

Ottawa

2019 Integrated Regional Resource
Plan (IRRP)
Engagement Webinar #1

May 29, 2019

Objectives of Today's Engagement Webinar

- To provide an overview of the regional planning activities in the Ottawa area, including the electricity demand forecast and needs and potential options
- To seek feedback on the information used to identify local needs and engagement plan for the development of an Integrated Regional Resource Plan (IRRP)
- To outline next steps

Agenda

- A. Overview of Regional Planning Activities
- B. Community Engagement
- C. Integrated Regional Resource Plan for Ottawa Area
- D. Next Steps

Seeking Input

- As information is presented during the webinar, feedback is welcome from participants on:
 - Information used to determine local needs
 - Potential options to address local needs that are being examined

We Want to Hear From You...

Are there any additional factors that should be considered in the following processes:

- Determining the forecast
- Identifying needs
- Examining potential options
- Engaging with communities and interested parties

*Please submit your written comments by email to engagement@ieso.ca by **June 12***

A. OVERVIEW OF REGIONAL PLANNING ACTIVITIES

Meet the Team

Technical Working Group



Team Lead
System Operator and Planner

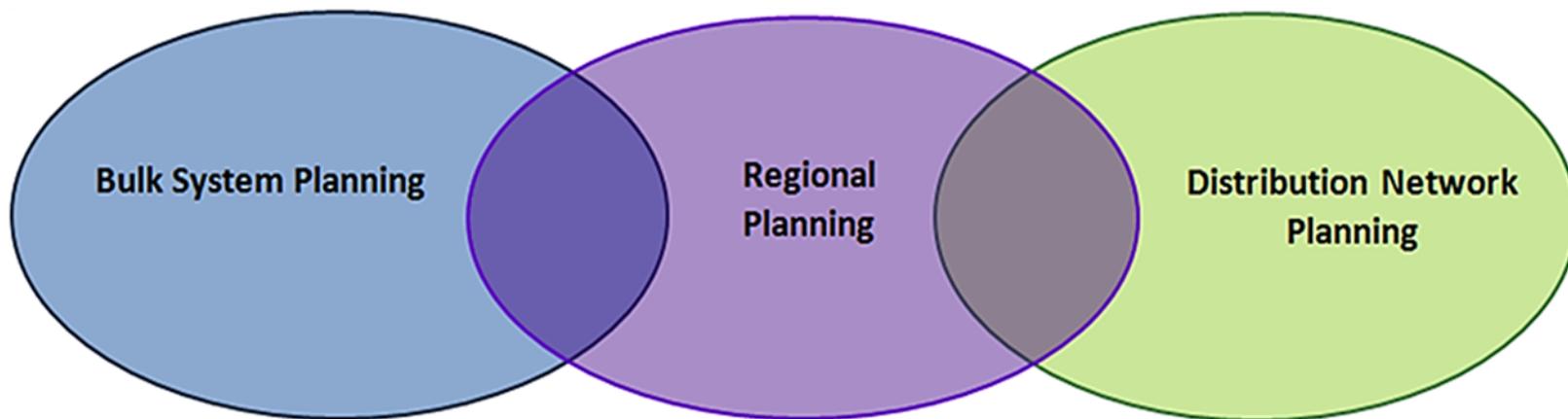


Local Distribution Company



Transmitter and Local Distribution
Company

Planning Processes

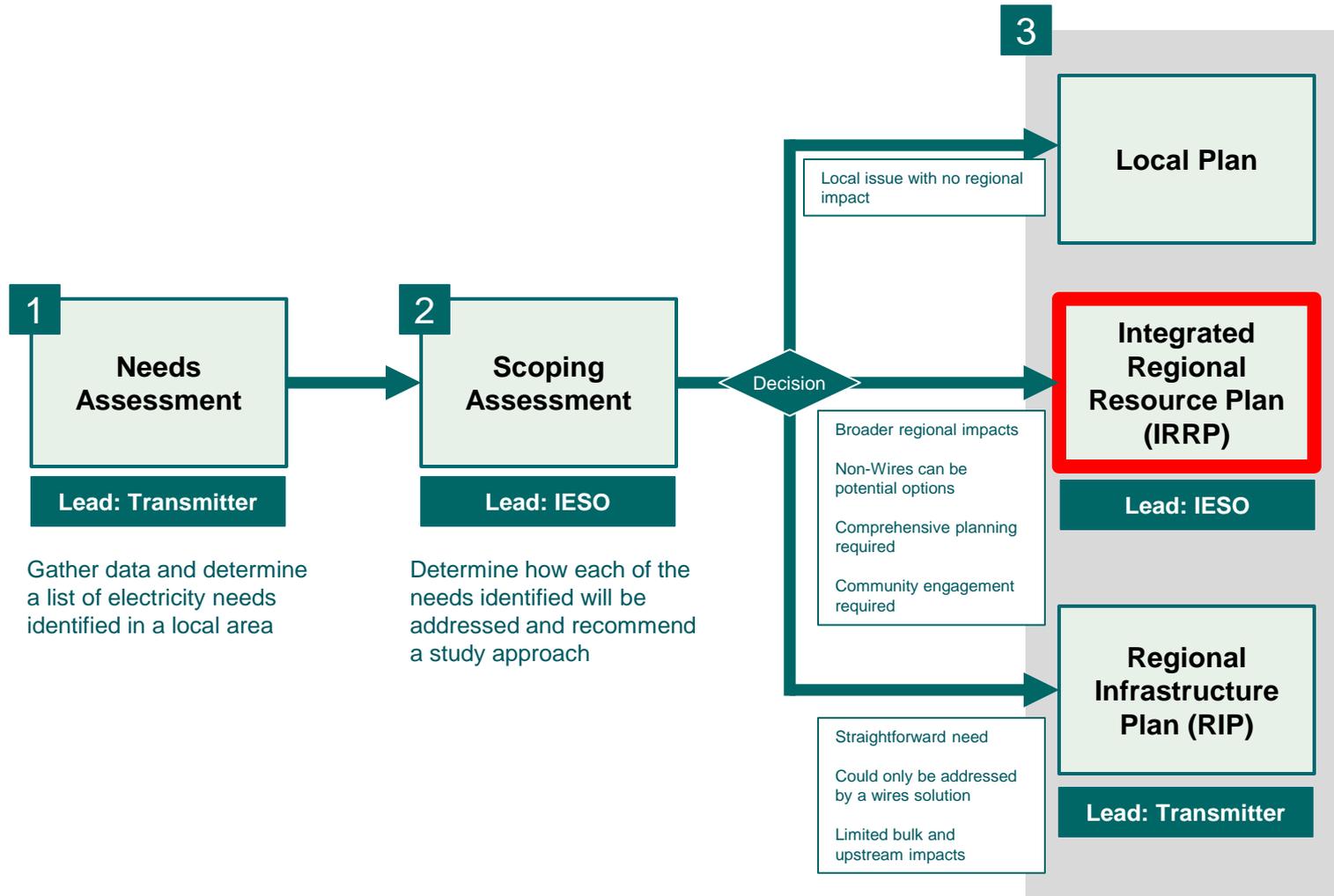


Addresses provincial electricity system needs and policy directions

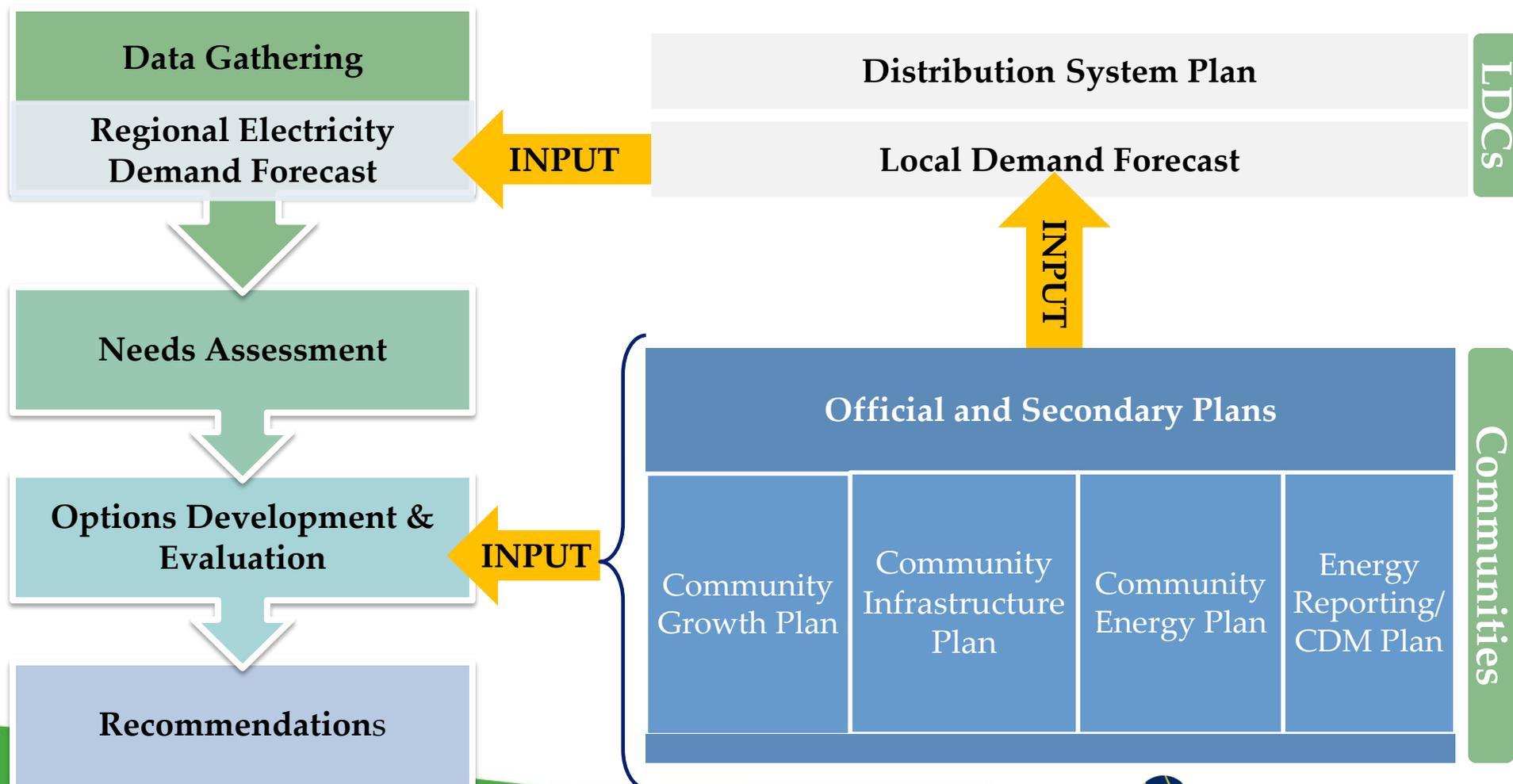
Integrates local electricity priorities with provincial policy directions & system needs

Examines local electricity system needs and priorities at community level

Regional Planning Process Steps



Coordinating Local Planning Activities



Current Status

- IRRP study work, began in Q3 2018, is on track for completion at the end of Q3 2019
 - Currently in the needs definition and identification of solutions stage
 - Final recommendations, and implementation will be assessed in further detail in the next few months

Study Timeline

Q2 2018	Q3 2018	Q4 2018	Q1 2019	Q2 2019	Q3 2019
Needs Assessment	Scoping Assessment	IRRP Study and Engagement			IRRP Published

B. COMMUNITY ENGAGEMENT

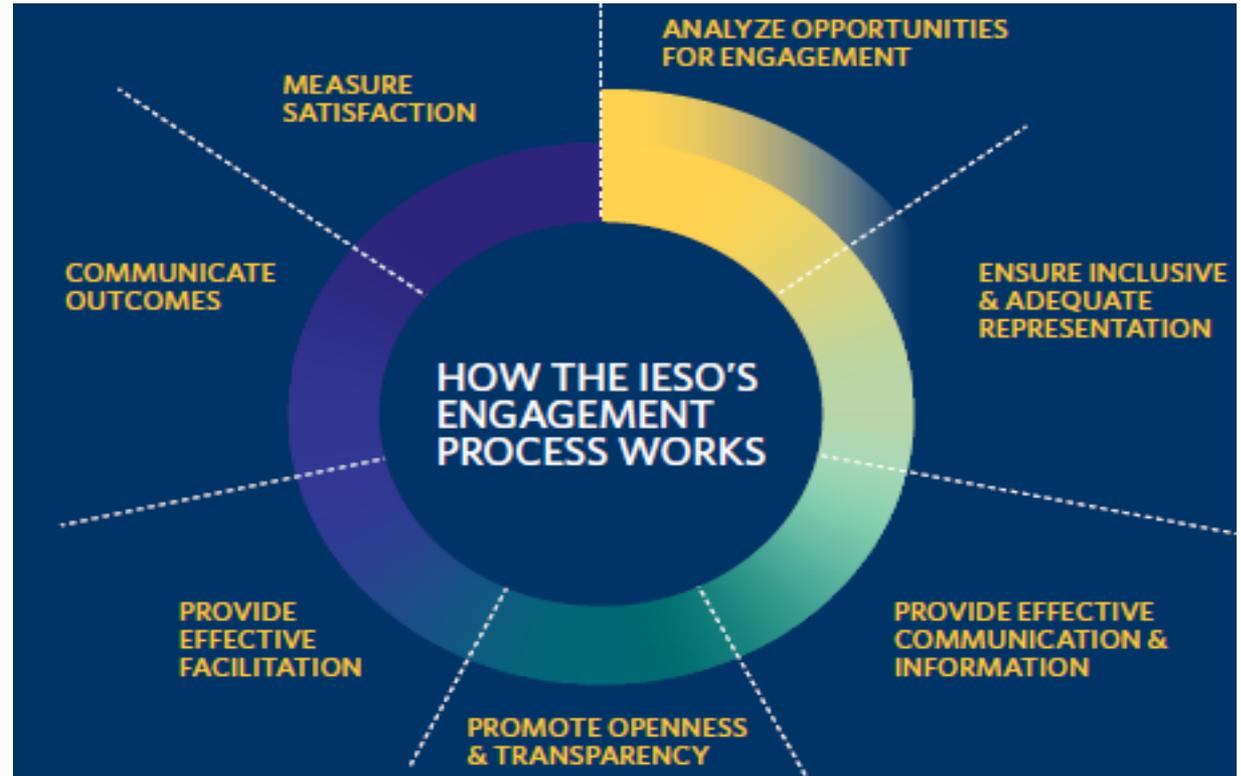
Shaping Our Electricity Future Through Community Engagement



https://youtu.be/Nt8q8cBG_BI

Regional & Community Engagement

- Broaden community engagement efforts
- Increase communication channels
- Enhance engagement process for regional planning



Key Elements of the Engagement Plan

Engagement Initiative

- Draft Engagement Plan posted for public comment May 9
- To inform and seek input from the broader public at various junctures during IRRP development
- Includes webinars and targeted municipal outreach

Technical Working Group

- Comprises of IESO, LDC(s), and transmitter(s) in the region
- Members conduct the regional planning process to identify local electricity needs and options

Objectives for Community Engagement

Goal: To provide information to communities and interested parties on regional planning activities underway in the Ottawa area. Gather feedback on the information used to determine regional needs and options for the development of the Integrated Regional Resource Plan to be complete in Q3 2019.

Outcomes

Awareness and understanding of communities and interested parties of regional planning activities and regional needs
Effective dialogue on information used to determine needs and options

Outputs

Engagement Plan
Feedback on information used to determine regional need and options
Integrated Regional Resource Plan

Who Should Participate?

- Municipalities
- Chambers of Commerce/Boards of Trade
- Large energy users
- Community groups and associations (e.g. community/resident associations, Business Improvement Areas, home builders associations, etc.)
- Academia and research organizations
- Energy service providers

Engagement Plan – Scope

- Gather feedback on the information used to determine regional needs and options, including:
 - Population and growth rate forecasting
 - Local economic development
 - Projected growth and future plans (i.e. 10-year outlook)
 - Future options for addressing local needs in the medium to long-term (10-20 years)
 - Data from municipal plans and community energy plans
- Feedback will be collected throughout the engagement for consideration in IRRP development, and posted with IESO responses

City of Ottawa Engagement

- November 14, 2018: meeting to review the regional planning process, recap on the recommendations of the previous cycle, and provide an update on the current cycle
- April 3, 2019: meeting to discuss the load forecast, needs/issues identified, municipal plans, engagement and timelines

Engagement Plan – Timeline

Date	Major Milestones
September 2018	Final Scoping Assessment Outcome Report posted following two-week public comment period
May 9, 2019	Launch engagement initiative and post draft engagement plan for public comment
May 29, 2019 	Engagement webinar #1
June 12, 2019	Deadline to submit feedback on draft engagement plan and materials reviewed during engagement webinar #1
June 21, 2019	IESO response to feedback received, and posting of final engagement plan
Late June/early July 2019	Further community outreach and engagement as determined
Late July 2019	Engagement webinar #2
Early August 2019	Deadline to submit feedback on materials reviewed during engagement webinar #2
Fall 2019	Final IRRP posted with IESO response to feedback received

INPUT ←

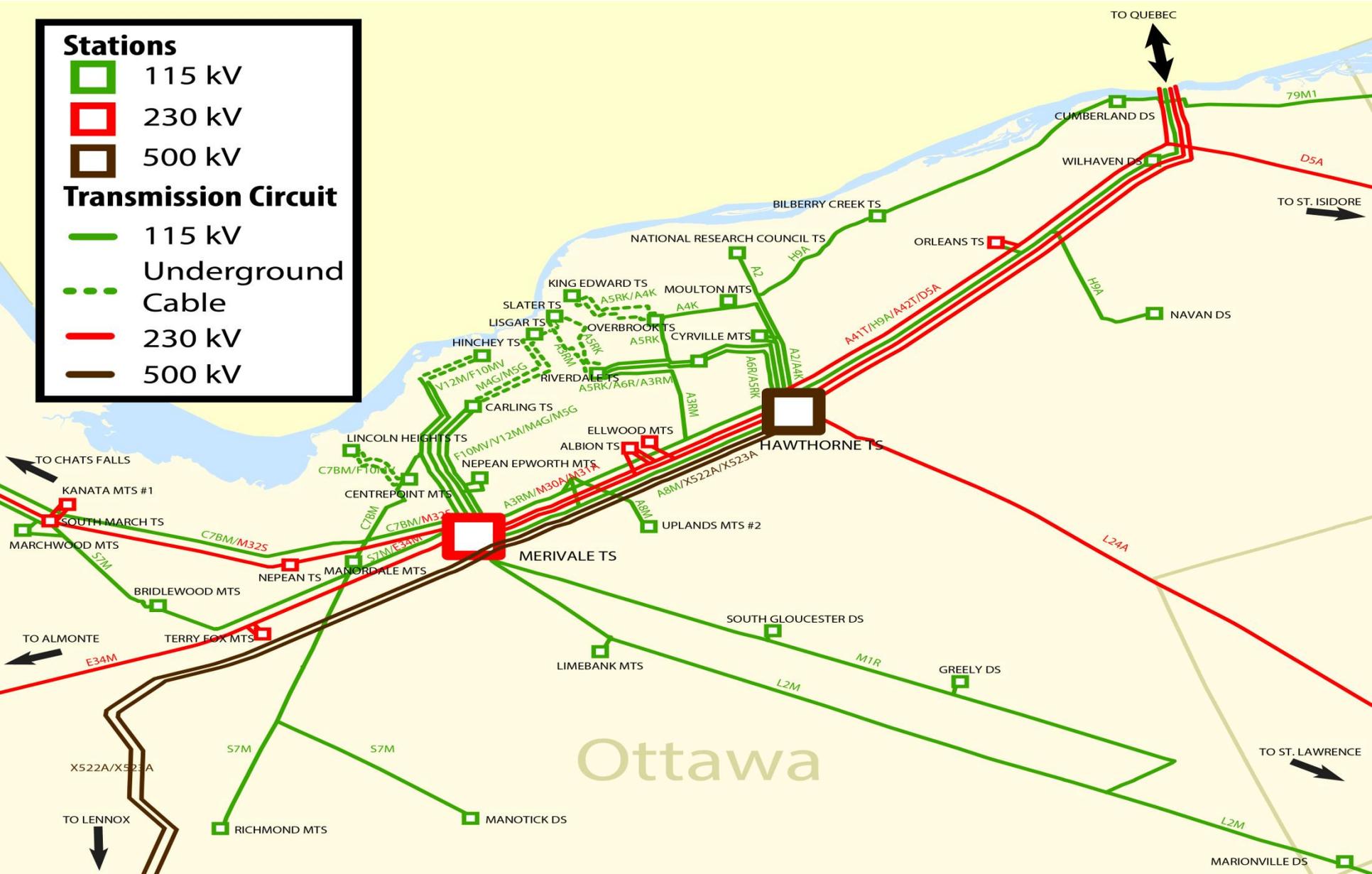
INPUT ←

C. INTEGRATED REGIONAL RESOURCE PLAN FOR OTTAWA AREA

Greater Ottawa Region



Ottawa Area Sub-region

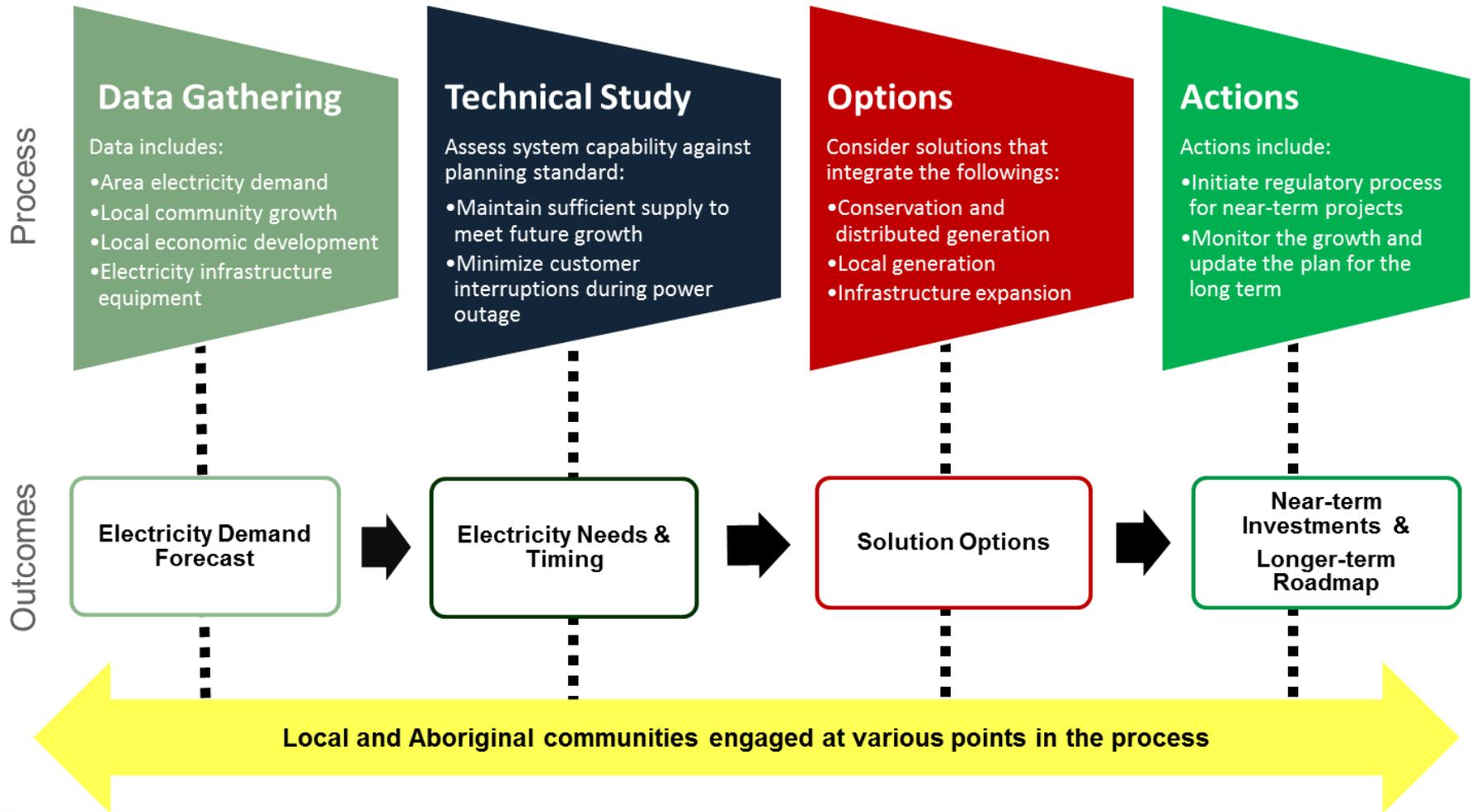


Previous Ottawa Area IRRP

The previous Ottawa Area IRRP completed in 2015 identified a number of recommendations focused on key areas that include:

- New station to accommodate load growth in South Nepean/Barrhaven
- Upgrading existing transformers at a number of stations throughout downtown Ottawa
- Upgrading existing transformers at Hawthorne TS to increase regional supply capacity serving east Ottawa

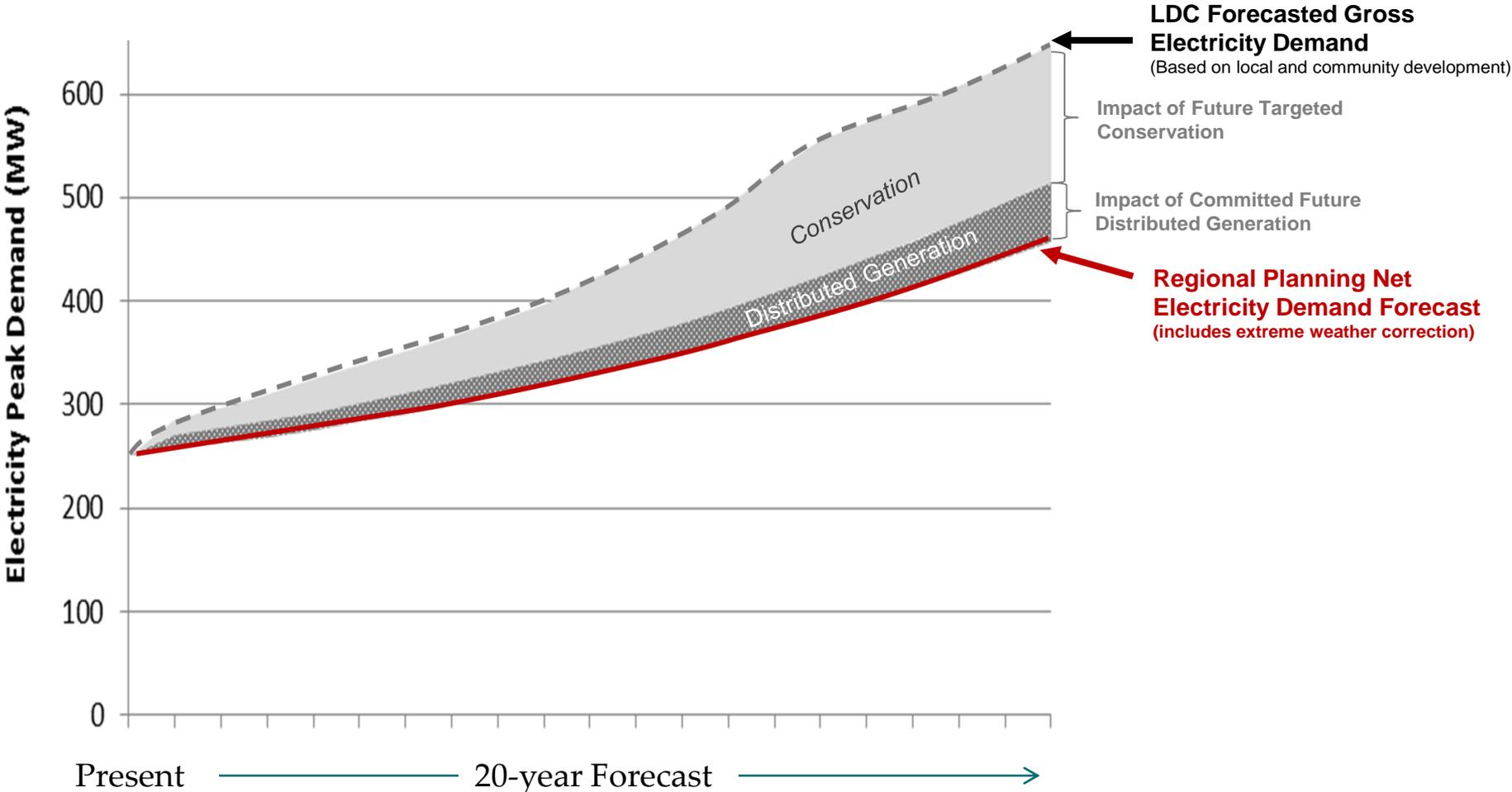
Regional Planning Process Overview



Data Gathering – Demand Forecast

- The IRRP assesses the electricity needs based on a 20-year forecast of peak electricity demand
- A peak demand forecast for the region is created by
 - Collecting electricity demand forecast information from each LDC in the region
 - Since electricity demand is weather sensitive, demand forecast information from LDCs are created assuming median weather conditions
 - Estimated impact of province-wide Conservation and Demand Management (“CDM”) targets on the region’s peak demand
 - Calculating the forecast peak demand contribution of contracted distributed generation (“DG”)
 - Adjusting the forecast to account for the impact of extreme weather conditions

Development of Demand Forecasts



Technical Study - Needs Identification

- Once the electricity demand forecast has been created, the IESO conducts an assessment of the system's capability to supply load
- Three types of needs can generally be identified based on the assessment of the system's capability:
 - Transformer station capacity needs
 - How much load can be supplied from the transformer station itself? This is typically determined by the size of the smallest transformer.
 - Supply capacity needs
 - How much electricity can the system continuously supply to a local area? The load meeting capability ("LMC") is assessed based on established planning criteria and is typically limited by voltage issues or thermal issues related to equipment ratings.
 - Load restoration or security needs
 - Are the impacts of transmission outages to connected customers sufficiently mitigated? Assessments are performed to determine how much load is lost for defined outage scenarios and to confirm that load can be restored within required timeframes.
- Technical Working Group members also identify non-capacity related needs, such as facilities requiring replacement at end-of-life

Options Identification

- Once the needs have been identified, the IESO will lead the development of options
 - Technical Working Group can identify and provide input on scope of wires options to be evaluated
 - Where applicable, LDCs may also provide information to help inform the development of non-wires alternatives
- Potential options:
 - Wires
 - Examples: switching station, transformer station, transmission line
 - Non-Wires/Demand-side Alternatives
 - Examples: distributed energy resources, energy efficiency measures, demand response
 - Generation
 - Examples: gas-fired peaking plant, utility scale storage

Key Areas of Needs

The data gathered and technical studies identified four distinct areas of need in the Ottawa area:

1. Regional Supply to west Ottawa
2. Kanata Area
3. South East Ottawa Area
4. Bilberry Creek/Orleans Area



1. WEST OTTAWA REGIONAL SUPPLY

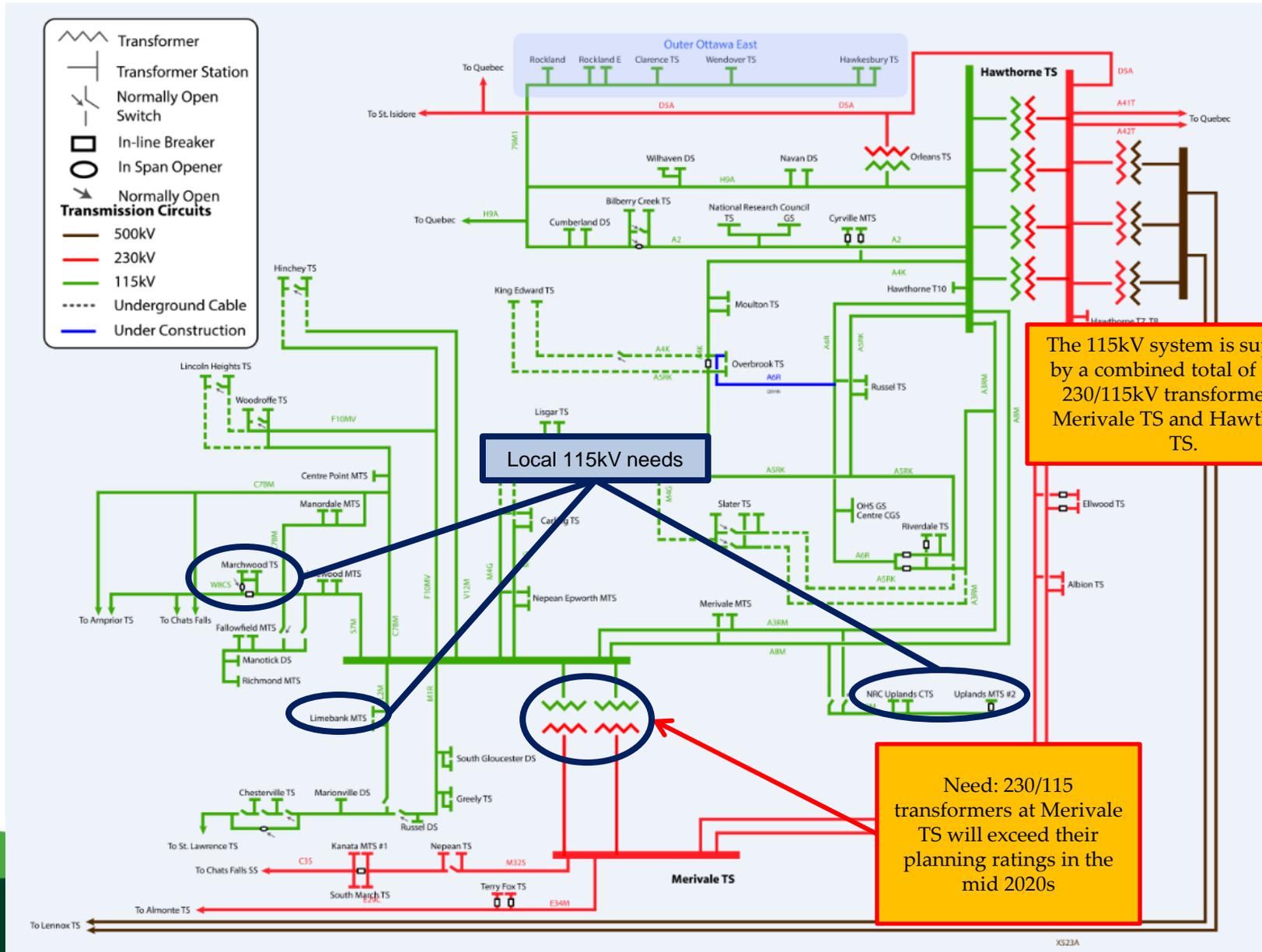
West Ottawa Regional Supply



Ottawa loads are primarily supplied via a network of 230 and 115 transmission lines emanating from Hawthorne TS and Merivale TS

Merivale TS auto transformers are operating near its capacity rating

Regional Supply – 115 kV System

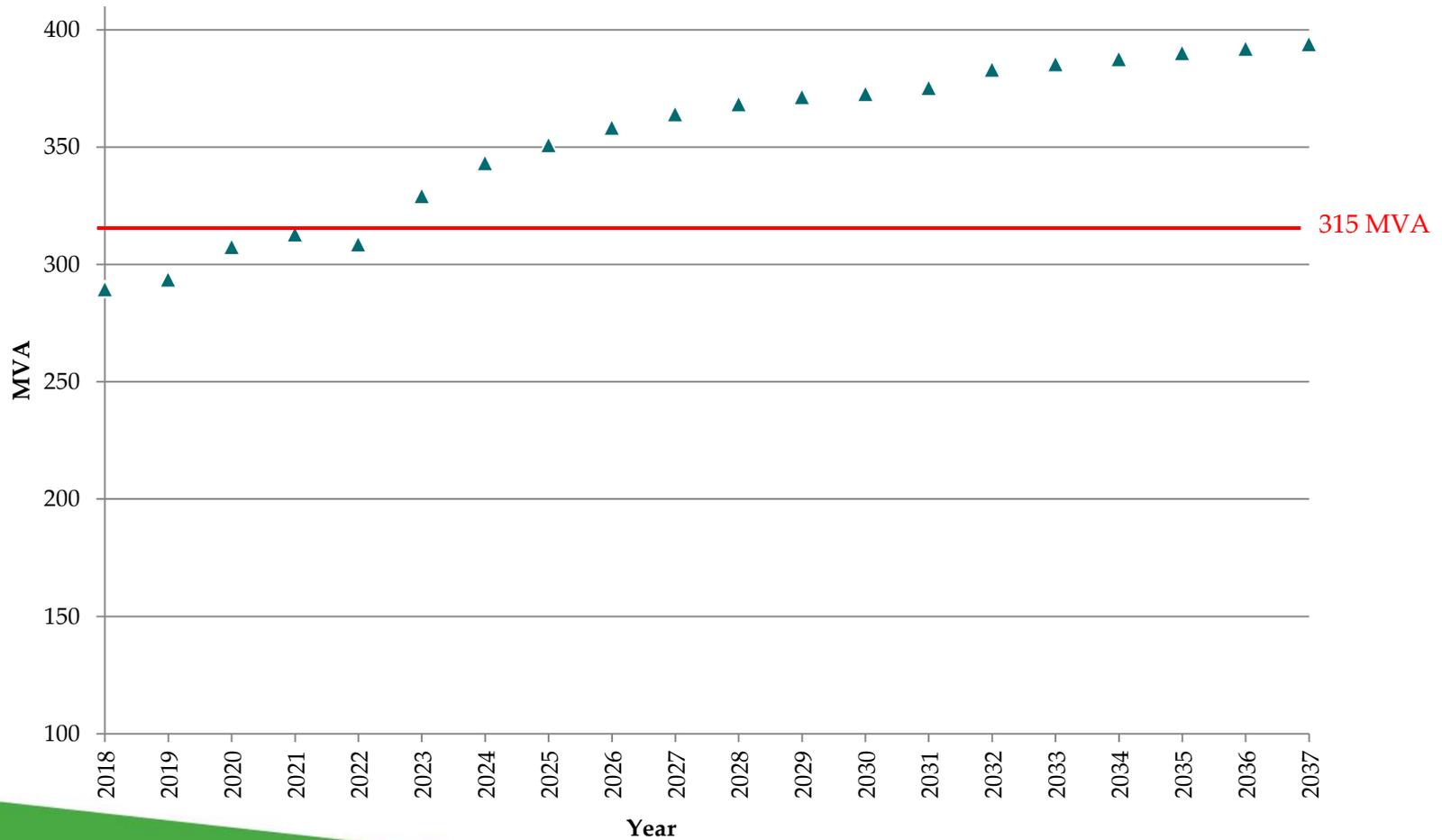


The 115kV system is supplied by a combined total of six (6) 230/115kV transformers at Merivale TS and Hawthorne TS.

Need: 230/115 transformers at Merivale TS will exceed their planning ratings in the mid 2020s

Merivale Transformer Needs

T22 Flows - Post T21 Contingency



Potential Options

- To defer or mitigate need for additional transformer(s) at Merivale TS:
 - Non wires options (CDM, DG, and/or DR)
 - Moving load to the 230 kV system
- Upgrade existing transformers at Merivale TS
- Install additional transformer(s) at Merivale TS

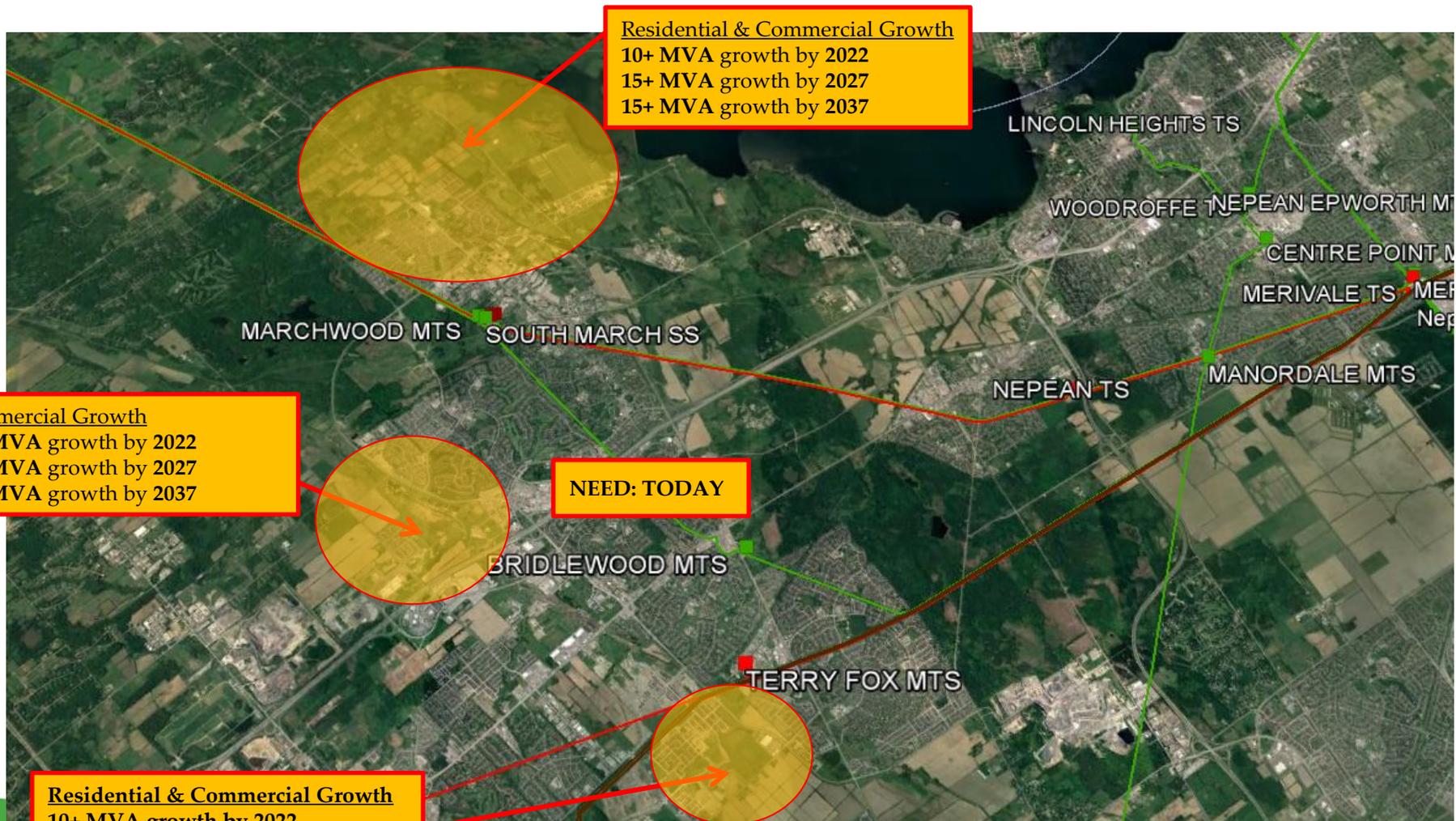
2. KANATA AREA

Kanata Area Overview

- West Ottawa is primarily supplied by 230 kV and 115 kV transmission lines emanating from Merivale TS
- Several stations in the area are operating at or near capacity



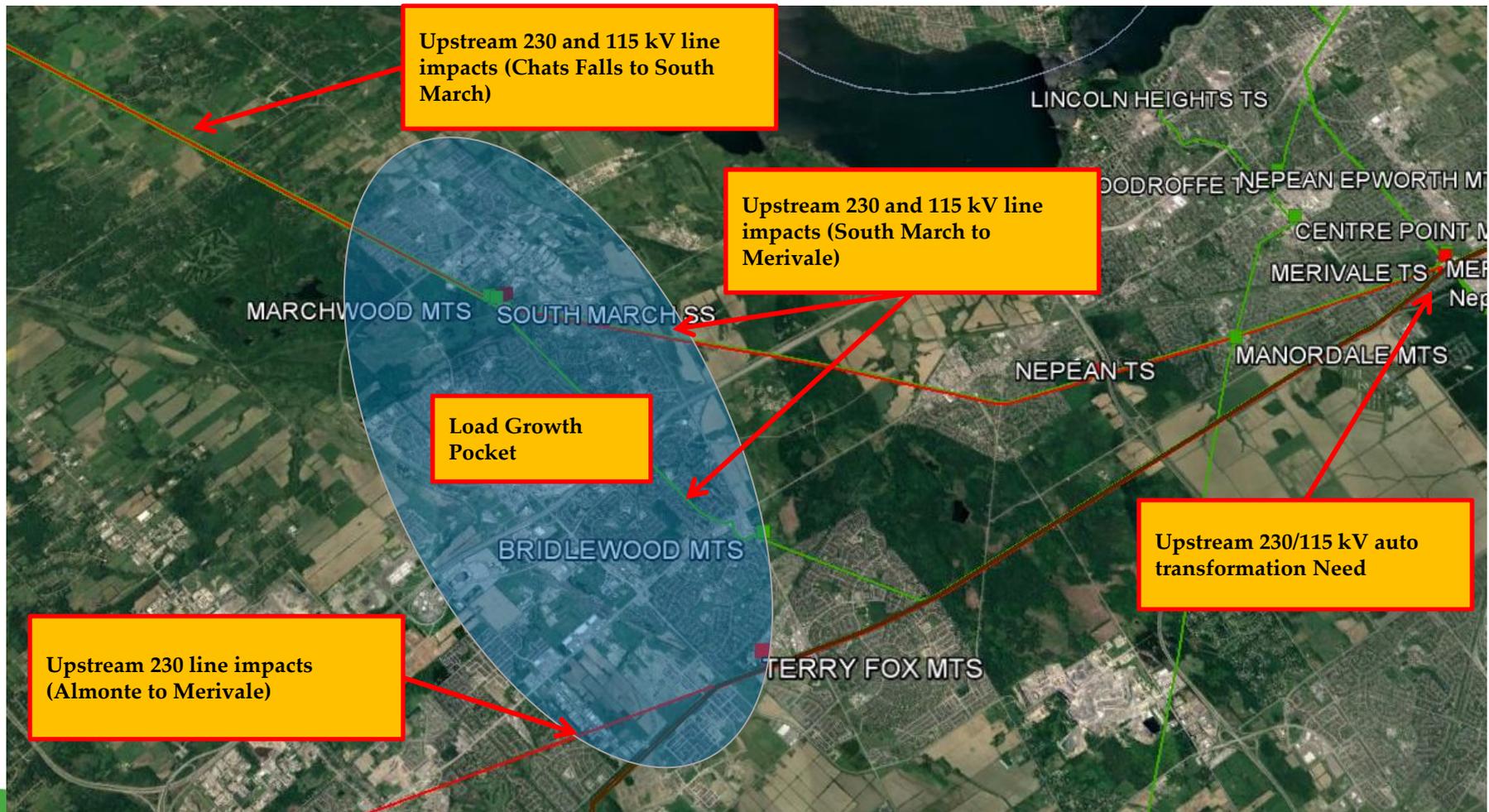
Kanata Area Load Growth



Kanata Area Needs

- Substantial amount of load growth is forecasted in West Ottawa
- Load growth is comprised of predominantly residential and mixed load
- Existing infrastructure does not provide sufficient capacity to accommodate the forecasted demand

Kanata Area Load Growth



Potential Options

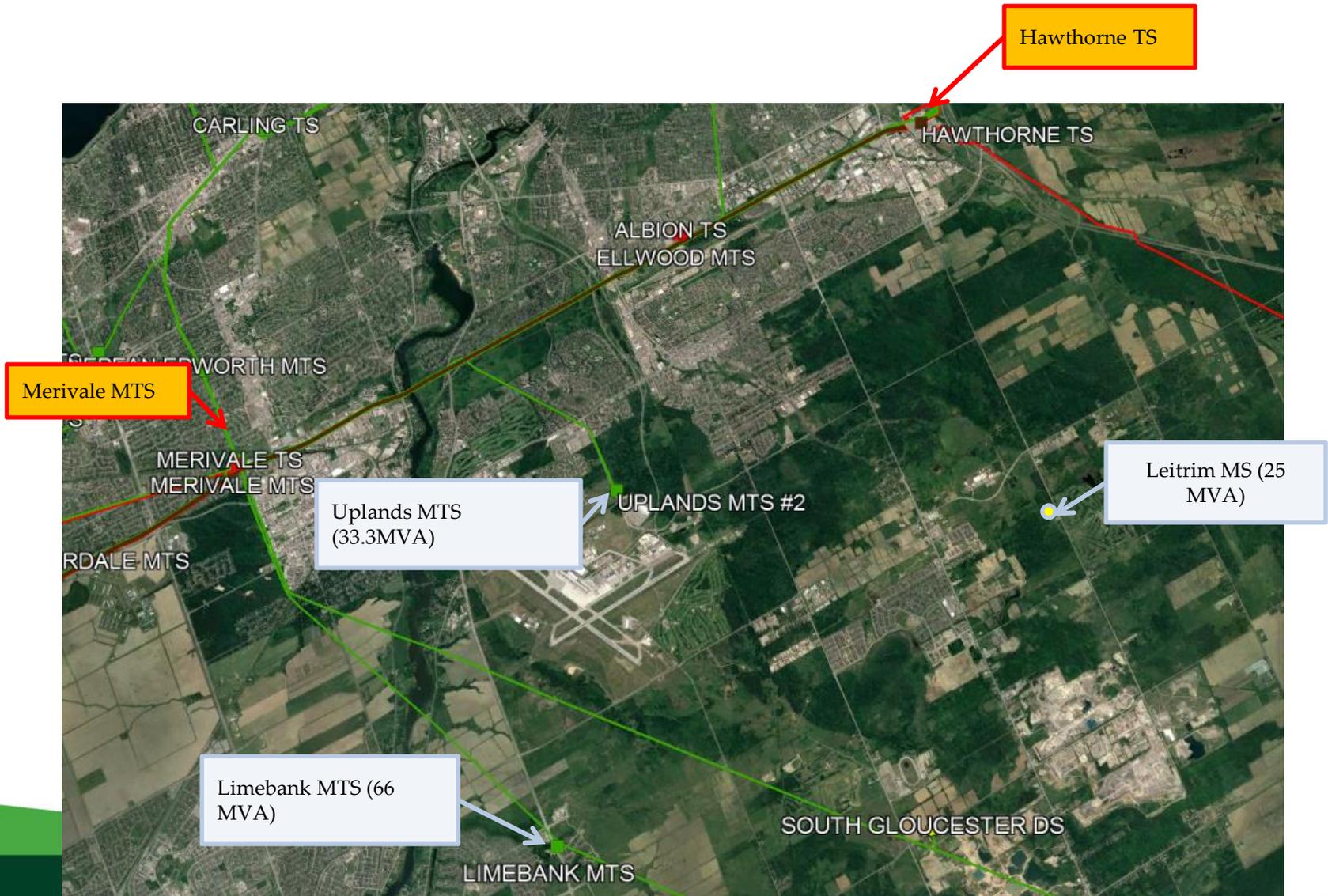
- New transmission station in West Ottawa
- New transmission line into West Ottawa from Merivale TS following existing transmission corridors
- Non-wire solutions are being evaluated alongside transmission infrastructure:
 - Conservation Demand and Management (CDM) to defer needs
 - Selected non wire solutions could be undertaken directly or through partnerships. This may be an opportunity for the City of Ottawa.
- Coordination with related planning studies in the area

3. SOUTH EAST OTTAWA AREA

South East Ottawa Area Overview

- South East Ottawa is primarily supplied by 115 kV transmission lines emanating from Merivale TS and Hawthorne TS
- Several stations in the area are operating at or near capacity

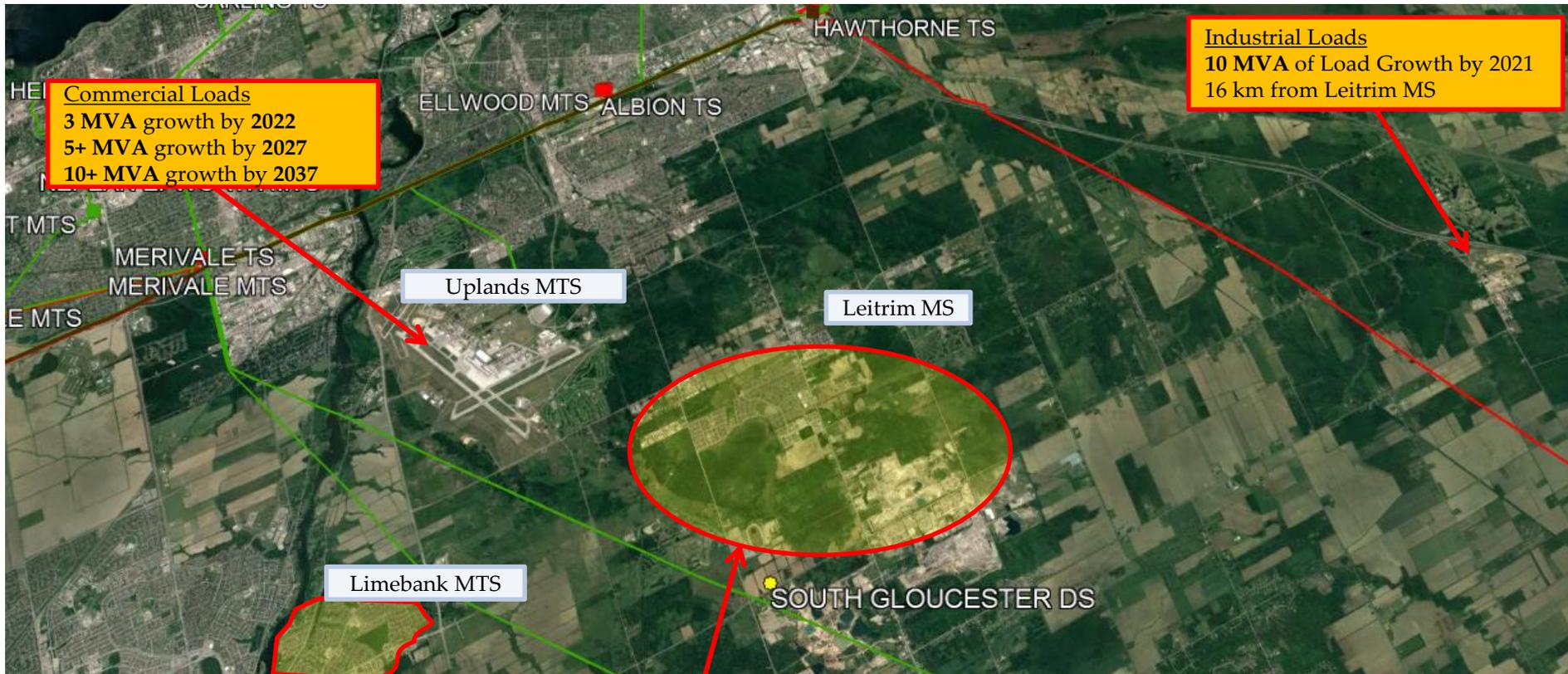
South East Ottawa Area Overview



South East Ottawa Area Needs

- Substantial amount of load growth is forecasted in South East Ottawa Area (approximately 75 MW)
- Load growth comprises of residential, mixed, and industrial loads
- Existing infrastructure does not provide sufficient capacity to accommodate the forecasted demand

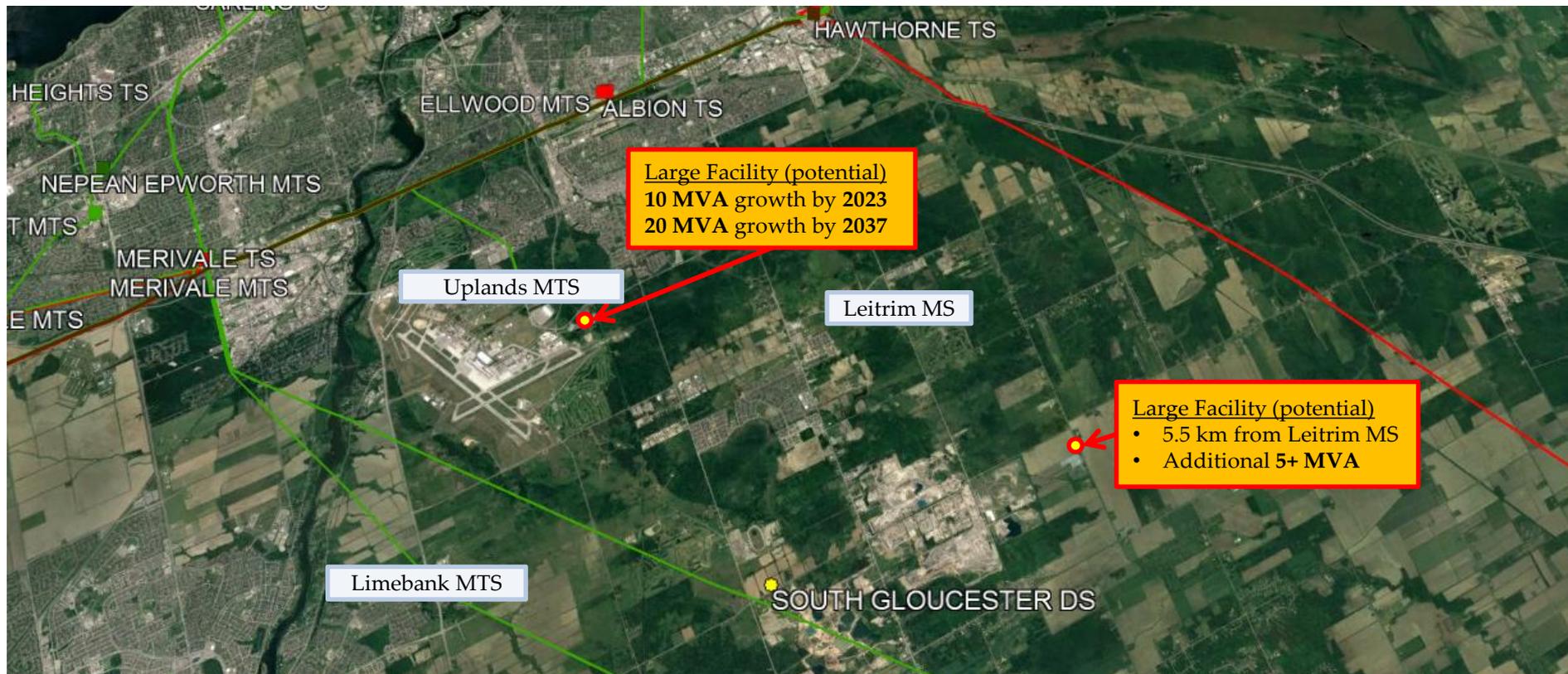
South East Ottawa Area Load Growth



Residential Loads
5+ MVA growth by 2022
10+ MVA growth by 2027
20+ MVA growth by 2037

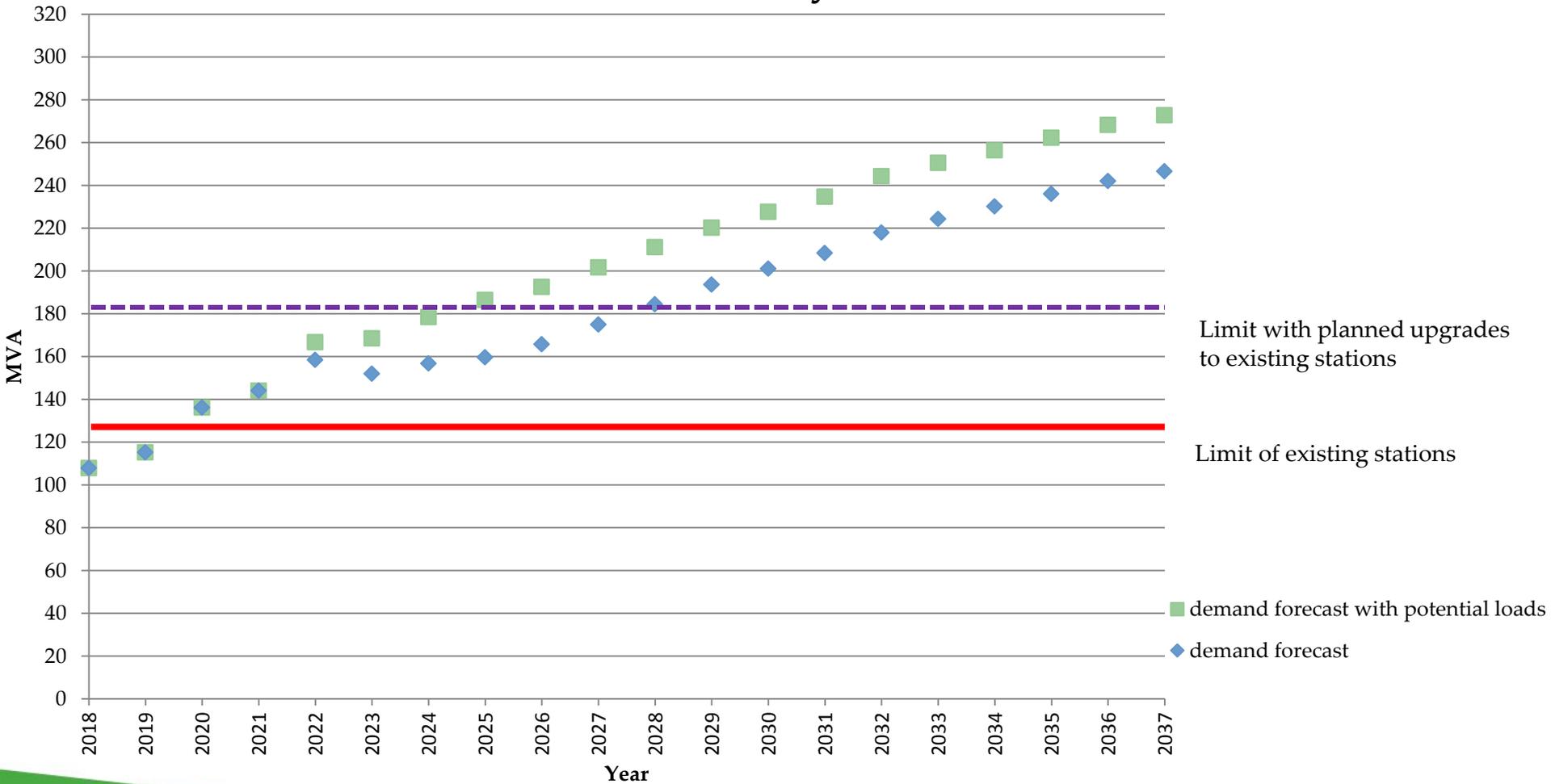
Industrial Residential Loads
4 MVA growth by 2022
5+ MVA growth by 2027
10+ MVA growth by 2037

Additional Potential Developments



Capacity Need

27.6 kV System



Potential Options

- Upgrading existing transmission station and transmission line upgrades
- New transmission station in East Ottawa
- Non-wire solutions are being evaluated alongside transmission infrastructure:
 - Conservation Demand and Management (CDM) to defer needs
 - DR at industrial facilities
 - Selected non wire solution could be undertaken directly or through partnerships. This may be an opportunity for the City.

Planned Upgrades to Existing Stations (early 2020s)



Potential Options – New Station (mid to late 2020s)



4. BILBERRY CREEK/ORLÉANS AREA

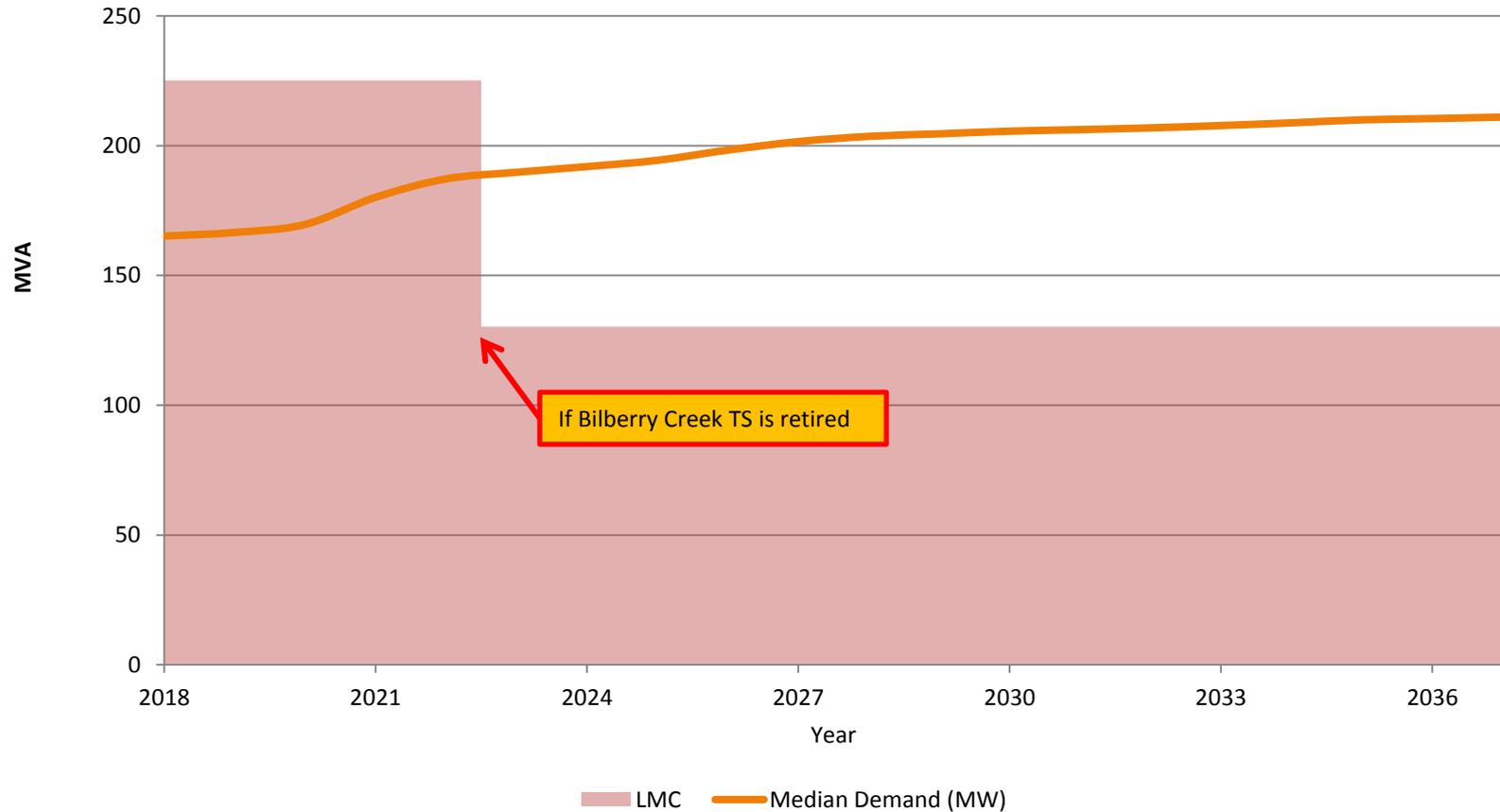
Bilberry/Orleans Area Overview

- Bilberry Creek/Orleans is primarily supplied by 230 kV and 115 kV transmission lines emanating from Hawthorne TS
- Orleans TS is operating near its capacity rating
- Bilberry Creek TS is nearing end of life



Bilberry/Orleans Area Overview

LMC (Load Meeting Capability) of Bilberry Creek TS and Orleans TS



Potential Options

- Refurbish Bilberry Creek TS
 - Additional work required to manage capacity needs at Orleans TS in the medium to long term
- Retire Bilberry Creek TS
 - Transfer Bilberry Creek TS loads to Orleans TS
 - Provide dual 230 kV supply to Orleans TS
 - Additional work required to manage capacity needs at Orleans TS in the medium to long term
- Considerations
 - Both options require additional solutions to completely meet the capacity need (non-wires, additional infrastructure such as station expansion)
 - Non wires options (CDM, DG, and/or DR) to defer needs
 - Performance and reliability of broader system

D. NEXT STEPS

We Want to Hear From You...

Are there any additional factors that should be considered in the following processes:

- Determining the forecast
- Identifying needs
- Examining potential options
- Engaging with communities and interested parties

*Please submit your written comments by email to engagement@ieso.ca by **June 12***

Questions?

Do you have any questions for clarification on the material presented today?

Submit questions via the web portal on the webinar window, or by email to engagement@ieso.ca

Next Steps

- Feedback due to engagement@ieso.ca June 12
- IESO to post and respond to feedback – June 21
- IESO to post final engagement plan – June 21
- Subsequent Webinar #2 – Late July 2019

How you can stay involved:

- Subscribe to receive updates on the Greater Ottawa regional initiatives on the IESO website <http://www.ieso.ca/subscribe>
- Follow the IRRP Ottawa Sub-region engagement initiative online <http://www.ieso.ca/Sector-Participants/Engagement-Initiatives/Engagements/Integrated-Regional-Resource-Plan-Ottawa-Area-Sub-Region>
- Comments and questions on the draft engagement plan, regional forecast, needs and potential solutions can be submitted to engagement@ieso.ca by **June 12, 2019**