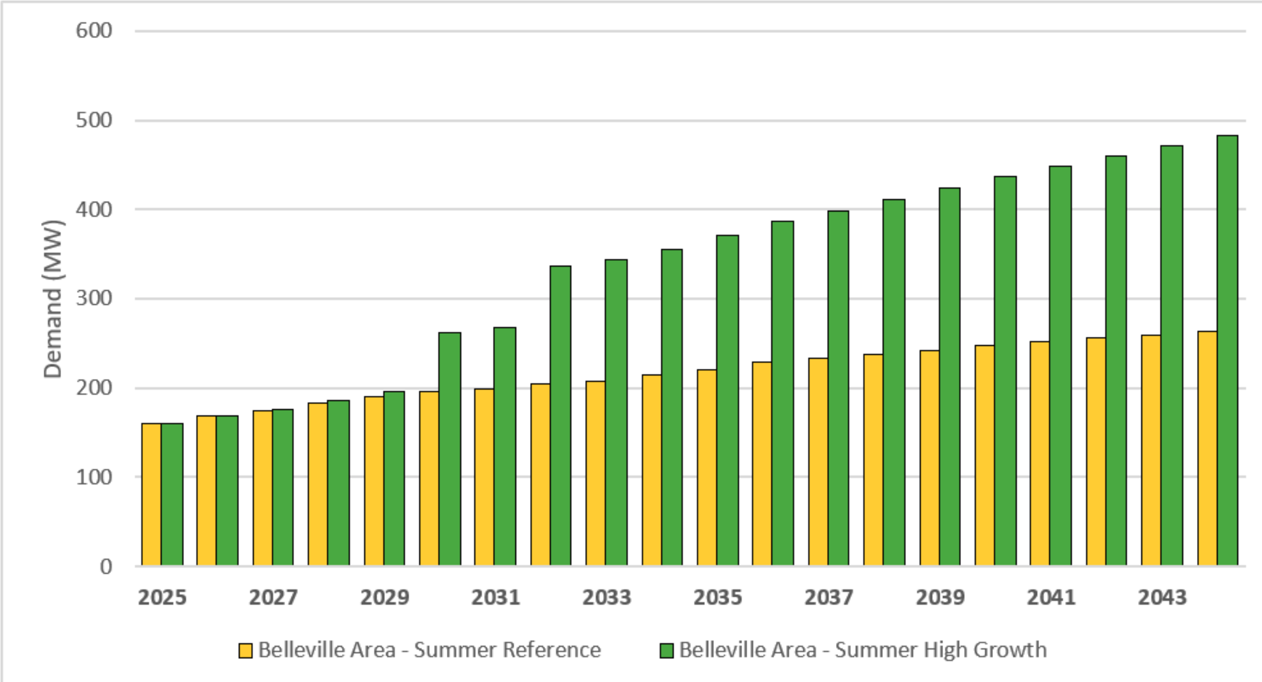
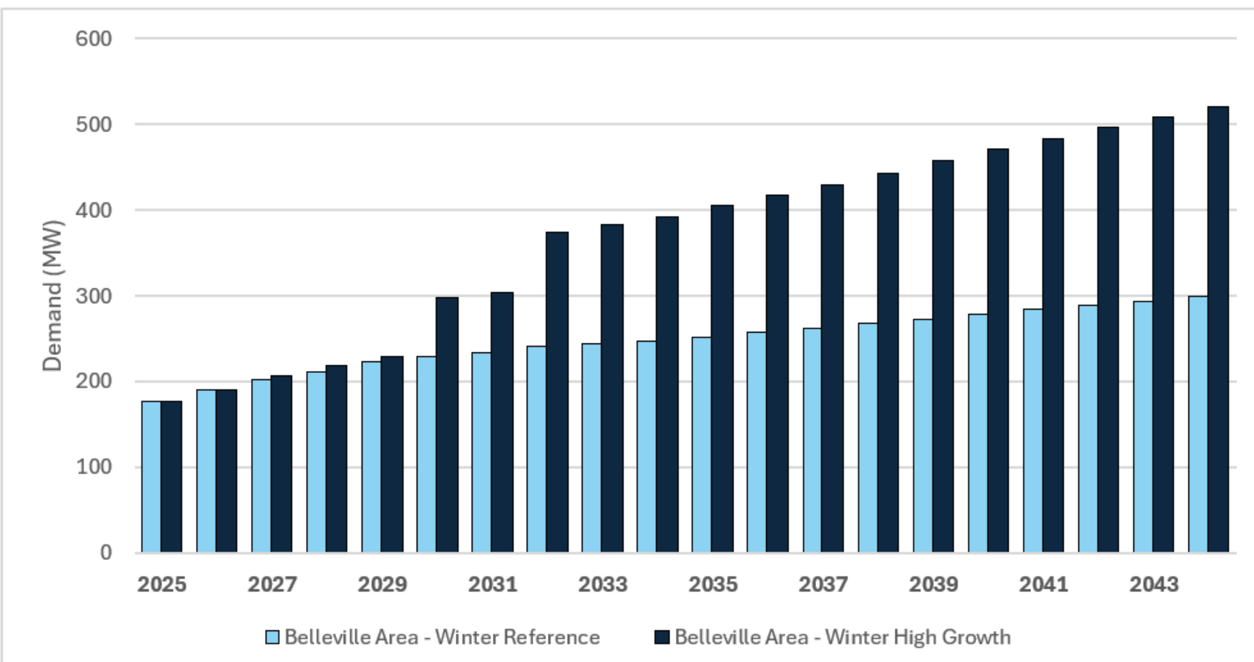


Figure 6 | Belleville Area Peak Winter Demand Forecast



4. Existing Supply

This section describes the existing supply serving the Ottawa and Belleville areas and the resource characteristics relevant to the bulk planning assessment. Its purpose is to establish the scale, composition, location, and operating characteristics of the supply that contributes to meeting electricity demand in the plan area. Together with the demand outlook described in Section 3, these supply characteristics form the basis for the assessment of transfer capability, load-meeting capability, reliability needs, and resource enablement.

This section also focuses on what supply is available to the plan area and how that supply behaves under the planning assumptions applied in the study. In the Ottawa area, the distinction between installed or contracted capacity and dependable all-hour supply is particularly important because local hydroelectric generation is energy-limited. As a result, installed capacity does not necessarily translate to dependable supply under all planning conditions.

Compared with Ottawa, the Belleville area has a more limited local supply base and relies more heavily on supply delivered through the broader bulk transmission system. Local resources provide only limited support and do not contribute significant dependable all-hour supply under planning conditions.

4.1 APO Co-Ordination and Provincial Resource Context

The APO provides a view of future electricity conditions and serves as a common ground for understanding Ontario's electricity system's capability and requirements. The outlook describes factors that influence these needs, and actions required to prepare for a reliable, affordable, and sustainable electricity future within the IESO's Resource Adequacy Framework, bulk transmission plans, and electricity demand-side management programming. The APO provides electricity sector stakeholders, governments at all levels, Indigenous communities, and electricity consumers, amongst others, with data and analyses to help make more informed decisions with the information available.

The APO is conducted yearly, and is an iterative process by design that allows the process to capture evolving economic and system conditions and for adjustments as circumstances change.

The process also makes use of the best available information on the electricity demand forecast, supply outlook and transmission outlook. Together, this information is used to inform industry-wide modelling tools to conduct assessments on resource adequacy, transmission and operability. These assessments evaluate the electricity system's ability to meet current and future system requirements.

The supply assumptions underpinning the APO reflect existing resources through the end of their contract term, as well as resources committed through an IESO procurement or a known government policy at the time of development. Nuclear and hydroelectric resources continue to constitute a significant share of the base supply mix. By the mid-2030s, a substantial portion of resources currently contracted are expected to reach the end of their contract term, including a significant amount of natural gas fired generation.

As the APO establishes a common, province-wide planning foundation, this enables bulk system studies to assess regional transmission needs within a shared understanding of provincial resource conditions, while allowing region-specific characteristics to be examined in greater detail. Within that common context, the plan appropriately recognizes the unique characteristics of the Eastern Ontario electricity system.

4.2 Regional Supply Context

Eastern Ontario has a range of supply resources serving the area including Darlington nuclear generating station (along with a planned 1,200 MW small modular reactor expansion), R.H. Saunders and other hydroelectric generating stations, Lennox and Napanee gas-fired generating stations, variable renewable energy resources, and emerging battery storage resources.

Within the Ottawa region, transmission-connected resources currently comprise approximately 360 MW of hydroelectric generation located on the 115 kV system near the Madawaska River, and one 70 MW natural-gas generation plant in the city of Ottawa to the east.

In aggregate, the installed or contracted generation capacity in the area is significantly lower than peak demand, especially considering that hydroelectric generation has insufficient dependable all-hour supply under all plan conditions. Thermal and renewable resources play a smaller in the regional supply mix and are mostly distributed resources[6]. Over the next five years, three major BESS project in the Ottawa area are expected to come into service and they will improve the Ottawa's electricity system's reliability and increase the region's load-meeting capability. Further details are provided in Section 5.

Supply to Belleville is provided primarily through the bulk transmission system, supported by approximately 55 MW of installed distribution-connected solar generation capacity.

Energy-limited and variable resources, including hydroelectric and renewable generation, are modelled based on their expected availability under the applicable planning conditions in accordance with the IESO's transmission security outlook methodology. These resources are represented using historical performance-based availability levels intended to reflect high-confidence output that can be depended upon:

- Under all elements in service, energy-limited resources are modelled at levels available approximately 98 per cent of the time; and
- Under conditions where one or more transmission elements are out of service, these resources are modelled at levels available approximately 85 per cent of the time.

Non-energy-limited resources are modelled at their seasonal peak capability.

[6] The region also has a significant number of distribution-connected resources, mainly solar. The impact of these distributed resources has been considered as part of the reference load forecast.

5. Transmission System Capability and Reliability Needs

This section evaluates the ability of the existing bulk transmission system in Eastern Ontario to reliably serve electricity demand under current conditions and over the study period. Building on the demand outlook described in Section 3, and the existing supply characteristics described in Section 4, the analysis focuses on how much electricity can be delivered into and within the plan area while meeting the applicable planning standards. The purpose of the section is to identify where the existing transmission system is unable to provide sufficient LMC to serve forecast demand reliably and where transmission limitations are already shaping system operability. A reliability need is identified where forecast demand exceeds the LMC of the relevant area. The LMC assessments reflect the planning framework, assumptions, and applicable contingency conditions previously described in Chapter 2.

5.1 Ottawa LMC and Need

The Ottawa area LMC is constrained by the loss of the two of the three 500 kV Hawthorne transformers resulting in the remaining third one carrying all the power flow resulting in thermal overload. Under this condition, the LMC is limited by the capability of the remaining 500/230 kV Hawthorne autotransformer and constraints on the 230 kV transmission system. Another limitation is the loss of both 500 kV circuits X522A/X523A supplying the area resulting in thermal overload of the 230k V circuits as well as voltage issues in the area.

Over the next five years, four major developments in the Ottawa area are expected to come into service and they will increase the Ottawa's LMC. These are Durham Kawartha Power Line, Skyview BESS, South March BESS, and Trail Road BESS. See the appendix for an entire list of projects and their expected in-service dates. **Table 3** summarizes the resulting LMC for the existing system and after committed projects expected to be in service by 2030.

Table 3 | Ottawa LMC for Existing and After Committed Projects in 2030

Year	LMC – Summer (MW)	LMC – Winter (MW)
2025	1,350	1,600
2030	1,750	1,950

Figure 7 and **Figure 8** show the Ottawa area LMC against the forecast demand scenarios to illustrate when forecast demand exceeds the capability of the existing system. Based on this assessment, a capacity need first emerges in 2026 and grows to between approximately 325 and 2,000 MW by 2043 depending on the forecast scenario. Under the reference growth scenario, the capacity need is approximately 620 MW by 2043; it increases to approximately 960 MW under the

2026 APO high-growth scenario and significantly increases to approximately 2,000 MW under high electrification (Ottawa IRRP adjusted forecast) scenario. While Ottawa is a summer-peaking area today, it is expected that Ottawa will gradually shift to winter peaking under the high-electrification scenario due to decarbonization efforts.

Figure 7 | Ottawa Summer Needs

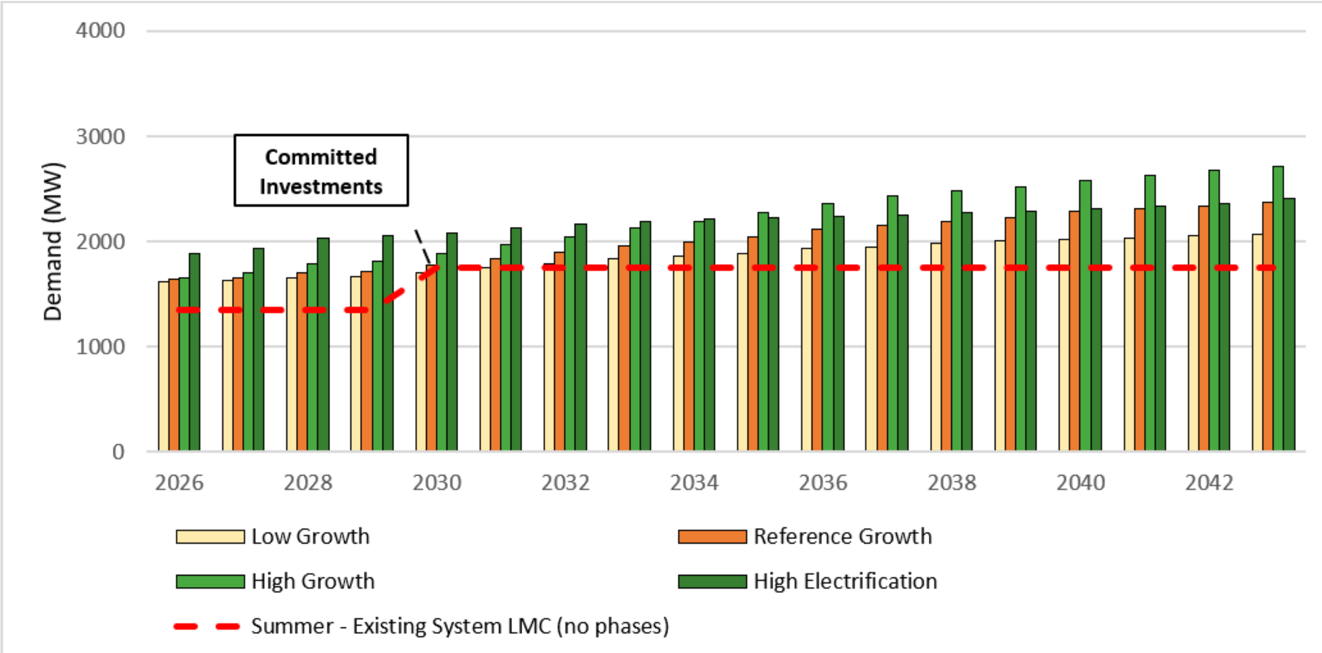
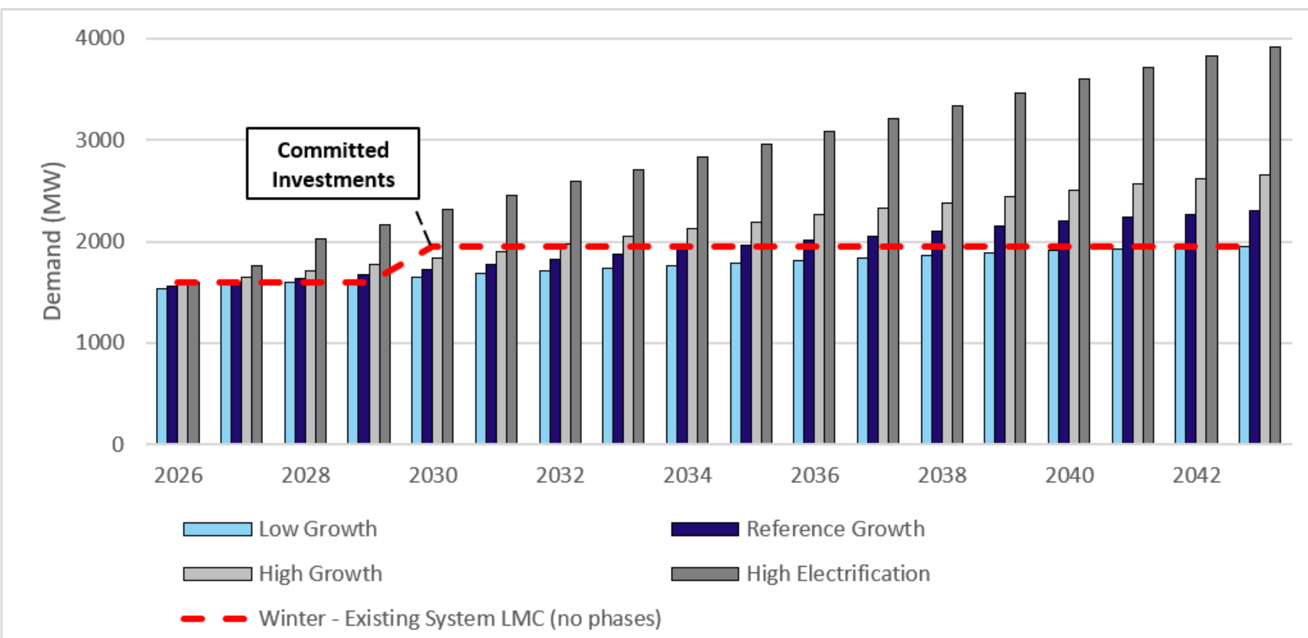


Figure 8 | Ottawa Winter Needs



5.2 Belleville LMC and Need

The Belleville area LMC is constrained by voltage instability upon the loss of 230 kV circuit H23B, which leaves the area on a radial supply on circuit T25B. The existing Belleville LMC is shown below in **Table 4**; note that these values account for the new Belleville DESN 2, which is expected to come into service this year.

Based on the existing LMC, a capacity need first emerges in 2027 under the winter reference forecast scenario and increases to about 100 MW over the planning horizon. Under the high growth scenario, which reflects increased industrial loading and transmission customers, a capacity need also emerges in 2027 and grows significantly, reaching about 320 MW by 2044. Similarly, a summer capacity need emerges in 2028, increasing to about 80 MW over the planning horizon under the reference scenario. Under the high growth scenario, a capacity need also emerges in 2028 and grows to about 300 MW by 2044. **Figure 9** and **Figure 10** show the demand growth and LMC to illustrate the emerging needs over the planning horizon during the winter and summer, respectively.

Figure 9 | Belleville Summer Needs

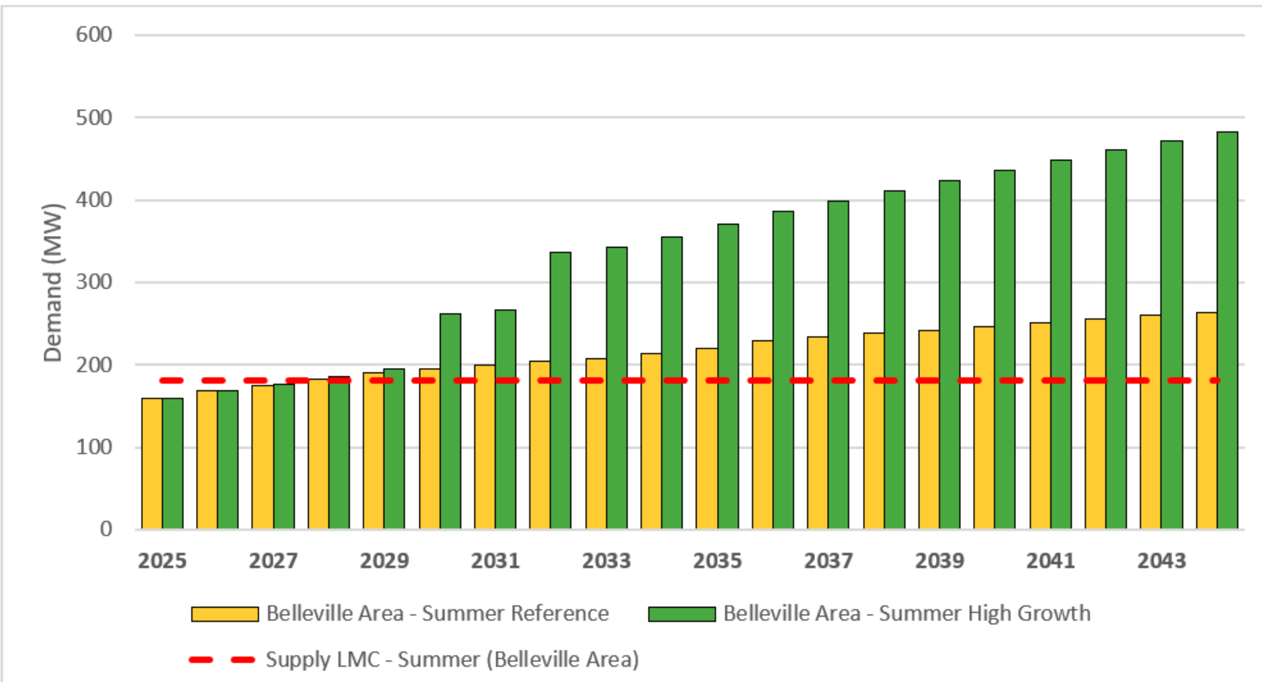


Figure 10 | Belleville Winter Needs

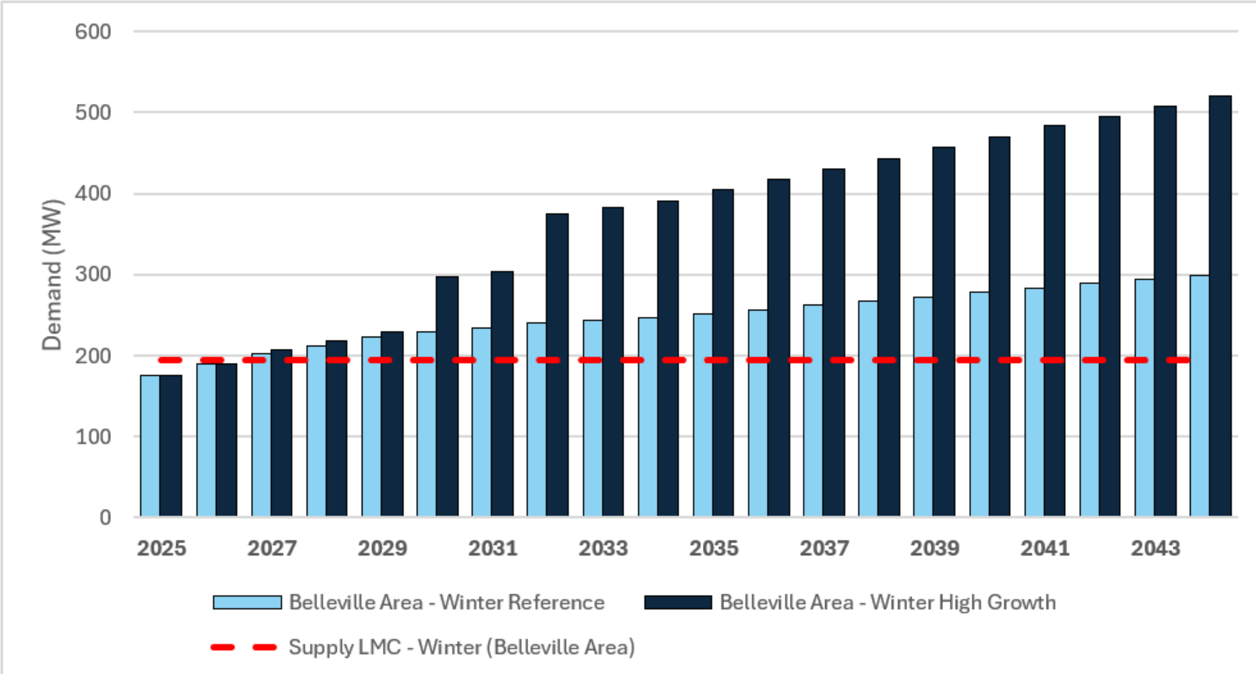


Table 4 | Existing LMC for Belleville

LMC – Summer (MW)	LMC – Winter (MW)
180	195

6. Evaluation of Options

This section evaluates the options available to address the transmission capability limitations and reliability needs identified in Section 5. The assessment includes both non-wires alternatives and wires-based transmission portfolios; it considers their ability to improve reliability, reduce long-term reliance on remedial action schemes, support forecast demand growth, preserve flexibility for future resource development, and align with the applicable planning standards.

The section proceeds as follows for each focus area: first, it describes the wires-based options developed for the plan and compares how those options perform against the identified needs; second, it considers whether non-wires alternatives could reasonably address the identified needs as standalone solutions and if not, how they might complement a transmission reinforcement.

Together, the comparative findings are used to identify which portfolios provide the strongest overall fit with the study objectives and to support the plan's recommendations in the next section. Detailed performance tables and figures on the different options are provided in supporting technical appendices.

6.1 Wires Options

6.1.1 Wires Options for Ottawa

Given the significantly higher needs under the high-electrification scenario relative to the other scenarios, the plan assessed both 230 kV and 500 kV circuit options. Common supporting reinforcements were also considered alongside these circuit options to improve supply diversity and operability, address existing limitations, and maintain future scalability. The plan compared these options of reinforcements by assessing them on a consistent basis across the principal study interface and under the range of planning conditions considered in the plan. The following subsections describe how those options in greater detail and how their performance was compared.

6.1.1.1 Developing Wires Options

All wires options were developed to strengthen the principal bulk transfer path into Ottawa across the range of identified needs. Each option makes practical use of major existing stations and transmission corridors, but three options also include a new transformer station on the western side of Ottawa to connect new circuits along with improving supply diversity, operability, and future scalability. In addition, two common reinforcement elements were assessed across all options: station work at Hawthorne TS to address thermal limitations on autotransformer T3, and dynamic reactive compensation to improve voltage stability and reduce voltage fluctuations. Approximate cost estimates were developed for each option to support comparison of the relative scale of investment required.

The 230 kV transmission options are defined as follows:

- **Option 1:** a new single-circuit 230 kV path from St. Lawrence TS to a new transformation station on the western side of Ottawa and dynamic reactive compensation at the new station.

- **Option 2:** a new double-circuit 230 kV path from St. Lawrence TS to Merivale TS.

The 500 kV transmission options are defined as follows:

- **Option 3:** a new double-circuit 500 kV path from Lennox TS to Hawthorne TS.
- **Option 4:** a new double-circuit 500 kV path from Lennox TS to a new transformation station on the western side of Ottawa.
- **Option 5:** a new double-circuit 500 kV path from Bowmanville SS to a new transformation station on the western side of Ottawa.

The following common elements were assessed across all options:

- Station work at Hawthorne TS to improve the long-term emergency thermal rating of autotransformer T3 to at least equal to T1 and T2 and the addition of a circuit breaker between T1 and T2; and
- Addition of dynamic reactive compensation at Hawthorne TS.

Figure 11 illustrates these reinforcement strategies geographically, while **Table 5** summarizes the specific facilities, voltage levels and approximate lengths of each option.

The following sections compare how the assessed portfolios perform against the identified needs.

Figure 11 | Transmission Line Reinforcements Assessed for Ottawa

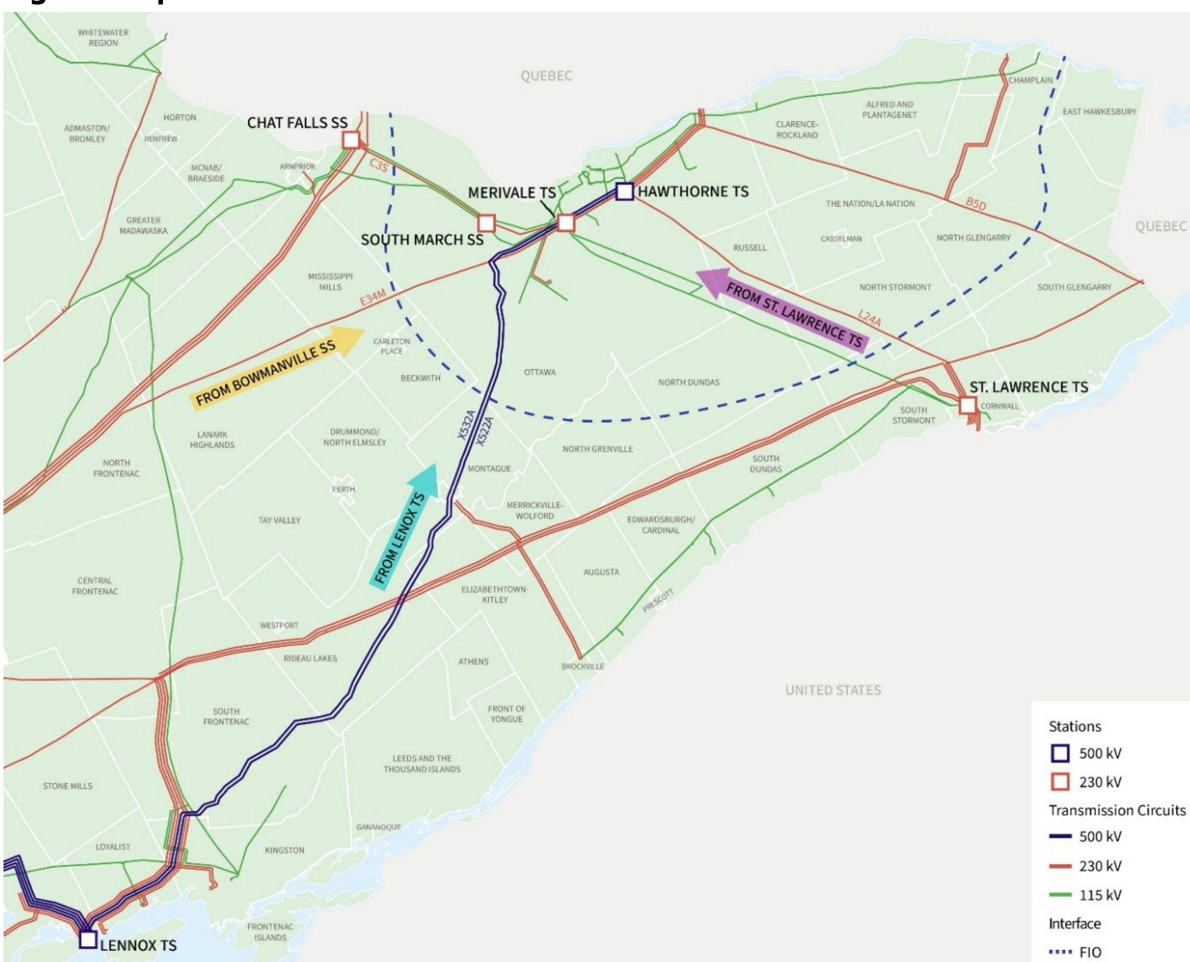


Table 5 | Description of Assessed Transmission Line Reinforcements for Ottawa

Option	Description	From / To Station	Voltage (kV)	Distance (km)	Planning-level Estimate[7] ($ Billions)
1	New Single-Circuit Transmission Line	St. Lawrence TS to a new transformation station on the western side of Ottawa	230	80	1.1
2	New Double-Circuit Transmission Line	St. Lawrence TS to Merivale TS	230	80	0.9
3	New Double-Circuit Transmission Line	Lennox TS to Hawthorne TS	500	190	2.6
4	New Double-Circuit Transmission Line	Lennox TS to a new transformation station on the western side of Ottawa	500	175	2.8
5	New Double-Circuit Transmission Line	Bowmanville SS to a new transformation station on the western side of Ottawa	500	310	4.1

[7] *Planning-level cost estimates are intended for comparative assessment purposes and are based on conceptual facility assumptions and typical unit costs. Estimates are expressed in 2025 dollars and are subject to significant uncertainty due to the preliminary nature of the assessment. Actual project costs may vary materially from the values shown.*

6.1.1.2 Comparing Wires Options

The assessed wires options were compared on a common analytical basis so that their relative effect on reliability, operability, and future flexibility could be evaluated consistently across the Ottawa area. The plan compared the options using a combination of transmission capability, LMC, residual need, operability and resource-enablement considerations. The comparison also considered the degree to which each option reduces long-term reliance on remedial action schemes and improves the inherent operability of the system. Estimated cost was also considered as part of the comparison to understand the relative scale of investment associated with each reinforcement strategy.

The detailed technical results supporting that comparison are presented in the sections that follow and in the supporting appendices.

6.1.1.3 LMC Comparison

The five wires options were compared with respect to their ability to improve transmission capability into Ottawa area and to meet the load-meeting capability needs identified in Section 5. The purpose of the comparison was to identify which portfolio provides the greatest transmission capability, and determine which option best meets the capability need under the demand scenarios and applicable planning conditions.

As shown in **Table 6** all options can meet the reference forecast over the entire planning period without the need for any residual actions. Under the high-electrification forecast, none of the options can meet the needs over the entire planning period and the residual needs, shown in **Table 7**, are exceedingly high and cannot realistically be met with non-wires alternatives.

Table 6 | Summary of Ability to Meet Ottawa Forecast Without Residual Needs by Option [8]

Reference Forecast					High Electrification Forecast				
1	2	3	4	5	1	2	3	4	5
✓	✓	✓	✓	✓	-	-	-	-	-

Table 7 | Summary of Residual MW Needs by Option[8]

Reference Forecast					High Electrification Forecast				
1	2	3	4	5	1	2	3	4	5
✓	✓	✓	✓	✓	1350	1250	700	650	800

Thus, to meet the high-electrification forecast, a 230 kV option was studied in combination with a 500 kV option. Of the three 500 kV options, only Option 4 was considered in combination because it was demonstrated to be superior to the other two options, with its similar technical performance at a lower cost and the improvement to resiliency and diversity of supply to Ottawa it provides.

[8] Includes load rejection as allowed by the criteria

Table 8 | Summary of Residual MW Needs by Option8

High Electrification Forecast	
1+4	2+4
✓	✓

As shown in **Table 8**, a 230 kV option in combination with Option 4 improves the LMC to a level that eliminates the residual needs.

6.1.1.4 Preferred Strategy

The assessment of the Ottawa options, including options considered in combination, indicates that the preferred strategy is a phased wires-based reinforcement approach. The 230 kV options are sufficient to support the reference demand forecast over the planning horizon. These options also improve supply diversity and reliability into Ottawa, enable future resource and load connections, and strengthen the St. Lawrence-area transmission system. As a result, a 230 kV reinforcement is well-suited to serve as the initial near-term investment in system reinforcement.

From a longer-term system perspective, the preferred strategy should also manage affordability and preserve flexibility to respond to future load growth and resource development in the Ottawa region. To support that objective, the plan also identifies and assesses stronger 500 kV reinforcement options that would be capable of meeting the higher demand levels associated with the high-electrification forecast. These options are not required as near-term actions, but rather as future reinforcements that preserve a pathway for longer-term needs linked to stronger growth, supply decisions, export opportunities, or future policy direction. The preferred strategy therefore proceeds first with a near-term 230 kV reinforcement supported by non-wires elements, while preserving a clear path to a subsequent 500 kV reinforcement that is dependant on higher demand materializing and future resource procurement outcomes.

6.1.2 Wire Options for Belleville

The wire options for Belleville to address the identified supply capacity needs were developed to strengthen and diversify the bulk supply into the Belleville area by identifying potential new supply points and mitigating the existing voltage limitations. The circuit options, all 230 kV, consider new supply points originating from Clarington, Central Frontenac, and Greater Napanee and assume the use of existing corridors supplying Belleville. The reinforcement elements also include additional reactive power support at Belleville alongside a new switching station to enhance system resiliency and improve scalability for future development in the area.

The transmission options are defined as follows:

- **Option 1:** a new double-circuit 230 kV path from Napanee TS to new switching station near Belleville TS
- **Option 2:** a new double-circuit 230 kV path from Hinchinbrooke TS to new switching station near Belleville TS
- **Option 3:** a new double-circuit 230 kV path from Clarington TS to new switching station near Belleville TS

The following common elements were assessed across all options:

- Addition of reactive compensation at the new Belleville switching station.

Since Option 1 significantly changes the 230 kV system configuration by establishing a new direct connection between the Napanee and Belleville areas, the assessment evaluated this option by determining the LMC of this combined region.

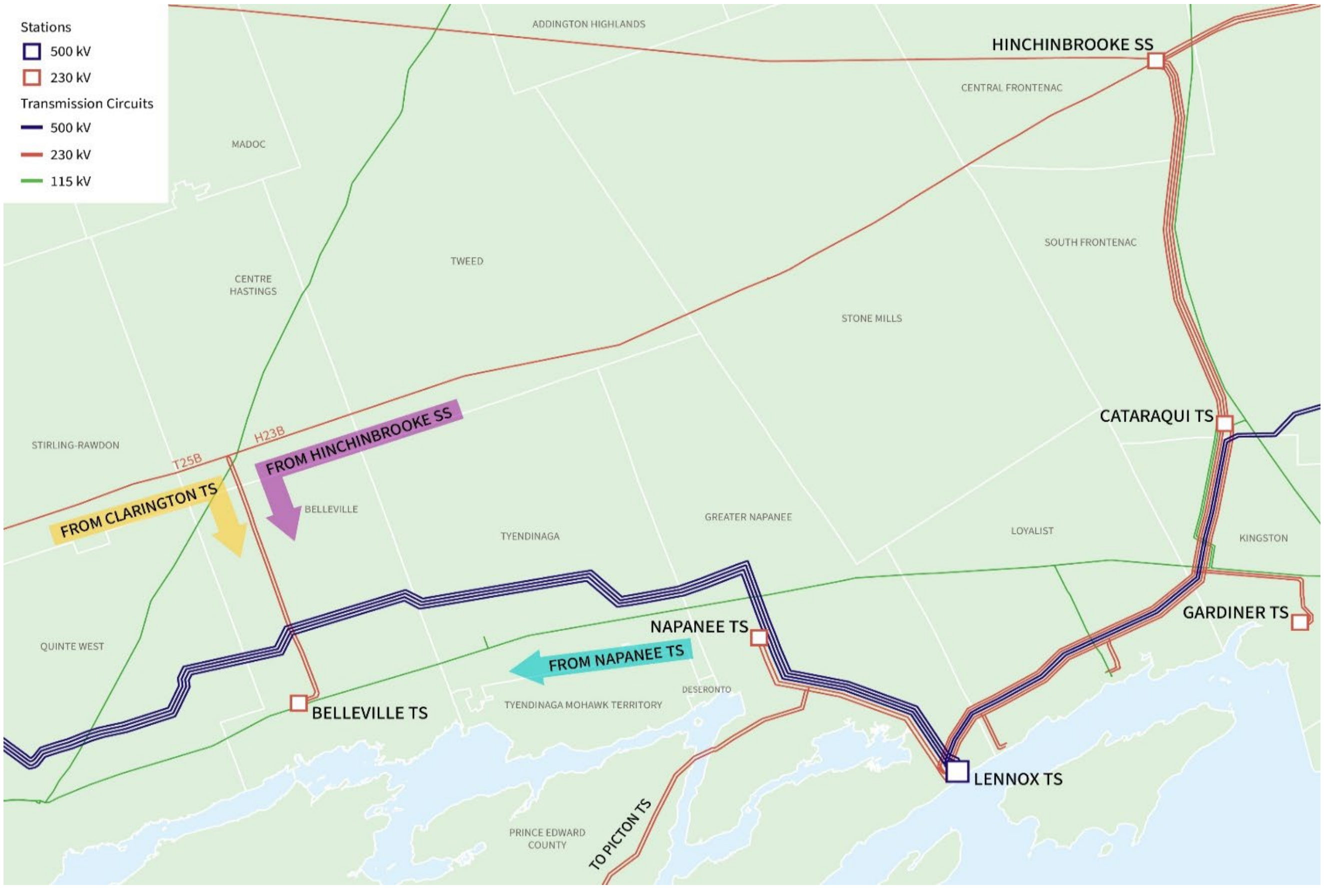
Figure 12 illustrates these reinforcement strategies geographically, while **Table 9** summarizes the specific facilities, voltage levels and approximate lengths of each option.

Table 9 | Description of Assessed Transmission Line Reinforcements for Belleville

Option	Description	From / To Station	Voltage (kV)	Distance (km)	Planning-level Estimate[9] ($ Billions)
1	New Double-Circuit Transmission Line	Napanee TS to Belleville TS	230	33	0.5
2	New Double-Circuit Transmission Line	Hinchinbrooke SS to Belleville TS	230	80	1.2
3	New Double-Circuit Transmission Line	Clarington TS to Belleville TS	230	140	1.9

[9] *Planning-level cost estimates are intended for comparative assessment purposes and are based on conceptual facility assumptions and typical unit costs. Estimates are expressed in 2025 dollars and are subject to significant uncertainty due to the preliminary nature of the assessment. Actual project costs may vary materially from the values shown.*

Figure 12 | Transmission Line Reinforcements Assessed for Belleville



6.1.2.1 Comparing Wires Options

All the wire options were compared on a consistent analytical basis, similar to the approach described for Ottawa in Section 6.1.1, to evaluate their relative effectiveness in strengthening supply into the Belleville area. The comparison considered several factors, including LMC, estimated cost, improvement to voltage stability and local reliability. Estimated cost was also considered as part of the comparison to understand the relative scale of investment associated with each reinforcement strategy. Through this comparison, Option 3 was screened out early in the process due to its significant distance and associated cost.

6.1.2.2 LMC Comparison

The ability of each wire option to meet the Belleville load forecasts was evaluated under both reference and high growth scenarios, considering all in service and outage conditions. The comparison highlights whether the identified needs can be met through wires solutions alone or if residual actions are required to support future load growth. In the Belleville area, the identified needs can be met through the considered wire options under the reference growth forecast alongside residual actions such as additional eDSM; **Table 10** contains a summary of assessment results indicating that there are no residual capacity needs by following this approach under each option. However, supporting the high growth forecast into the long-term will require additional transmission reinforcements or non-wires solutions.

Table 10 | Summary of Residual MW Needs by Option[10]

Reference Forecast	
1	**2**
✓	✓

To address uncertainties related to both high demand growth and whether supply resources materialize, a set of future consideration investment options was developed and assessed. These options provide long-term flexibility to maintain reliability as demand growth and supply outcomes become clearer.

To supply demand growth above reference forecast, the following transmission reinforcement options were assessed:

- **Option 4:** upgrade 12 km of existing circuits X21/X22 from Lennox TS to Napanee TS in combination with Option 2.
- **Option 5:** a new 500/230 kV autotransformer station near Belleville.

Table 11 summarizes the specific facilities, voltage levels and approximate lengths of each option. Assessment results are summarized in **Table 12**; there are no residual capacity needs following implementation of these options in combination with Options 1 or 2.

Table 11 | Description of Assessed Transmission Reinforcements for Belleville

Option	Description	From / To Station	Voltage (kV)	Distance (km)	Planning-level Estimate[11] ($ Billions)
4	Upgrade existing circuits X21/X22	Lennox TS to Napanee TS	230	12	0.1
5	New 500/230 transformation in Belleville Area	New transformation station to Belleville TS	500	N/A	0.4

Table 12 | Summary of Residual MW Needs by Option[10]

High Growth Forecast		
1+4	**1+5**	**2+5**
✓	✓	✓

[10] Includes load rejection as allowed by the criteria

[11] *Planning-level cost estimates are intended for comparative assessment purposes and are based on conceptual facility assumptions and typical unit costs. Estimates are expressed in 2025 dollars and are subject to significant uncertainty due to the preliminary nature of the assessment. Actual project costs may vary materially from the values shown.*

6.1.2.3 Preferred Strategy

Based on the assessment of the Belleville options, including options considered in combination, the preferred strategy is a phased wires-based reinforcement approach mirroring the one taken for Ottawa. Through this assessment it was determined that both new 230 kV circuit options are sufficient to support the reference demand forecast over the planning horizon when supported with non-wires elements. These options also improve supply diversity and reliability into Belleville, and enable future resource and load connections. As a result, a 230 kV circuit reinforcement is well-suited to serve as the initial near-term investment in system reinforcement. From a longer-term system perspective, the preferred strategy should also manage affordability and preserve flexibility to respond to future load growth and resource development in the Belleville region by identifying and preserving clear paths for subsequent reinforcement that are dependant on higher demand materializing and future resource procurement outcomes.

6.2 Non-Wires Alternatives (NWA)

6.2.1 Additional eDSM

EDSM programming is a low-cost resource that offers significant benefits to individuals, businesses, and the electricity system as a whole. As part of the 2025-2036 eDSM Framework, the IESO currently delivers a comprehensive suite of eDSM programs across the province under the Save on Energy brand. Forecasted savings from this and subsequent eDSM frameworks are incorporated into the bulk plan's demand forecasts, with long-term forecasts informed by current savings targets.

Targeting additional eDSM in areas of the province with regional needs can help offset investments in new resources or transmission, defer this spending to a later date, and can complement these investments as part of an integrated solution for the area.

To inform provincial eDSM program planning and non-wires alternatives analysis, the IESO regularly undertakes Achievable Potential Studies (APS)[12]. APS estimate the quantity of energy and peak demand savings that can realistically and cost-effectively acquired through eDSM programming over a specific area and time period. The last complete study, the 2022 APS, estimates an opportunity for eDSM programming to reduce summer peak demand by up to 3,500 MW and total energy consumption up to 28 TWh over a twenty-year period. The IESO generally leverages transmission zone-level sectoral achievable potential estimates and transformer station-level sectoral demand forecasts to produce localized estimates of the maximum quantity of eDSM savings that can be acquired in specific areas of the province, or if the planning study area aligns with a transmission zone, use the APS transmission zone-level results directly.

After accounting for the planned eDSM already incorporated into the bulk plan's demand forecasts, an estimated up to 55 MW of additional cost-effective eDSM savings potential is available in the Belleville-Napanee area by 2044. Previous and an estimated up to 170 MW of additional system cost-effective eDSM savings potential is available in the Ottawa area by 2043.

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[12] The next eDSM Achievable Potential Study is currently under development. Updated results from the 2026 plan will be incorporated into future regional plans and bulk plans.

6.2.2 NWA Supply Resources Analysis

The NWA assessment was conducted using a two-stage analytical framework combining capacity expansion modelling and an operational adequacy assessment. A set of hourly need profiles were developed for three demand forecast scenarios (reference and high-electrification using the IRRP) with different levels of LMCs associated with transmission development stages. These combinations define the residual needs to be addressed by NWAs.

An initial screening of NWA technologies and configurations was performed based on the magnitude, distribution, and duration of the need profiles, as well as resource performance characteristics. Based on this screening, the analysis was focused on four resource configurations: BESS; Solar + BESS; Wind + BESS; and Solar + Wind + BESS. Consistent with the Ottawa IRRP and the City of Ottawa's decarbonization priorities, new natural gas-fired generation was not considered. Other options, such as nuclear and hydroelectric, were excluded due to limited flexibility, geographic constraints, and operational challenges.

The assessment also considered whether peak needs would emerge on a timeline that could realistically be addressed by NWA development. Assuming a five-year development timeline for large-scale NWA resources, the modelling horizon was selected to capture needs that could feasibly be met following changes in LMC.

Inverter Based Resource (IBR) constraints were also considered for both the Ottawa and Belleville areas when assessing NWAs. These constraints limit the amount of IBR generation connected to these areas in order to minimize the risk of introducing undesirable sub-synchronous control interactions, which are oscillations that can occur under certain system conditions to IBRs that are connected in close electrical proximity to each other in weakly connected systems.

A PLEXOS-based[13] capacity expansion model was used to determine least-cost portfolio for each need profile. These portfolios were subsequently tested in an energy production model to ensure they adequately supply the forecasted load growth on an hourly basis. Economic assessment was undertaken using standardized cost assumptions expressed in 2025 Canadian dollars and evaluated on a net-present value basis using a 4 per cent real social discount rate.

6.2.3 NWA Supply Resource Assessment Results

6.2.3.1 Reference Demand Scenario

Ottawa

Under the reference demand scenario, the scale of NWA build-out required to address the need would exceed the local system's IBR limit. As a result, an NWA-only option is not feasible for meeting the needs in the Ottawa area. With transmission reinforcement under Option 1 or Option 2, there is no residual need.

Belleville

[13] PLEXOS is an optimization platform used to simulate how electricity systems and markets operate over time and to identify the economic generation, transmission, and storage decisions under a given set of constraints.

Under the reference demand scenario, NWAs can meet the needs with a Solar + BESS and BESS-only portfolio. Gross overnight capital cost estimates for these options range between $90 million to $200 million[14]. The Solar + BESS option of approximately 60 MW of BESS and 10 MW of solar is the less costly portfolio making this the preferrable NWA option. However, it should be noted that there are limited practical options to connect additional supply resources to the existing transmission system around Belleville. As well, utilizing a NWA-only solution to meet the needs does not improve transmission system reliability to Belleville, which, currently under the existing transmission system, can result in the disconnection of all load at Belleville when two transmission elements are lost.

When combined with transmission reinforcement Option 2, the NWA requirement is approximately 150 MW of BESS and 300 MW of solar resources, with gross overnight capital cost estimates in the range of $1.0 billion to $1.2 billion[15]. The higher NWA requirement in this case reflects the wider region beyond Belleville that is supported when combined with transmission reinforcement Option 2. Although the NWA requirement is higher, the transmission reinforcement also serves to enable the connection of additional supply resources to the transmission system in the region.

6.2.3.2 High-Electrification Demand Scenario

Ottawa

Under the high-electrification demand scenario, needs are significantly higher and the modelling is unable to identify NWA portfolios capable of meeting reliability requirements without transmission reinforcements.

When transmission options 1 and 4 or transmission options 2 and 4 are combined, the transmission reinforcement eliminates any residual need and therefore no NWA is required.

Belleville

Under the high growth demand scenario, all NWA options explored were deemed technically infeasible due to resource buildouts far exceeding IBR limitations. This means that a transmission reinforcement is a necessary component of any solution to meet future growth beyond the reference demand scenario.

6.2.3.3 Key Observations

Overall, the assessment shows that the feasibility of NWAs is primarily driven by the magnitude of the residual need following transmission reinforcement. NWAs are effective in addressing moderate, peak-driven needs but become increasingly constrained as scale grows. In many cases, transmission reinforcement is what reduces the residual need to a level at which NWAs become practical. Implementation considerations, including land requirements, deployment scale and municipal support are also important in assessing practicality.

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[14] Based on optimized, various BESS durations and solar with a 2033 in-service date and a 20-year asset life, using 2024 NREL ATB costs, converted into $2025 CAD.

[15] Based on a 10h BESS with optimized, various in-service dates and a 20-year asset life, using 2024 NREL ATB costs, converted into $2025 CAD. This NWA buildout satisfies system adequacy until 2035, at which point incremental adequacy requirements thereafter are satisfied by eDSM.

6.2.3.4 Role in Options Evaluation

The NWA assessment establishes feasible, costed portfolios across the range of need profiles considered. These results provide a benchmark for comparison against wires-based options and support the overall evaluation of cost, reliability, and flexibility. The analysis identifies where NWAs can serve as standalone solutions, where they complement transmission investment, and where they are not viable given the scale of need.

7. Recommendations and Conclusion

This section presents the recommended plan for addressing the transmission capability limitations and reliability needs identified in Section 5 and after evaluating options in Section 6. It identifies the preferred path forward, explain how that path should be staged over time, and describe the role of complementary measures in supporting reliability and preserving optionality over the study horizon.

7.1 Phased Reinforcement Strategy

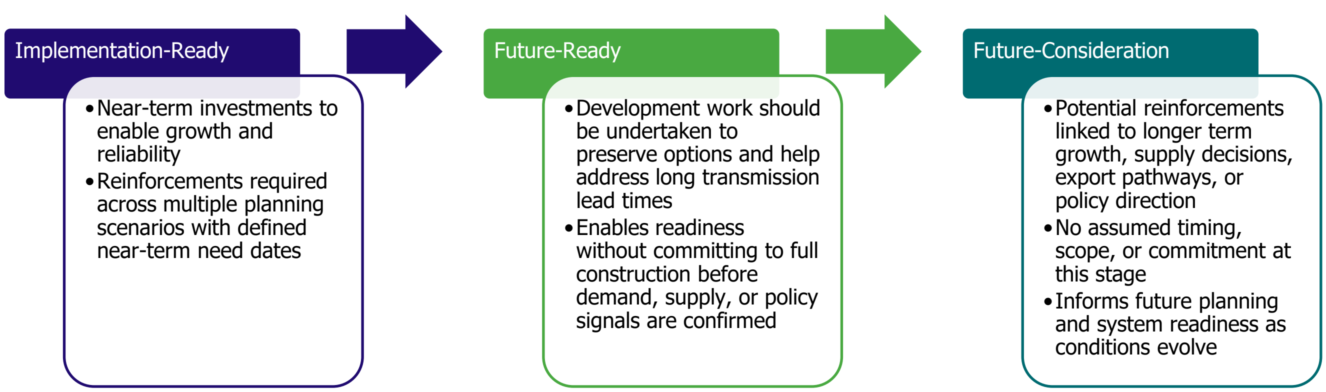
A phased reinforcement strategy combines:

- implementation-ready actions to address existing and emerging reliability needs;
- future-ready actions that advance development of higher-capability reinforcement tied to larger future load commitments, supply resource development and policy signals; and
- future-consideration actions to inform future planning to support longer-term demand growth, supply decisions, export pathways and policy direction.

The recommended strategy in this plan for both areas follows this phased approach that consists of implementation-ready actions in the near term intended to proceed immediately, and future-consideration actions for the longer term. The timing and sequencing of future-consideration actions depend on how demand growth, development commitments, and broader system conditions evolve over time. This phased approach preserves flexibility, manages the risk of overbuilding and associated cost exposure, and reduces the time required to respond if future system conditions warrant additional reinforcement.

Figure 13 illustrates the categories of recommended actions as implementation-ready, future-ready, and longer-term future-considerations based on their dependency on implementation triggers.

Figure 13 | Phased Approach to Transmission Development



For the purposes of this report, implementation-ready actions for each area are referred to as Phase 1 recommendations, while future-consideration actions are referred to as Phase 2 recommendations. Where multiple future reinforcement alternatives have been identified for an area, the Phase 2 recommendations represent alternative pathways that may be pursued depending on how system conditions evolve.

7.2 Actionable Recommendations - Ottawa

The IESO recommends the following actions in the Ottawa region to address identified bulk-system needs.

7.2.1 Implementation-Ready

Phase 1 of the recommended plan consists of 230 kV reinforcements required to materially improve supply capability and reliability in the Ottawa area; it is based on Option 2 as identified in the Ottawa options assessment in Chapter 6 and is shown below in **Figure 14**. Specifically, it consists of the following:

- Transmission reinforcement with estimated cost of $0.9 billion:
  - Station work at Hawthorne TS to mitigate thermal limitations on existing autotransformer T3 by improving the long-term emergency thermal rating of T3 to at least equal to T1 and T2 and the addition of a circuit breaker between T1 and T2.
  - New double-circuit 230 kV line from St. Lawrence TS to Merivale TS (estimated length of 80 km).
  - Addition of 200 Mvar reactive power support at Hawthorne TS.
- Pursuing approximately 170 MW of incremental eDSM by 2043, aligned with Ottawa IRRP.

These actions are recommended because the existing transmission system requires reinforcements to reliably serve the plan area under applicable planning conditions, as it already relies on remedial action schemes and other operating measures under certain system conditions to remain operable. It is an immediate reinforcement backbone required to address existing and emerging reliability needs under both the reference and high-electrification demand scenarios, while also reducing long-term dependence on remedial action schemes and improving outage operability.

From a reliability perspective, Phase 1 is the critical foundation of the plan. It materially improves the broad regional supply capability into the Ottawa area and addresses a key equipment limitation and operability issue. In addition to addressing existing reliability needs, Phase 1 strengthens the transmission conditions needed to connect new loads and resources and lays a foundation for increased exports. In this sense, Phase 1 is both the immediate reliability backbone of the recommended plan and an enabling step for future development in the region.

It is not intended to be the most comprehensive solution for all long-term growth cases; under larger future loads commitments or electrification, additional reinforcement will be required.

The target in-service date for the transmission reinforcements is approximately 2032, consistent with typical development and construction timelines in Ontario.

These actions are paired with future-consideration reinforcements described below, which preserve the ability to advance additional reinforcement as needed.

Figure 14 | Geographic Diagram of the Phase 1 Near-Term Reinforcement Plan

7.2.2 Future-Consideration

This plan also identifies potential reinforcements linked to longer-term growth, supply decisions, export pathways, or policy direction. While there may not be any assumed timing, scope, or commitment, monitored sensitivities and longer-term next steps have been identified to inform future planning and ensure system readiness as conditions evolve. The recommended Phase 2 potential reinforcements, based on Option 4 as identified in the Ottawa options assessment, are as follows:

- A transmission reinforcement with estimated cost of $2.8 billion:
  - New 500/230 kV TS in west Ottawa with two autotransformers.
  - New double-circuit 500 kV line from Lennox TS to the new west Ottawa TS (estimated length of 175 km).
  - New double-circuit 230 kV line from South March SS to the new west Ottawa TS (estimated length of 15 km).
  - Connect existing 500 kV circuits X522A and X523A into the new west Ottawa TS.
  - Connect 230 kV St. Lawrence to Merivale TS (Phase 1) circuits into the new west Ottawa TS.

- Addition of 200 Mvar reactive power support at the new west Ottawa TS.
- Identification of opportunities to guide the development, within the IESO's existing Resource Adequacy Framework, of additional storage resources, with a locational focus in Ottawa and surrounding areas.

This phase is intended for conditions in which future demand exceeds the level supported by Phase 1, or where future export requirements and supply resource development outcomes justify additional reinforcement. It is identified as a future development path that should be preserved to provide long-term optionality without overbuilding in the near term.

A diagram of Phase 2 is shown in **Figure 15**.

The resulting LMC after Phase 1 and Phase 2 against the demand forecast scenarios in the winter and summer seasons is shown in **Figure 16** and **Figure 17**, respectively.

Figure 15 | Geographic Diagram of the Phase 2 Long-Term Reinforcement Plan

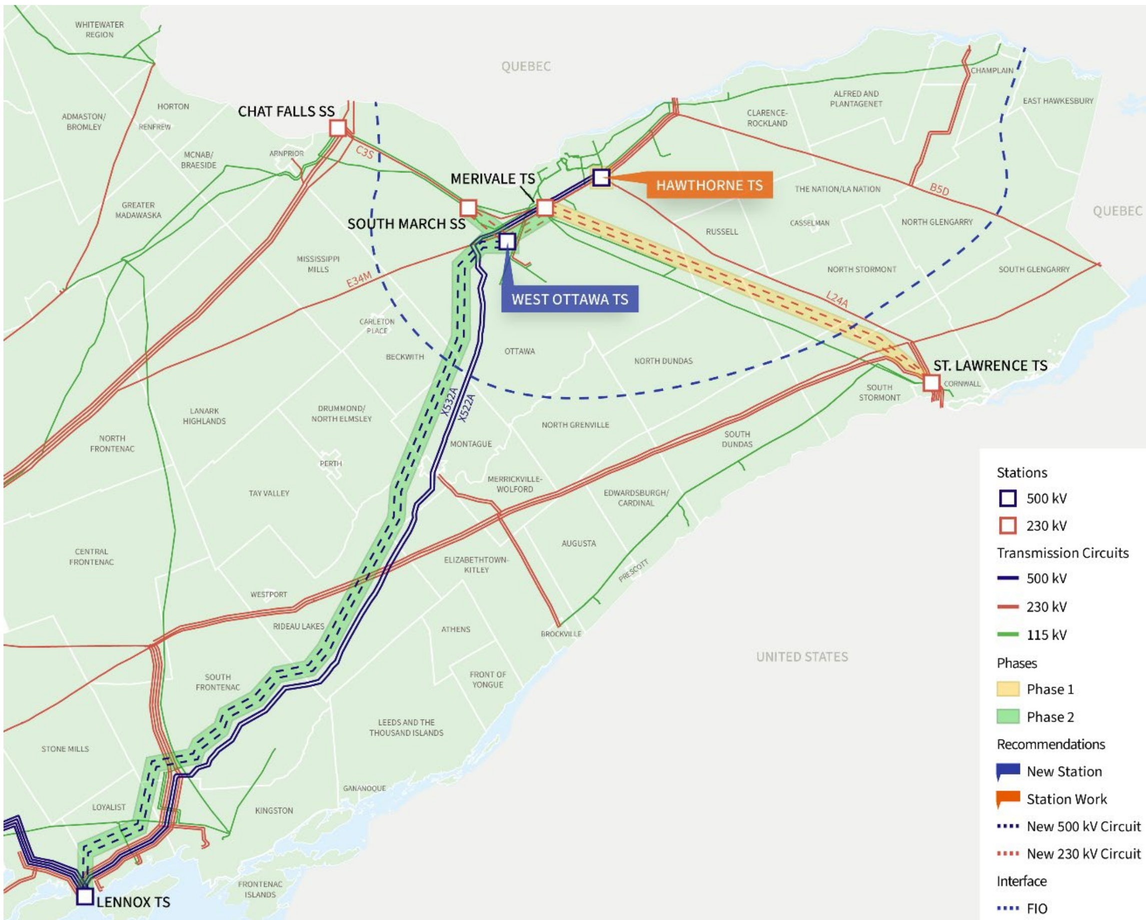


Figure 16 | Ottawa LMC Against Winter Demand Forecast Scenarios[16]

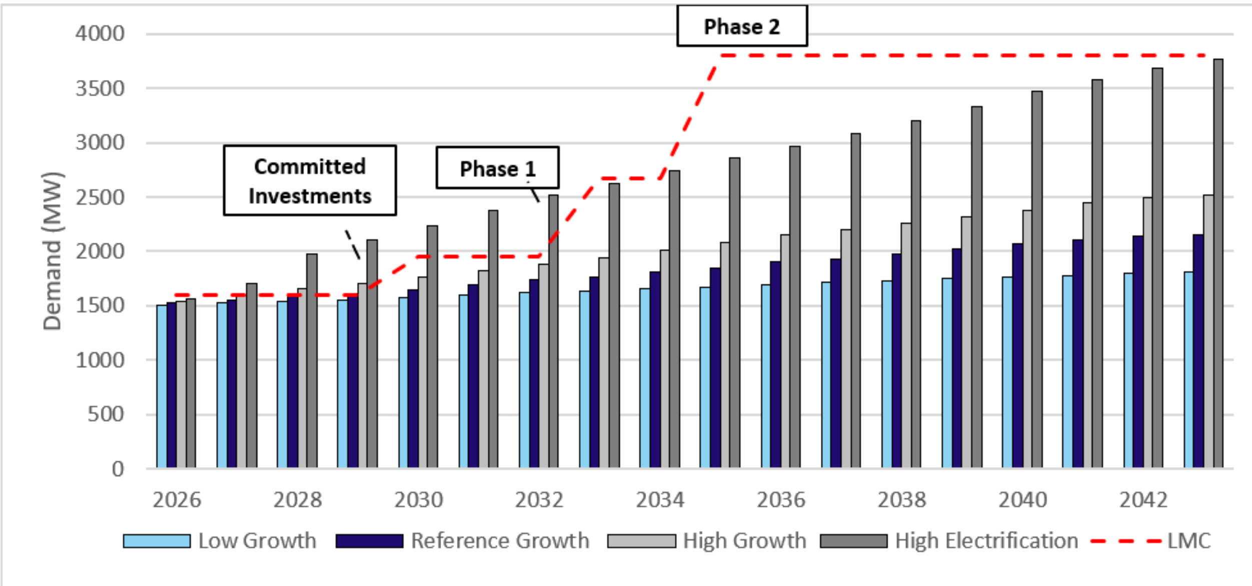
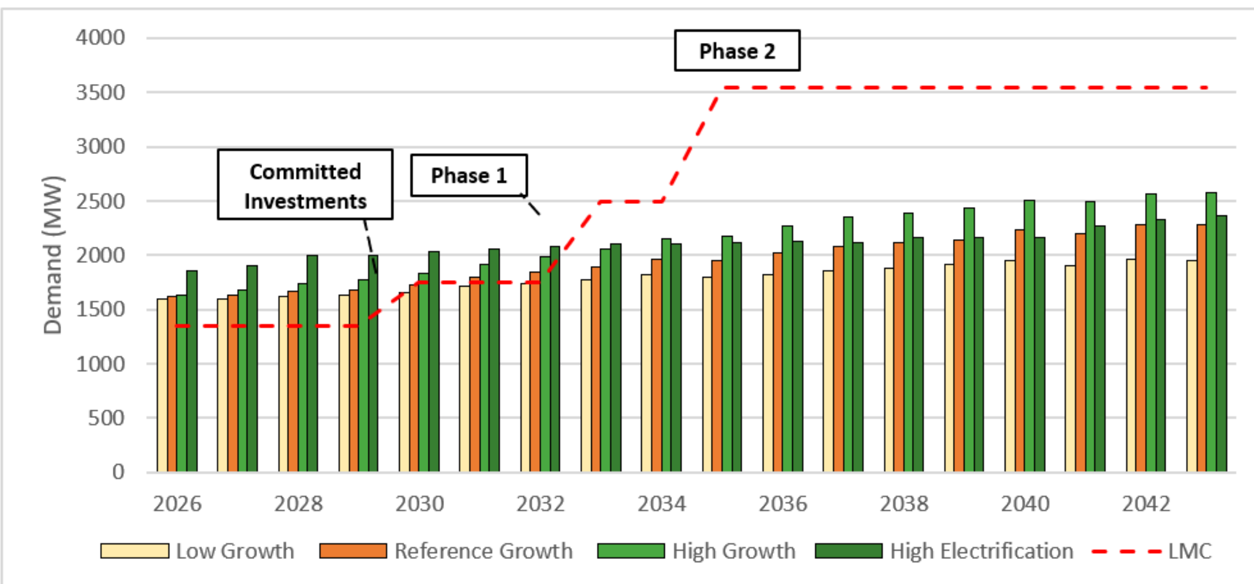


Figure 17 | Ottawa LMC Against Summer Demand Forecast Scenarios [16]



7.2.3 Implementation and Decision Points

The phased recommended plan requires a clear implementation and monitoring framework. Phase 1 should proceed as the implementation-ready phase because the identified reliability needs already exist and continue to grow under the reference demand scenario. Phase 2 should be advanced only when future conditions justify additional reinforcement, including the speed and magnitude of actual demand growth and electrification trends, IESO procurement outcomes, and intertie and regional

[16] Includes load rejection as allowed by the criteria

planning developments, with particular attention to whether conditions are developing beyond the reference demand scenario.

Phase 2 should advance when updated demand forecasts indicate that Ottawa demand is expected to approach or exceed the Phase 1 capability of approximately 2110 MW (summer) or 2300 MW (winter) within the next 5–7 years, recognizing the development and construction timelines associated with major transmission infrastructure. Advancement of Phase 2 should be considered if demand growth materializes faster or higher than forecast, no additional resources materialize, or additional system capability, including export flexibility, is required. Interim operational measures may be used as temporary measures if required. Based on the current reference load forecast and after the implementation of Phase 1, Phase 2 needs to be in service by 2039[17] and thus does not need to be implemented now.

The recommended plan, with its staged approach, should therefore be actively monitored and updated as regional conditions evolve to allow investment timing to remain aligned with actual need.

7.3 Actionable Recommendations - Belleville

The IESO recommends the following actions in the Belleville region to address identified bulk-system needs.

7.3.1 Implementation-Ready

Phase 1 of the recommended plan consists of near-term 230 kV reinforcements needed to materially improve reliability in the Belleville area; it is based on Option 1 as identified in the Belleville options assessment in Chapter 6 and is shown below in **Figure 18**. The recommended Phase 1 actions are as follows:

- Transmission reinforcement with estimated cost of $0.5 billion:
  - Extension of existing 230 kV circuits X21/X22 by 33 km from Napanee to Belleville.
  - Addition of a new switching station in Belleville, with existing 230 kV circuits re-terminated and Belleville DESN 1 and 2 re-connected into the station.
  - Addition of 100 Mvar reactive power support at the new Belleville switching station.
- Pursuing potential for 55 MW of incremental eDSM by 2044 in the Belleville, Picton and Napanee areas.
- Identification of opportunities to guide the development, within the IESO's existing Resource Adequacy Framework, of additional storage and solar supply resources, with a locational focus in the Belleville, Picton and Napanee areas.

These actions are recommended because the current transmission system is insufficient to reliably serve the plan area under applicable planning conditions and, under certain conditions, relies on operating measures to remain operable. These limitations are not solely driven by future growth but

[17] As an interim measure, load rejection can be used as allowed by the criteria to further postpone this need year. Without the load rejection, by 2039, there is a need. New supply resources in the Ottawa region may also satisfy the reference forecast need and may also delay the need to trigger Phase 2 investments.

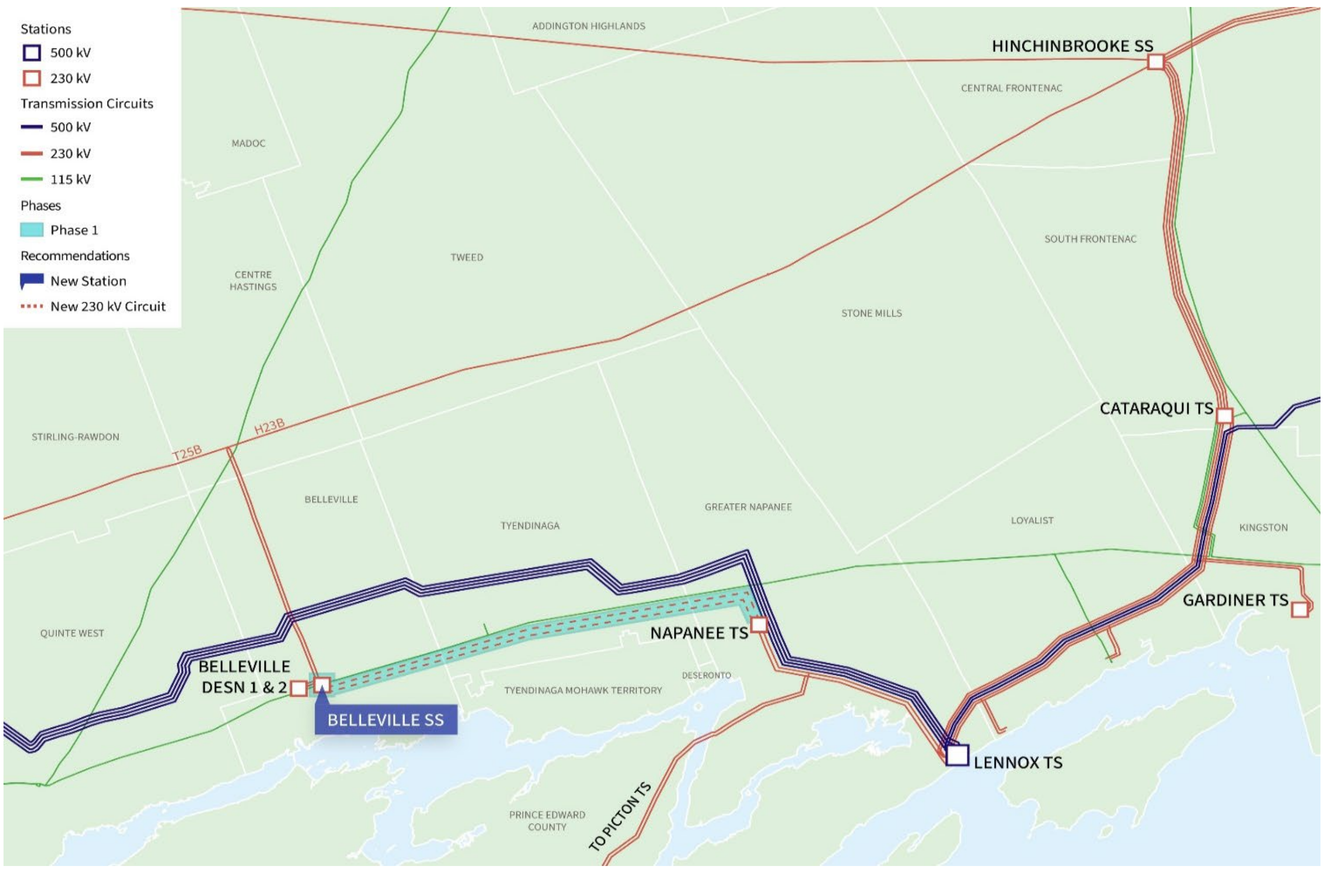
reflect existing system constraints including limited supply capability and sensitivity to outages, as evidenced by the current reliance on operating measures at Belleville TS. The system is already constrained and cannot accommodate additional growth without reinforcement. These actions will enable projected demand growth in the region under the reference scenario well into medium term, along with enhancing system reliability by reducing reliance on operating measures and enabling the connection of more supply resources to support the region.

This phase does not address all long-term needs. Under the high growth demand scenario or where supply resources are delayed or do not materialize, additional transmission reinforcement will be required to maintain system reliability. This phase provides the groundwork necessary to incorporate additional transmission reinforcements in the future to further serve the region under higher demand growth.

The expected in-service date for the transmission reinforcements is approximately 2032, consistent with typical development and construction timelines in Ontario.

These actions are complemented by future-consideration reinforcements described below, which preserve the ability to advance additional reinforcement as needed.

Figure 18 | Geographic Diagram of Near-Term Reinforcement Plan for Belleville



7.3.2 Future-Consideration

The second set of recommendations consists of longer-term reinforcement options intended to address uncertainty in higher load growth and supply resource materialization. To plan for future system needs under the uncertainty of how system conditions evolve, two additional investment options were developed to serve as future-consideration investments. The investment options are cumulative with Phase 1 and represent alternative approaches to meet future system needs. The recommended future-considerations are defined as follows, with an estimated cost ranging from $100-$400 million:

Phase 2A: Maximize Existing Assets

- Upgrade a section of existing 230 kV circuits X21/X22 (estimated length of 12 km)
- Leverage technology to optimize power flow across the 230 kV system
- Develop operational measures, including coordinated outage planning

Phase 2B: New 500/230 kV Buildout

- Construct a new 500/230 kV autotransformer station at Belleville.

Phase 2A and 2B are based on Options 4 and 5, respectively, as identified in the Belleville options assessment in Chapter 6. These recommendations are longer-term, alternative reinforcement options intended to address conditions beyond those supported by implementation-ready actions, primarily higher-than reference demand growth, including the connection of large transmission customers or unanticipated municipal demand growth, as well as uncertainty in the timing and availability of future supply resources.

These reinforcements are not required to address current or near-term reliability needs, which are addressed by the Phase 1 investments. Instead, they define alternative development pathways that are not intended for implementation unless system conditions evolve beyond the conditions addressed by the Phase 1 actions. This preserves long-term optionality to respond to future growth and resource uncertainty without overbuilding in the near term.

A diagram of the approaches is shown in **Figure 19**. The resulting LMC after the near-term recommendation and the two possible long-term reinforcement approaches relative to the demand forecast scenarios in the winter and summer seasons is shown in **Figure 20** and **Figure 21**, respectively.

Figure 19 | Geographic Diagram of Long-Term Reinforcement Plan for Belleville

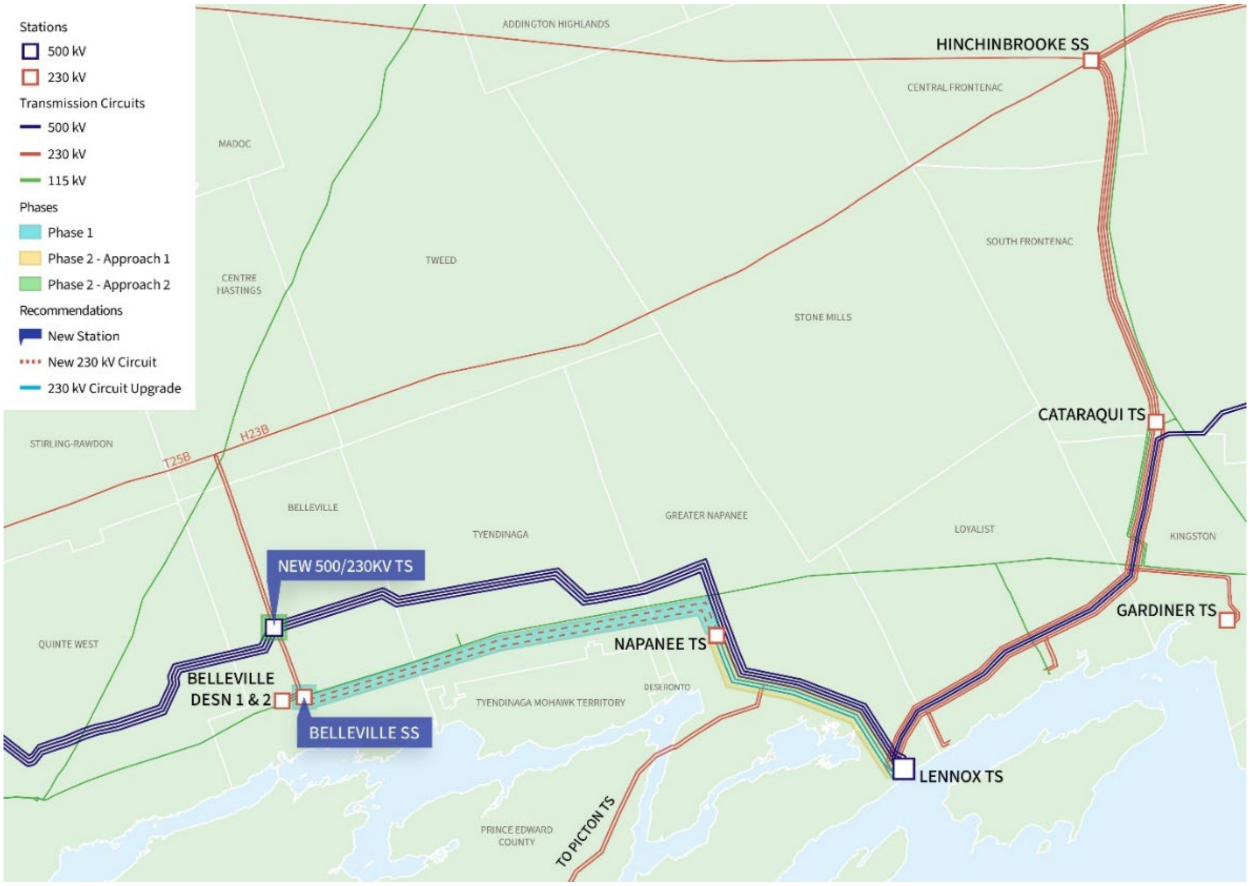


Figure 20 | Belleville Area LMC Against Winter Demand Forecast Scenarios[18]

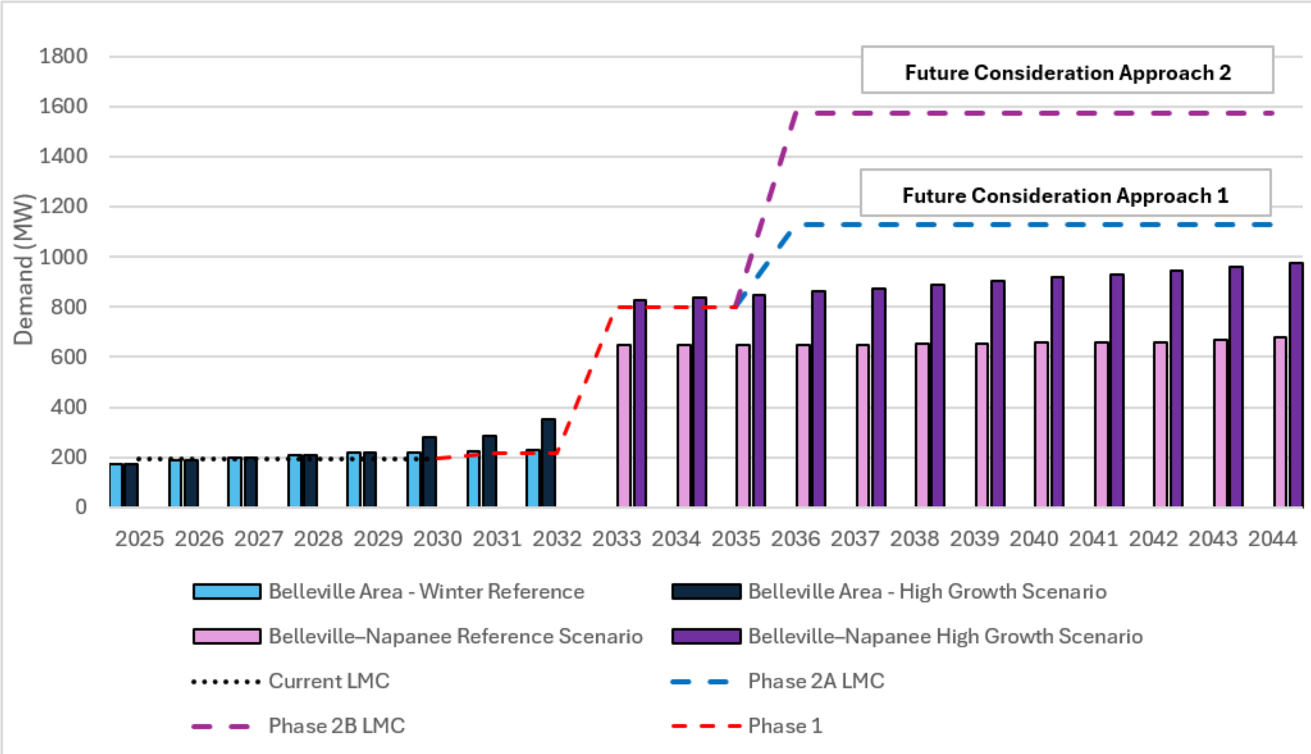
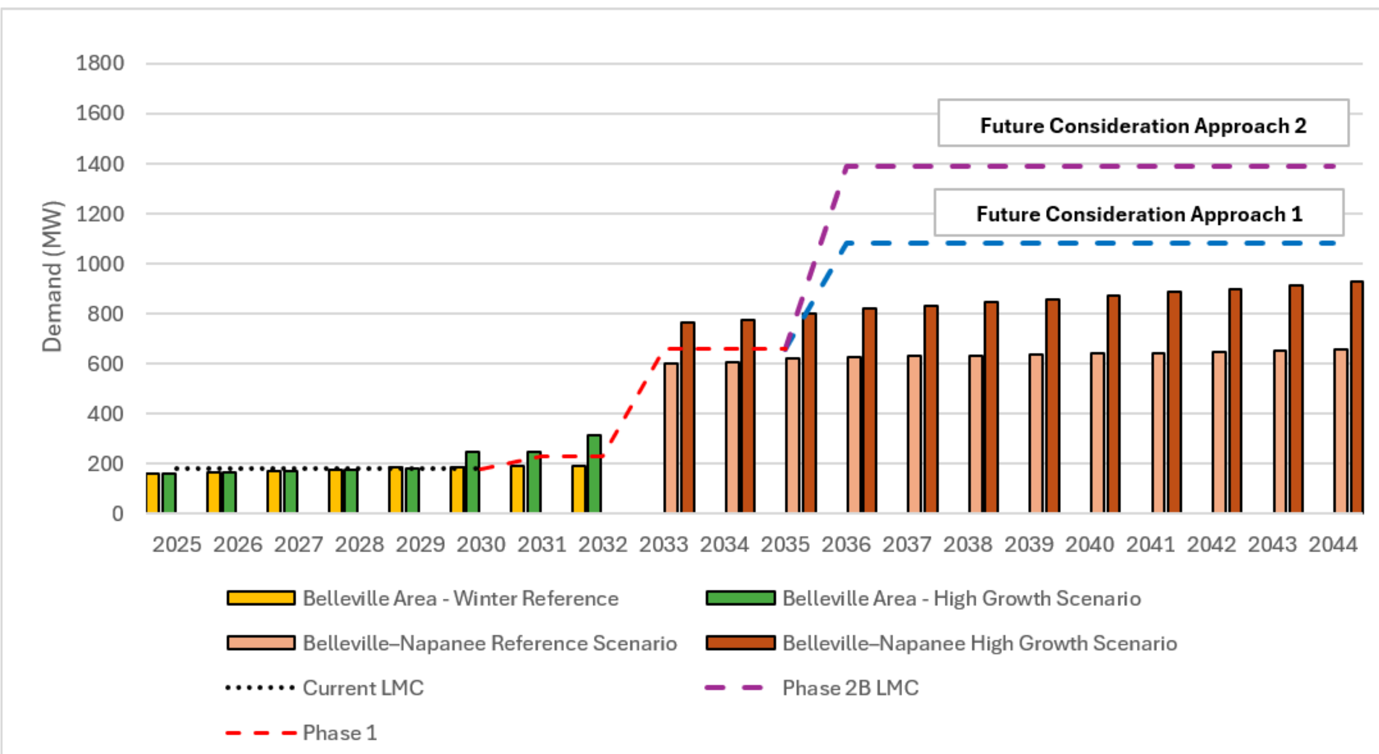


Figure 21 | Belleville Area LMC Against Summer Demand Forecast Scenarios[18]



[18] Includes load rejection as allowed by the criteria

7.3.3 Implementation and Decision Points

The implementation-ready transmission reinforcements should proceed now to achieve an in-service date of approximately 2032 and are expected to be sufficient to meet the reference demand forecast over the planning horizon. As the plan progresses, regional demand growth and procurement outcomes should be monitored to assess whether conditions diverge from the reference forecast, including increased loading at Belleville TS and the surrounding region, as well as the connection of additional transmission-connected customers. If demand growth exceeds the reference forecast or if anticipated supply resources do not materialize, the two future-consideration approaches, which can meet different levels of needs, should be considered to further support the region.

7.4 Recommended Plan – Summary of Actions

This section provides a summary of the recommended actions in this plan. **Table 13** lists the implementation-ready actions recommended in both the Ottawa and Belleville regions. **Table 14** lists the future-consideration actions.

Table 13 | Implementation-Ready Actions

Recommendation	Solution Type	Needs Addressed	Expected In-Service
St. Lawrence TS to Merivale TS	New 230 kV double-circuit line	Enables economic development, electrification goals in Greater Ottawa region and surrounding areas	2032
Hawthorne TS Autotransformer T3	Improve the long-term emergency thermal rating of T3 to at least equal to T1 and T2 and the addition of a circuit breaker between T1 and T2.	Enables economic development, electrification goals in Greater Ottawa region and surrounding areas	2032
Hawthorne TS Dynamic Reactive Power Compensation	New ±200 Mvar reactive power support	Enables economic development, electrification goals in Greater Ottawa region and surrounding areas	2032
Belleville SS	New bulk station New 100 Mvar reactive power support	Enables economic development in Belleville and provides additional reliability	2032
Napanee TS to Belleville TS Line	New 230 kV double-circuit line as an extension to existing circuits X21/X22	Enables economic development in the Belleville-Napanee region and provides additional reliability	2032

NWA - New Supply Resources	New energy and capacity resources in Belleville	Enables economic development and supply capacity in Belleville	2030
NWA -Electricity Demand-Side Management (eDSM)	eDSM of 170 MW in Ottawa and 55 MW in Belleville, Napanee and Picton.	Enables economic development and provides additional reliability, flexibility and resiliency in Greater Ottawa, Belleville and surrounding regions	On-going

Table 14 | Future-Consideration Actions

Recommendation	Solution Type	Needs Addressed	Expected In-Service
West Ottawa 500/230 kV TS	New bulk station New ±200 Mvar reactive power support Connection of existing 500 kV circuits X522A and X523A into the West Ottawa TS Connection of 230 kV St. Lawrence to Merivale TS circuits into the West Ottawa TS	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[19]	Mid- to Late-2030s
Lennox TS to New West Ottawa TS Line	New 500 kV double-circuit transmission	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s
South March SS to New West Ottawa TS Line	New 230 kV double-circuit transmission	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s

[19] This trigger is without load rejection. Load rejection, as load by the criteria, can increase this value.

Recommendation	Solution Type	Needs Addressed	Expected In-Service
NWA - New Supply Resources	New energy and capacity resources in Ottawa	Provides supply capacity to enable significant electrification growth in Greater Ottawa region. **Trigger:** Ottawa load reaches 2110 MW in summer or 2300 MW in winter[2]	Mid- to Late-2030s
Lennox TS to Napanee TS Line	Upgrade an existing section of existing 230 kV circuits X21/X22 to a higher thermal rating	Provides supply capacity to enable economic growth in the Belleville-Napanee region **Trigger:** Belleville-Napanee load reaches 550 MW in summer or 720 MW in winter[3]	Mid- to Late-2030s
Belleville 500/230 kV TS	New bulk station	Provides supply capacity to enable economic growth in the Belleville-Napanee region **Trigger:** Belleville-Napanee load reaches 550 MW in summer or 720 MW in winter[3]	Mid- to Late-2030s

These recommendations also complement significant efforts in recent years to strengthen the electricity system in eastern Ontario. This includes recommendations from the 2022 Gatineau Corridor End-of-Life Study, which recommended pursuing additional energy efficiency in Ottawa and a new transmission line from Oshawa to Peterborough, expected to be in-service by 2029. The Plan has also been developed in co-ordination with several completed and active Integrated Regional Resource Plans (IRRPs), including the Peterborough-Kingston and Ottawa regions. Upcoming planning activities in the St. Lawrence and Renfrew regions will continue to assess local electricity needs and identify regional solutions, with broader transmission needs helping to inform future bulk transmission planning as appropriate.

8. Future Enablement

This chapter describes the future resource development and export opportunities that may be supported by the recommended transmission strategy in this Bulk Plan.

8.1 Background

8.1.1 Ontario-Quebec Intertie

The Ottawa system is interconnected to Quebec through a high-voltage, direct-current (HVDC) intertie that can currently support up to 1,250 MW of power transfers in either direction. When local demand in Ottawa is high, available transfer capability is primarily used to serve the Ottawa area, which limits the capability available for transactions over the intertie. Under normal operating condition, peak demand in Ottawa is expected to exceed the system's LMC, leaving minimal capacity available for exports to Quebec via the HVDC link. Limited export opportunities may exist during off peak periods when demand is lower, while outage conditions further reduce LMC and worsen these constraints.

8.1.2 Inverter-Based Resources

IBRs, including wind, solar, and BESS, connect to the grid through power electronics rather than synchronous machines, and therefore do not inherently provide the same level of fault current, system strength, or inertia. As a result, high penetrations of IBRs can increase sensitivity to disturbances in the form of sub-synchronous control interactions, particularly in electrically weaker areas of the system. These characteristics limit the amount of IBR capacity that can be reliably integrated, with connection capacity constrained by stability considerations and often requiring detailed technical studies and mitigation measures to maintain reliable operation.

These constraints reduce the effective hosting capacity of the transmission and distribution systems. Without transmission system upgrades, further IBR integration in these areas would present increased risk to system reliability.

8.2 What the Plan Enables

The recommended transmission upgrades increase transfer capability in Eastern Ontario to reliably meet growing demand, while also creating additional optionality for future exports. While the primary function of these reinforcements is to address local supply needs, the enhancement in system capability may also provide flexibility to support both domestic needs and future export opportunities.

In addition, the plan identifies a future-consideration (Phase 2) set of transmission enhancements for Ottawa to address potential high electrification scenarios beyond the reference demand forecast. While Phase 2 is not recommended at this time, it has been developed as a forward-looking option to support longer-term system needs. This phase would further increase transfer capability, providing additional flexibility to accommodate accelerated demand growth and future resource development. It would also increase optionality for future export capability.

By reinforcing the transmission network, the plan also improves overall system strength and stability, which are key factors in the integration of IBRs. These enhancements may increase the region's hosting capacity and enable future wind, solar, and battery energy storage systems to be connected and operated reliably.

Identifying these longer-term opportunities helps preserve optionality so that future reinforcement can be advanced if system conditions, resource development, or intertie requirements evolve beyond the needs addressed by the implementation-ready plan.

9. Community and Stakeholder Engagement

The goal of the IESO's engagement activities is to help build awareness and understanding of the electricity planning process and offer opportunities for input, which is a critical part of ensuring recommended actions meet the needs of not just the provincial electricity system, but of communities across the province. Providing stakeholders and communities with opportunities for input into the planning process enables the IESO to better understand their views and perspectives, helping lay the foundation for sound decision-making and successful implementation of plan recommendations.

Meaningful engagement was integral to the development of the Eastern Ontario Bulk Plan. Through a combination of broad outreach and targeted discussions with municipalities, Indigenous communities, stakeholders, and prospective large-load developers, the IESO gathered feedback that helped validate key assumptions, refine planning options, and strengthen the final recommendations. Nearly 1,000 participants engaged throughout the process, reinforcing the plan's transparency and responsiveness to regional priorities.

The IESO uses a formalized process for bulk system planning to enhance transparency and provide opportunities for purposeful engagement and input. As part of that work, defining how communities and stakeholders can participate in the electricity planning process and be kept informed has been identified as a critical component of the process design.

This section outlines the engagement principles and the activities that were employed along the development path of the Eastern Ontario Bulk Plan.

9.1 Background

The IESO's External Relations Engagement Framework is built on a series of key principles that respond to the needs of the electricity sector, communities and the broader economy. These principles ensure that diverse and unique perspectives are valued in the IESO's processes and decision-making. The IESO is committed to engaging with purpose with external audiences to foster trust and build understanding about the critical work to ensuring Ontario's electricity system remains reliable, affordable and sustainable.

The IESO applies the following principles to every engagement, ensuring that we honour our commitment to partners:

- **Purposeful** – Initiate meaningful conversations that move the sector forward
- **Inclusive** – Invite many voices and diverse perspectives to the table
- **Timely** – Seek input and insight when it can have the most impact
- **Accessible** – Ensure we meet people where they are on their energy journey
- **Traceable** – Allow everyone to follow the path that is being taken
- **Transparent** – Show how engagement helped shape the final outcome

9.2 Engagement Approach

To build awareness and understanding with stakeholders and communities about these planning activities, the IESO implemented a broad range of tactics, including:

- a dedicated engagement webpage on the IESO's website to make information widely available related to the Eastern Ontario Bulk Plan (i.e., engagement opportunities, meeting materials, webinar recordings, feedback submissions and responses);
- quarterly public webinars with notices published in the weekly IESO Bulletin;
- targeted meetings with municipalities and Indigenous communities throughout the development of the plan to share preliminary options, answer questions, and understand local perspectives; and
- feedback opportunities were regularly made available and, where feasible, suggestions were incorporated into the plan — to help ensure transparency, the IESO provided responses to submitted feedback and posted it to the engagement webpage.

9.2.1 Major Projects Identification Committee

New businesses and industries are increasingly looking to develop major projects across Ontario. To help ensure Ontario's electricity system is ready to support new investment, the IESO launched a Major Projects Identification Committee (MPIC) process in May 2026.

This voluntary process captures early-stage project and site information, improving visibility into where new demand may emerge, informing electricity system plans and forecasts, and helping developers prepare for a formal grid connection application.

Developers, communities, and other interested groups can share project details through the MPIC process at any time to make electricity system planners aware of their project and help the IESO understand system impacts and plan for future needs. Information collected through this forum will be used to inform the IESO's planning activities, including Integrated Regional Resource Plans, the Annual Planning Outlook, and Bulk Plans.

9.3 Engagement Activities: Stakeholders, Municipalities, and Indigenous Communities

The following provides an overview of the public engagements with stakeholders, municipalities and Indigenous communities over the course of the development of the plan:

Date	Engagement
	Q3 2024
September 24, 2024	**Public Engagement Webinar #1** — to introduce the bulk plan and provide a general overview of the scope, focus areas, and timelines. A targeted meeting was held with the City of Ottawa in November to discuss the Integrated Regional Resource Plan and the bulk plan.

Date	Engagement
	Q2 2025
May 29, 2025	**Public Engagement Webinar #2**— to provide progress updates on the planning activities for both Ottawa and Belleville supply and next steps. A targeted meeting was held with the City of Ottawa to discuss the Integrated Regional Resource Plan and the bulk plan (Ottawa focus area).
	Q3 2025
September 30, 2025	**Public Engagement Webinar #3** — to provide information about demand forecast for the supply to Belleville and supply to Ottawa studies as well as needs summaries and option development (wires and NWA); flow to Ottawa interface transfer capabilities. Targeted meetings we held throughout October with communities that would be influenced by option development.
	Q4 2025
October 8, 2025	**Indigenous Community Webinar** — to provide information about demand forecast for the supply to Belleville and supply to Ottawa studies as well as needs summaries and option development (wires and non-wires alternatives); flow to Ottawa interface transfer capabilities.
December 12, 2025	**Public Engagement #4** — to provide a status update, recapping objectives, needs summary for supply to both Ottawa and Belleville and options development. Targeted meetings were held in November with municipalities to share the refined portfolios and early actions, and to gather feedback for consideration.
	Q2 2026
April 30, 2026	**Public Engagement Webinar #5** — to share the draft recommendations and opportunity for feedback before issuing the Final Report.

The IESO's engagement efforts received strong participation from stakeholders, municipalities, and Indigenous communities, with close to 1,000 attendees participating in one or more engagement activities across the development of the plan. As an essential part of engagement efforts, the feedback the IESO received along the plan's development provided a range of views, helping to shape the plan's recommendations.

Themes that emerged from this feedback included:

- electricity demand forecasts and planning uncertainty;
- timing and need for transmission reinforcements;
- evaluation of alternatives and system flexibility;
- integration of generation and export considerations;
- environmental and climate-related considerations; and
- transparency, engagement, and ongoing refinement.

Throughout these engagement activities, stakeholders and communities were able to deepen their understanding of the process, including policy direction, constraints, considerations, and options.

All background information, including engagement meeting presentations, recorded webinars, detailed feedback submissions, and responses to comments are available on the IESO's Eastern Ontario Bulk Planning engagement webpage.

9.4 Engaging With Indigenous Communities

The IESO remains committed to ongoing, effective dialogue with Indigenous communities to help shape long-term planning across Ontario. To raise awareness about the development of this Eastern Ontario Bulk Plan and provide opportunities for input, engagement efforts included targeted meeting discussions (virtual or in-person) and webinars that were held on: September 24, 2024, May 29, 2025, September 30, 2025, October 8, 2025 (Indigenous-Focused), December 12, 2025, and May 27, 2026.

To share information about the bulk planning activities and invite participation in the engagement process, outreach was made to the following Indigenous communities:

- Algonquins of Ontario
- Alderville First Nation
- Algonquins of Pikwakanagan First Nation
- Curve Lake First Nation
- Hiawatha First Nation
- Kawartha Nishnawbe First Nation
- Mississaugas of Scugog Island First Nation
- Mohawk Council of Akwesasne
- Mohawks of the Bay of Quinte First Nation

The Métis communities invited to participate in engagement activities are:

- Métis Nation of Ontario

9.5 Indigenous Engagement Feedback

Detailed feedback submitted to the IESO and the IESO's responses can be viewed on the Eastern Ontario Bulk Planning engagement web page. At a high level, feedback received from Indigenous communities touched on the following themes:

- **Environmental Impacts of New-Build Transmission:** Indigenous feedback noted that new transmission, including underwater transmission, can disturb sensitive ecosystems, archaeological resources, and traditional harvesting areas, and that these impacts may trigger the Crown's Duty to Consult.
- **Indigenous Equity Participation:** Indigenous communities communicated support for Hydro One's First Nation 50-50 Equity Partnership Model and recommended its adoption for any new transmission, transmission refurbishments, intertie reinforcements, new transmission stations or transmission sub-stations in Eastern Ontario.
- **Government Funding**: Feedback touched on the importance of leveraging government funding programs to enhance ratepayer benefits.
- **Cumulative Effects and System-Level Impacts:** Feedback requested the inclusion of cumulative effects screening at the bulk planning level for early identification of system-level risks, including a map of overlapping bulk, regional, and generation-enabled impacts.

9.5.1 Indigenous Participation in Transmission Development

Indigenous engagement during bulk planning assists the IESO in its assessment of various options to address future electricity system needs. By conducting bulk planning, the IESO determines the most reliable and cost-effective option after it has engaged with stakeholders and Indigenous communities and publishes those recommendations in the applicable bulk planning report.

If a recommendation is made in a bulk planning report for a transmission solution, and a decision is made to implement the recommendation, the transmission project proponent, once selected, will be responsible for obtaining applicable regulatory approvals from the provincial and federal governments, including an Environmental Assessment (EA). Where an EA is required, Indigenous consultation will be undertaken as part of the EA process. Other regulatory processes may also trigger the Duty to Consult. The relevant Crown entity with responsibility for the applicable regulatory process is accountable for consultation but may delegate certain aspects of consultation to the proponent to carry out. In addition to fulfilling these delegated consultation obligations, project proponents are encouraged to engage early with Indigenous communities on ways to enable participation in particular projects.

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