Windsor-Essex Regional Electricity Planning Scoping Assessment Public Webinar – April 19, 2023

Responses to feedback received

The IESO launched a new engagement initiative to seek early feedback on the electricity planning activities underway in the Windsor-Essex Region. As part of this engagement, a public webinar was held on April 19, 2023 to provide an overview of the electricity planning process, the electricity needs that have been identified for the Windsor-Essex region so far, and to seek input on the draft Scoping Assessment Outcome Report to determine the most appropriate planning approach going forward to meet the region's needs. The presentation material and recorded webinar are available on the engagement webpage.

This document summarizes the following key themes that emerged from the feedback received along with the IESO responses:

- Scope and Planning Approach
- Electricity Demand Forecast and Needs
- Identifying Solutions
- Other Considerations

The IESO appreciates the input, which will be considered by the Technical Working Group[1] in the development of a long-term electricity plan – Integrated Regional Resource Plan (IRRP) and ongoing engagement initiatives.

Feedback was received from the following parties and posted on the engagement webpage:

- Enbridge Gas
- EverGreen Energy
- Evolugen by Brookfield Renewable
- First Green Energy
- Invest WindsorEssex
- The Corporation of the City of Windsor

[1] The Windsor-Essex IRRP Technical Working Group consists of E.L.K. Energy Inc. (E.L.K.), Entegrus Powerlines Inc. (Entegrus), Enwin Utilities Ltd. (ENWIN), Essex Powerlines Corporation (EPL) and Hydro One Networks Inc. (Transmission and Distribution)

Scope and Planning Approach

1. The Corporation of the City of Windsor

Feedback: Inquiry on whether there is any planning underway to address growth in Windsor. IRRP scope is currently focused heavily on Leamington/Kingsville where there is significant pent up demand, but it is important to keep in mind other areas are also nearing capacity. The Windsor-Essex Planning region is vulnerable to shortages/shortfalls in system capacity should a large load addition be requested in an area outside of Leamington/Kingsville.

IESO response: The IESO recognizes that there is a need to understand growth in Windsor and this will be considered in developing the demand forecasts for the area. Through the IRRP, the Technical Working Group (TWG) consisting of the IESO, transmitter, and local distributors, will engage with local municipalities, greenhouse sector, industrial customers, and other stakeholders on the impacts of potential economic development, energy or climate change action plans, electrification, and other local planning initiatives. Outcomes of these discussions will inform considerations (e.g., timing and magnitude of demand growth, energy efficiency, local energy programs and projects, etc.) that can be used to refine the demand forecast scenario(s) considered in the IRRP.

2. Feedback provider: Evolugen

Feedback: Evolugen by Brookfield Renewable supports the IESO's recommendation to proceed with an Integrated Regional Resource Plan, which would consider "a greater range of options, including non-wires alternatives."

IESO response: Thank you for the feedback. The IESO looking forward to continuing its engagement in the development of the IRRP.

3. Feedback provider: Enbridge Gas

Feedback: A coordinated approach to energy system planning between the electric and gas sectors will ensure that the most reliable, resilient and cost-effective pathway to emissions reduction is identified. Coordination efforts should happen at both the distribution and transmission system planning levels to ensure existing systems are leveraged. Enbridge Gas is prepared and would welcome the opportunity to work with IESO and Windsor-Essex Region Technical Working Group (TWG). The Windsor-Essex region overlaps with Enbridge Gas's Southwest Operating Region. Enbridge Gas would welcome the opportunity to provide joint non-pipe / non-wires alternative programming, where appropriate, in other overlapping regions in the future.

IESO Response: Thank you for your interest in participating in the Windsor-Essex regional electricity planning engagement process. Engaging with interested parties, including municipalities, Indigenous communities, businesses, and other industry stakeholders is fundamental to ensuring a comprehensive and integrated approach. Throughout the IRRP process, the TWG identifies specific priorities and recommends actions to meet electricity system needs over the 20-year horizon of the

plan. Feedback is invited throughout the process on topics including but not limited to the electricity demand forecast, needs identification, options analysis, and recommendations.

The IESO and the TWG recognizes the potential benefits of coordination between electricity planning and gas planning processes. The IESO welcomes the opportunity to work with Enbridge to review the Windsor-Essex electricity demand forecast (and any applicable scenarios) within this cycle of regional planning during the IRRP engagement process. Once the forecasts are finalized, the TWG will study options for meeting the electricity demand in those scenarios and seek input from communities and stakeholders on those options.

4. Feedback provider: Invest WindsorEssex

Feedback: The IESO is strongly encouraged to collaborate closely with Hydro One and other stakeholders to explore innovative approaches (e.g., NWAs, DR, CDM, etc.) that could facilitate large-scale investments in the next two years instead of being discouraged or postponed until transmission capacity becomes available. The IRRP must prioritize restoring investor confidence in electricity supply and reliability in the region.

IESO Response: Thank you for the feedback. The IESO is committed to adapting short- and long-term planning to meet evolving system needs. All available measures, including interim measures, have already been utilized to expedite load connections in the near-term within the Windsor-Essex region prior to transmission reinforcements coming into service such as the Chatham-to-Lakeshore line. Through the IRRP, the TWG will explore both wires and non-wires options to address the identified needs that best match the timescales required.

Electricity Demand Forecast and Needs

5. Feedback providers: The Corporation of the City of Windsor and Invest WindsorEssex

Feedback: Consider updated growth projections from municipal and Invest Windsor Essex sources, increasing forecast period to include the year 2050 (Net-Zero target year) or beyond and include a number of scenarios (i.e. base load, CDM Savings, and growth). Consider growth scenarios with varying certainties beyond committed demand. Recent discussions with the IESO has identified a gap between local economic development and planning and regional transmission system planning.

Feedback: Plans for economic development and growth must be accounted for. Invest Windsor Essex collaborates with a wide range of companies and is eager to work with the IESO and provide information about opportunities for economic growth. There are concerns that potential electricity needs in the region may be underestimated. Ensuring sufficient supply capacity in the short and medium terms is the top priority.

IESO Response: Thank you for your feedback and input. The TWG recognizes that there is a need to understand growth in the Windsor area. Through the IRRP, the TWG will engage with the local municipalities, the greenhouse sector, industrial customers, and other stakeholders on the impacts of

potential economic development, energy or climate change action plans, electrification, and other local planning initiatives. Outcomes of these discussions will inform considerations (e.g., timing and magnitude of demand growth, energy efficiency, local energy programs and projects, etc.) that can be used to refine the demand forecast scenario(s) considered in the IRRP.

As the first step in the IRRP process, the TWG will be developing electricity demand forecasts based on known drivers, including the local economic development and growth plans in Windsor area and net zero strategies.

The TWG is open to developing more than one forecast scenario to explore different rates of economic growth. Input from municipal and Invest Windsor Essex sources will be key to determining the amount of demand that could be considered in developing such a scenario. The draft load forecasts (including any possible forecast scenarios) will be presented to communities and stakeholders through our engagement process for review and feedback before being finalized. Faced with demand forecast uncertainty, the risk to ratepayers must be balanced. The IESO's goal is to provide timely infrastructure to enable new demand growth, while reducing the risk of overbuilding or building too early.

6. Feedback provider: The Corporation of the City of Windsor

Feedback: Inquiry on fuel switching and impacts of home heating, vehicle fueling, and manufacturing electrification on forecasts on demand as it is expected that by 2035, 100% of new vehicles sold will be electric.

IESO Response: Thank you for the feedback, the IESO recognizes the importance of incorporating the impacts of electrification and climate change into the regional planning processes. The IESO is investigating how to incorporate these impacts into its electricity planning initiatives.

The IESO published its Annual Planning Outlook and Pathways to Decarbonization study, which provide more information on electricity demand from fuel switching for the province as a whole. For regional planning, we rely on LDCs to provide load forecasts for their service territories as part of their role in the TWG, which should account for electrification and fuel switching. Where impacts are less certain, the IRRP can also use demand forecast scenarios to capture electrification and other considerations.

The IESO would be pleased to further discuss climate adaptation strategies and how this can be incorporated into the IRRP and to share with you more detail on some of the initiatives underway at the IESO to better understand the risks of climate change. As the regional planning process moves forward, the IESO looks forward to engaging with stakeholders and communities in seeking input and sharing information sources, such as the ones provided through this feedback submission.

7. Feedback provider: The Corporation of the City of Windsor

Feedback: Inquiry on how the development of Sandwich South impacts the available capacity of Lauzon TS and if there an opportunity to create a new TS. New battery plant is under construction and plans to build the mega hospital in the area that once built, supporting facilities and neighbourhoods will start development.

IESO response: The Needs Assessment forecast for Windsor-Essex was developed by the Local Distribution Company, with input from the local municipality. The Lauzon TS forecast accounts for the municipal input that there will be near-term growth in the outskirts of the city of Windsor, in Sandwich South, which is the main driver for the capacity need identified at Lauzon TS in the Needs Assessment. The IRRP will explore both wires and non-wires options, such as expanding the current station, building a new station, and non-wires alternatives for example, to determine the most appropriate solution to support growth. This will take into consideration factors such as cost effectiveness, reliability, resiliency, and other qualitative benefits.

8. Feedback provider: Enbridge Gas

Feedback: A diversified scenario that includes both electric and low-carbon gas (i.e., renewable natural gas and hydrogen) should be considered in the development of the IRRP electricity demand forecast.

IESO response: Thank you for your feedback and input.

As the first step in the IRRP process, the TWG will be developing electricity demand forecasts based on known drivers including the City of Windsor's Community Energy Plan and Climate Change Action Plans, and economic development in the Windsor and Kingsville-Leamington areas.

Input from Enbridge on the amount of demand that could be supplied from low-carbon fuels could be considered in developing such a scenario. The draft load forecasts (including any possible forecast scenarios) will be presented to communities and stakeholders through our engagement process for review and feedback before being finalized.

Identifying Solutions

9. Feedback provider: The Corporation of the City of Windsor

Feedback: Opportunities to identify new transmission infrastructure should be considered as growth extends beyond traditional development areas, for example:

- 115 KV or 230 kV line towards Amherstburg
- New Transmission stations or upgrades to Transmission stations serving current and future industrial parks (i.e. new transmission station between Malden TS and H54Z on 230kV system)
- Upgrades to system serving Tilbury

IESO response: Thank you for your feedback. The IRRP will explore both wires and non-wires options to determine the most appropriate solution for each need identified in the regional planning process, and to do so, locational considerations are very important. The IESO welcomes insights on where future growth pockets may arise.

10. Feedback provider: The Corporation of the City of Windsor

Feedback: In the Fall of 2022, Power Advisory provided the City of Windsor with a report on Electricity Resource Options for the City of Windsor which mentioned a plan to install a 230 kV line between Lakeshore TS and Windsor in 2032+. Would like to see a proposal for this line in the IRRP, with an accelerated timeline if possible.

IESO response: Thank you for the feedback. The Scoping Assessment and Terms of Reference for the IRRP have been updated to include reference to the government's April 2022 Order in Council (OIC), which, in addition to declaring the recommended transmission projects in the are as priorities, advised Hydro One to concurrently conduct early development work on a second 500 kV transmission from Longwood TS to Lakeshore TS, and a 230 kV line between Lakeshore and the Windsor area.

The need and scope for these additional projects are dependent on a number of moving pieces – including industrial load growth, greenhouse load development, and the IESO's on-going resource procurements. The TWG will continue to study future growth and needs through this cycle of regional electricity planning for Windsor-Essex and applicable bulk studies, as required, to refine the need and of these projects, as required.

11. Feedback provider: The Corporation of the City of Windsor

Feedback: Inquiry on whether previous recommendations for the upsize of Keith T11/T12 and Lauzon T5/6 allow for growth over what is currently forecasted, or if capacity generated by these upgrades already been spoken for.

IESO response: The upsized transformers at Keith TS T11/T12 and Lauzon TS T5/T6 increased those station capacities beyond the Needs Assessment forecast for those particular stations. Available capacity is not allocated to any individual load or LDC until a committed connection request is received.

12. Feedback provider: Evolugen

Feedback: IESO is urged to also consider existing assets in the region when evaluating non-wires solutions. Existing system supply should be secured before considering increasing resource adequacy to meet incremental needs. Re-powering and re-contracting of existing assets could be a least-cost solution. IESO should include the value of ancillary services when evaluating non-wires solutions—as ancillary services are an essential component of system reliability.

IESO response: Through the regional planning process, the TWG will identify various alternatives to address the transmission system issues forecasted to arise over the next 20 years. This analysis will account for both existing transmission and generation. These alternative solutions include transmission, generation, storage, demand response, energy efficiency and distributed energy resources. As part of the process to select a recommended solution, the alternatives are compared against each other, taking into consideration factors such as cost effectiveness, robustness of the solution, and other qualitative benefits.

The IESO seeks to use competitive mechanisms to fulfill Ontario's capacity and energy needs, including existing generation at the end of their contract.

13. Feedback provider: The Corporation of the City of Windsor

Feedback: Electricity generation from new solar and wind assets and opportunities for its expansion should be considered in order to meet commitments to decarbonize the electricity system.

IESO response: Thank you for the input. Through the regional planning process, the technical working group consisting of the IESO, transmitter, and local distributors identify various alternatives to address the transmission system issues forecasted to arise over the next 20 years. These alternative solutions include wires and non-wires alternatives, including both emitting and non-emitting generation sources. Planning decisions and/or recommendations focus on cost and technical feasibility however, other factors as a result of community projects/priorities will also be invited and considered as part of this engagement. Note that GHG emissions are captured in the cost analysis with the inclusion of the federal carbon charge.

14. Feedback provider: The Corporation of the City of Windsor

Feedback: System reliability, resiliency, and redundancy measures to ensure system integrity as end-users shift away from carbon-based energy solutions to electrification (i.e. adding home heating and vehicle charging to system) should be considered.

IESO response: Thank you for the feedback. Electrification was a key consideration identified for this regional plan in order to ensure the continued integrity of the electricity system. There is a high degree of redundancy and reliability required by standards and criteria the IESO must adhere to.

Reliability standards set out by the North American Electric Reliability Corporation (NERC) and the Northeast Power Coordinating Council (NPCC) define the reliability requirements for planning and operating the interconnected North American bulk electric system. The IESO adheres to both the NPCC and NERC standards in its planning studies to ensure that the Ontario electricity system is reliable, including reducing risks of cascading outages on the bulk power system. The IESO also sets the standards, through the Ontario Resource and Transmission Assessment Criteria (ORTAC), for load security and restoration; ensuring that supply to local areas (such as the City of Windsor) remains reliable.

15. Feedback providers: First Green Energy and EverGreen Energy

Feedback: Behind the meter solar in greenhouses using integrated modules should be considered an energy efficiency measure as well as the potential for microgrids**.**

Feedback: Reduce the new distribution growth through independent power customized to best serve each specific application. Waste-to-Energy (W-t-E) systems can significantly reduce energy cost, assist in decarbonizing new manufacturing plants and greenhouses and utilize dead and dying trees to provide electricity and heat.

IESO response: Thank you for the feedback. The IESO recognizes the benefit of local solutions in potentially having lower transmission and distribution requirements. This will be taken into account through the economic comparison of options through the IRRP development.

As directed by the Minister of Energy on October 4, 2022, the IESO will launch four new or enhanced CDM programs this spring to meet near-term system needs including continued targeted support for greenhouse growers in Southwest Ontario and enhancements to the Save on Energy Local Initiatives program.

16. Feedback provider: The Corporation of the City of Windsor

Feedback: Energy conservation measures, including how other provincial policy can actively reduce the need for new generation - e.g. improved energy efficiency in the building code should be considered.

IESO response: As part of the regional planning process, energy efficiency, also known as Conservation and Demand Management (CDM), is incorporated into the demand forecast. The IRRP applies a top-down approach to estimate peak demand savings from provincial CDM programs and provincial building codes & equipment standards. These peak demand savings are applied to develop a net demand forecast(s) which is used to determine needs.

Incremental CDM is also considered as a potential option to meet identified electricity needs. Where the regional planning process identifies a need, the IESO conducts an initial screen to assess the applicability of targeted CDM (i.e., incremental to provincial CDM programs) as a non-wires solution. The screen considers the timing of the need, the size of the need as a percentage of load forecast, local support for conservation initiatives and other factors that impact the feasibility of CDM as a non-wires solution. If this screen is passed, the IESO develops an estimate of the quantity of cost-effective CDM potential available in the region incremental to already committed program savings, and the cost to acquire it. These estimates are informed by the IESO's Achievable Potential Studies adjusted to regional conditions.

Other Considerations

17. Feedback providers: The Corporation of the City of Windsor and Enbridge Gas

Feedback: Plans should incorporate Federal Clean Electricity requirements and consider the role of Municipal Energy Planners. The City of Windsor is in the process of updating its Community Energy Plan and Climate Change Action Plans to include net-zero and interim science based targets. Local businesses (especially those with international operations) also have net-zero targets and will be pushing for electrification and zero carbon electricity in order to meet their targets.

Feedback: While the Clean Electricity Regulation (CER) is still under development, energy optionality should remain to allow for carbon capture and low-carbon fuels to achieve compliance as energy transition continues to unfold. Optionality would also provide operational flexibility and maintain electricity generation capacity in the area, maintain and/or enhance system reliability and resiliency.

This is particularly important for the Windsor-Essex area as there are four large gas-fired power generation facilities currently in service.

IESO response: Thank you for this insight. The Government of Canada is currently developing the Clean Electricity Regulations (CER) that will help drive progress towards a net-zero electricity grid by 2035. The IESO will continue to monitor its development, and take any government policy into account in the regional planning process.

The IESO values the input from communities and other interested parties to support purposeful engagement activities. Throughout the IRRP process, interested parties will be invited to a series of webinars and targeted outreach activities to seek input on the regional demand forecast, electricity needs, options analysis, and recommendations including the evaluation of technically feasible and cost-effective solutions. The IESO looks forward to working with communities and stakeholders to understand the impact local plans may have on the demand forecast scenarios as part of the electricity planning processes.

18. Feedback provider: Evolugen

Feedback: IESO should publish additional information and data regarding how the IESO and Hydro One would evaluate wires vs non-wires solutions to improve transparency and help suppliers develop and propose solutions. For example, economics data and information on how technologies are compared to each other and benchmarked, as well as maps that outline the available transmission capabilities would be helpful.

IESO response: The IESO is committed to being open and transparent about information and data that inform power system plans.

The IESO developed an informational document as a guideline to the types of information and data that are made available during the regional planning process. It describes the general approach used by the IESO to make regional planning information and data available to communities, stakeholders and interested parties during the development and following completion of an Integrated Regional Resource Plan (IRRP), and provides a comprehensive list and descriptions of the information, and the timing in which it is typically made available during an IRRP. This guideline serves to set the baseline for what data and information stakeholders can expect to better enable them to provide informed feedback to the IESO and the Technical Working Group responsible for developing regional plans.

19. Feedback provider: Evolugen

Feedback: It is recommended that the IESO consult on and consider local load for virtual Power Purchase Agreements with suppliers to construct their own FTM and BTM generator and/or storage assets in the region. This mechanism could help increase resource adequacy and allow load customers to make investment decisions with respect to their business needs.

IESO response: Thank you for your feedback. The IESO recognizes the benefit of local solutions in potentially having lower transmission and distribution requirements. However, acquisition mechanisms and implementation of recommended projects are beyond the scope of regional planning.