AUGUST 16, 2023

Central-West Bulk Study Engagement Session

Independent Electricity System Operator

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Objectives of Today's Webinar

- To provide an overview of the bulk planning process and progress to date in Southwest Ontario
- To discuss the Central-West Bulk Study scope and feedback being requested
- Share a timeline and next steps

Feedback Requested

Questions to consider when reviewing the Central-West Bulk Study scope:

- What feedback do you have regarding the scope of work proposed?
- Is there other potential growth that should be considered the needs are quantified in the Central-West area?
- What additional information should be taken into account as options are developed?
- Please submit written comments by email to engagement@ieso.ca by **August 29, 2023**

Overview of the Electricity Planning Process

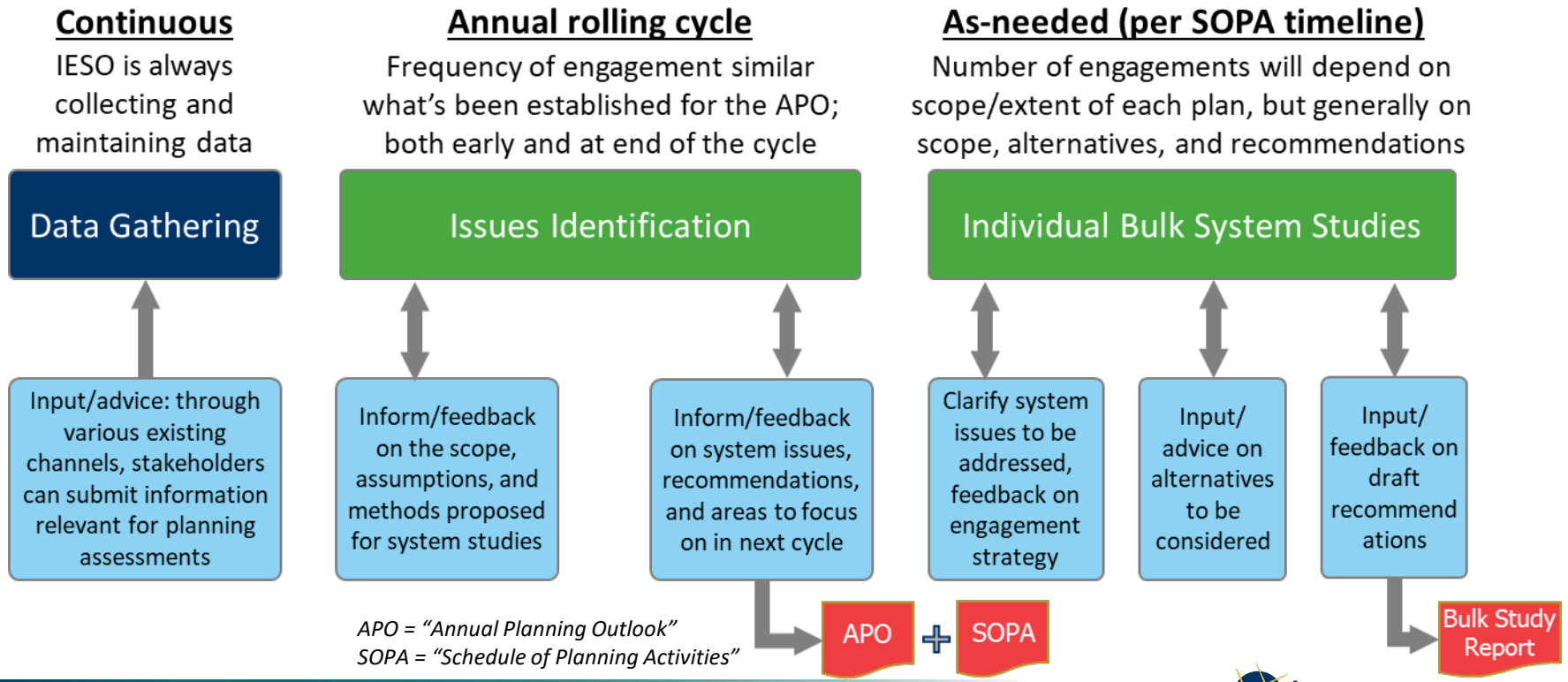
Different Levels of Planning in Ontario

Integrated Bulk System Planning Process

An integrated bulk system planning process was formalized in 2022, which included the following key enhancements:

- Enhancing overall transparency through regular engagements, communicating planning priorities and providing more planning data
- Developing an integrated plan that incorporates IESO transmission planning assessments into the APO process, while providing clarity around how generation vs. transmission decisions are made
- Outcomes that feed into resource acquisitions by informing the Annual Acquisition Report, etc.

Bulk System Planning – Engagement Touch-points



APO = "Annual Planning Outlook"
SOPA = "Schedule of Planning Activities"

Implementation of the Bulk System Planning Process

The IESO carried out the first Issues Identification process in 2022

The 2022 APO included the first Schedule of Planning Activities:

PLANNING ACTIVITIES	TARGET INITIATION YEAR
Ontario Voltage Study	2022
GTA Bulk Transmission Supply Study	2023
Lennox –St. Lawrence Area Study	~~2023~~ 2024
Ontario–Manitoba Interconnection Study	2023
Essa TS Area, Flow North/Flow South Interface Study	2024
Central –West Ontario Bulk Study	~~2024~~ 2023
Northern Ontario Hydroelectric Interconnection Study	TBD

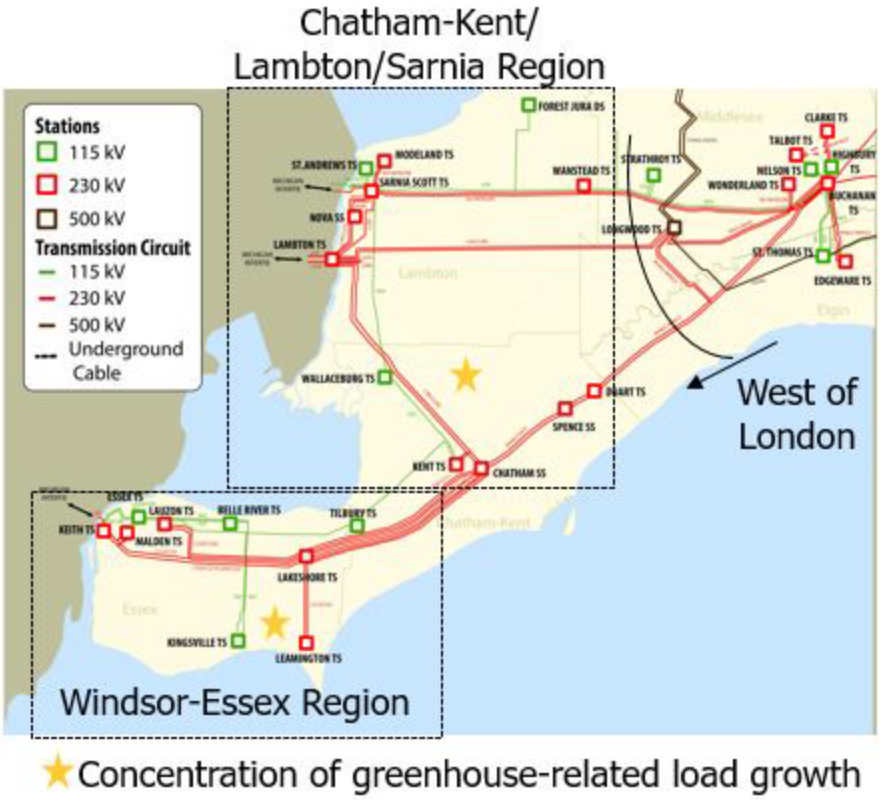
Electricity Planning in Southwest Ontario

Background

Over the past 5 years, high electricity demand growth due to greenhouse and other sectors in the Windsor-Essex region has exceeded the transmission supply capabilities, resulting in a number of regional and bulk studies:

- 2019 Windsor-Essex IRRP and 2021 Addendum
- 2019 Windsor-Essex Bulk Plan
- 2021 West of London Bulk Plan

More recently, further economic development in Southwest Ontario (e.g., Volkswagen, Stellantis/NextStar) is driving the need for additional regional and bulk studies



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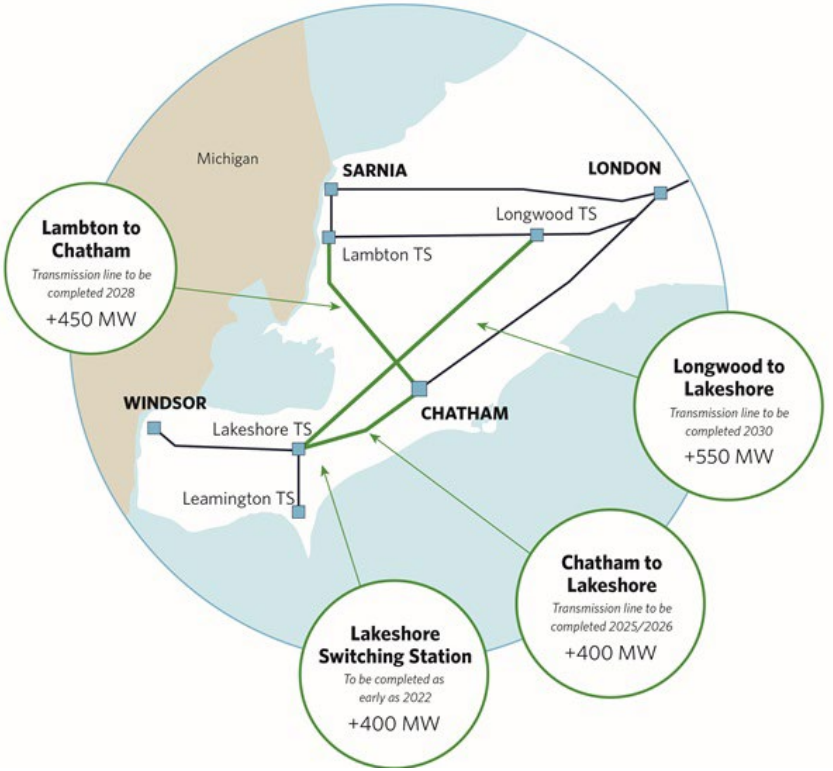
Recent Planning for Southwest Ontario

- A multi-pronged approach to develop solutions that will provide 2,300 MW of additional capacity by 2035 including:
  - New switching station in the Municipality of Lakeshore – in service April 2022
  - Three new sets of transmission lines to be in service by 2025, 2028 and 2030 (Chatham to Lakeshore, Lambton to Chatham and Longwood to Lakeshore)
  - Targeted energy efficiency programs and innovative projects
  - Local generation resources



Innovative Solutions in Windsor-Essex

- $1.1 M+ invested to test energy efficient measures in greenhouses including low intensity LEDs and Artificial Intelligence.
- With the OEB, the IESO is testing a near real-time, electricity market to utilize local energy in Leamington
- To date, the IESO has committed $65.2 M in incentives to nearly 50 local growers to install LED grow lights that will result in an estimated 618 GWh in energy savings and 2.2 MW in demand savings.
- As directed by the Minister of Energy on October 4, 2022, the IESO launched new or enhanced Conservation and Demand Management programs this spring, including continued targeted support in Southwest Ontario for LED lighting, advanced controls or behind-the-meter resources

Central-West Bulk Study

- Focus of today's session will be the Central-West Bulk Study
- The study will roughly cover from the Municipality of Waterloo and City of Hamilton in the east, out to the City of Sarnia and City of Windsor in the west
- It builds upon the previous 2021 West of London bulk plan, which encompassed the Windsor-Essex and Chatham-Lambton-Sarnia region

Electricity Regional Planning

- The regional planning process ensures that each of Ontario's 21 regions start a new planning cycle at least once every five years
- The Central-West area encompasses seven planning regions
  - Windsor-Essex and Burlington to Nanticoke regions have Integrated Regional Resource Plans currently underway
- Bulk and regional plans within the Southwest will be coordinated

Central-West Bulk Plan Scope

Study Purpose

To ensure continued, reliable supply to the London area, in light of the recently announced Volkswagen EV plant

To proactively develop a transmission plan that captures a range of potential growth scenarios that can be implemented if/when large new loads materialize

Large new load connections often require transmission reinforcements with long lead times. The Central-West bulk plan will help explore where new loads be accommodated on the existing system and what new reinforcements may be required

Study Area

The study will consider 200-500 MW of potential development at each of the following planning regions:

- London area (on top of the VW EV plant)
- Windsor-Essex
- Waterloo/Kitchener/Cambridge/Guelph
- Chatham/Lambton/Sarnia
- Burlington to Nanticoke

The magnitude and location of the potential growth may change based on engagement

Central-West Bulk Plan Process Overview

Needs Identification	Potential options	Recommendations
• What bulk system needs emerge as a result of growth in the Central-West area (Volkswagen EV Plant and other potential loads)?	• Given the interconnected nature of the electricity system and geographic distribution of potential load growth in the Central-West area, are there common limitations and interdependencies between individual regions? • Are there options that establish an optimized and cohesive plan considering the broader bulk system as a whole?	• Based on an assessment of potential options, what recommended actions will ensure a reliable and adequate electricity supply after the Volkswagen EV plant connects in the near-term and the Central-West area over the long-term?

Scope of Recommendations

Study and recommendations will focus on bulk system limitations, i.e., if generation or transmission reinforcement is needed to increase bulk transfer to an area

- The large load blocks are intended to cover the large economic development projects themselves and the smaller associated spin-off investments in neighboring municipalities.

Load connection details and associated local concerns will be out of scope

- These local issues will be considered in regional planning

Key Outcomes

1. **Firm near-term recommendations for planned development:** To ensure continued reliable electricity supply to support the Volkswagen EV plant. The recommendation will consider if enabling this load and load in another region identified may impact the near-term recommendations.

2. **Conditional recommendations for potential economic development:** A set of reinforcement options to enable further growth within regions identified. The timing for development work/implementation would depend on when growth materializes.

Study is expected to be completed by Q4 2024, but near-term recommendations are expected by Q1 2024

Next Steps

Reminder - Feedback Requested

Questions to consider when reviewing the Central-West Bulk Study scope:

- What feedback do you have regarding the scope of work proposed?
- Is there other potential growth that should be considered the needs are quantified in the Central-West area?
- What additional information should be taken into account as options are developed?

Please submit written comments on these areas of feedback, or other related topics you may want to share by email to engagement@ieso.ca by **August 29, 2023**

Next Steps

- Feedback due to engagement@ieso.ca by **August 29**
- IESO to post and respond to feedback by **September 19**
- Further engagement to follow on near-term recommendations and long-term options

Thank You

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Appendix

Other Planning Recommendations

Plan	Recommendation	Status
2019 Windsor-Essex Bulk Plan	Leamington SS	In-service 2022
	Chatham-to-Leamington double 230 kV circuit	Expected 2025
2021 West of London Bulk Plan	Lambton-to-Chatham double 230 kV circuit	Expected 2028
	Initiate bilateral negotiations for Brighton Beach GS	On-going
	Longwood-to-Lakeshore single 500 kV circuit	Expected 2030
	550 MW of new or existing local resources	On-going
2022 Windsor-Essex Addendum	Two new DESNs, connection lines to Lakeshore and option for tie line between Leamington and new DESNs	On hold
	Transfer excess Kingsville load to new DESNs	On hold
	Engage with customers on cost-justified measures for load restoration	On hold