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Independent Electricity System Operator
1600-120 Adelaide Street West
Toronto, ON M5H 1T1

Submitted via engagement@ieso.ca

Re: Ontario's Distributed Energy Resources (DER) Potential Study – Results and Recommendations

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Toronto Hydro-Electric System Limited ("Toronto Hydro") is the local electricity distribution company ("LDC") for the City of Toronto. It serves more than 780,000 customers and delivers approximately 19% of the electricity consumed in Ontario. Toronto Hydro is not a member of the Electricity Distributors Association.

On September 30, 2022 the Independent Electricity System Operator ("IESO") published the DER Potential Study ("the Study") it commissioned to identify the types and volumes of distributed energy resources ("DERs") that could emerge in Ontario over a 10-year timeframe (2023-2032) and the ability of these DERs to contribute to the province's emerging system needs.

In addition to the DER potential assessment, the Study makes recommendations for the IESO on focus areas and timing for DER integration into wholesale markets or alterative options to enable DER participation. The IESO invited stakeholders to provide feedback on the Study's findings, noting stakeholder comment will inform the organization's future work, including but not limited to DER integration.

Toronto Hydro appreciates the IESO's commitment to enable new pathways for DER participation in wholesale markets and provides comments and feedback to the IESO's DER Potential Study and engagement questions below.

General Feedback

- Overall, the Study has met its objectives of identifying the potential for DERs in Ontario and has shown that a wide range of DERs are both economic and achievable in Ontario within the coming decade.

- Toronto Hydro observes the scope of the Study is limited to the aggregated province-wide potential of DERs, with select regional considerations. For example, the Study uses generic assumptions related to T-D avoided costs based on historic trends and high-level assumptions of deferment potential. While a provincial perspective is important, there remains important local considerations that could enhance (through non-wires opportunities) or limit (due to constraints of DER hosting capacity) at various points on the distribution system. Continued coordination with LDCs will be vital to ensuring the optimal use of DERs.

- The Study finds that while the economic potential of DERs is large enough to meet incremental system needs, less than a third of the identified potential is achievable over the next decade. It also notes the gap between economic and achievable potential is driven by a combination of DER developer/customer economics and market barriers, and that there are opportunities to improve the financial attractiveness to DER providers by compensating them for all system benefits that DERs provide.[1] Toronto Hydro agrees and submits determination of distribution-level benefits will have important implications in evaluating the overall potential for DERs within immediately local context and by extension system-wide when those local opportunities are considered in aggregate.

- The Study finds that select DER types are expected to contribute to the vast majority of achievable potential over the next ten-years including conventional large commercial and industrial demand response ("DR"); new residential DR (e.g. HAVAC DR enabled through smart meters); EV smart charging and vehicle to building/grid ("V2B/G") predominately in the passenger vehicle segment; and BTM energy storage.[2] Toronto Hydro expects that this conclusion could vary depending on local conditions: for example, from transmission station to

[1] IESO, *DER Potential Study*, 2022, at page: 76.
[2] *Ibid* at page 78.

transmission station, or perhaps even more granularly, one BUS station to the next, within a utility's service territory.

- Given the magnitude of DERs that are expected to connect in Ontario in the next few years, there is a need to ensure that distributors are approved to make investments to modernize their distribution systems to connect and integrate DERs. Grid modernization is vital to harnessing the value of DERs for localized opportunities that provide services to and/or directly leverage the distribution system. Without an immediate and sustained commitment to modernizing the technical, operational, and administrative capabilities of LDCs, these outcomes will not be realized along the timeframes contemplated by customers, innovators, and policymakers.

- Finally, while beyond the scope of this Study, Toronto Hydro notes that uptake of DERs could also be influenced by multiple external factors not referenced in the report. For example, local uptake of DERs may be spurred by municipal climate strategies and decarbonization targets, consumer preferences such as investor driven ESG commitments, and global supply chains which may slow the adoption of certain technologies.

<u>Feedback on Recommendations</u>

- **Continue with the DER Market Vision and Market Design Project:** Toronto Hydro supports the IESO's effort to enable new pathways for DER participation in wholesale markets. However, enabling wholesale market participation is only one element to unlocking full DER value streams, and additional efforts are required to unlock value associated with distribution system and other societal benefits. We look to continue to collaborate with the IESO (and OEB) to offer a compelling and economically efficient value proposition for DER connection and integration into energy markets. Toronto Hydro's Grid Innovation Fund-approved project and the utility's participation on the T-D Coordination Working Group are indicative of that commitment.

- **Develop Tailored DER Programs and Procurements:** Given the diversity of DERs and their locational-driven value, Toronto Hydro agrees, a "one-size fits all" approach for enabling DERs may not be feasible nor will it extract the highest-value of DERs to the system or DER proponents alike. Toronto Hydro is uniquely positioned to enable DER integration in Toronto by virtue of its deep understanding of the distribution system and the deepening relationship it

maintains with nearly 800,000 customers. Tailored DER programs and procurements administered by LDCs have the potential to improve adoption of economic DERs (i.e., drive DERs to connect at high-value locations). This is one of the outcomes Toronto Hydro seeks to demonstrate as part of its GIF Dual Participation Pilot. Toronto Hydro looks forward to continue to partner with the IESO on this and other complimentary initiatives in the future.

- **Develop T&D Compensation Frameworks:** DERs have the potential to deliver different value stacking opportunities, and compensating DERs fairly for this value can be key to unlocking further DER potential. Toronto Hydro supports the development of a compensation framework that considers a broad scope of benefits and costs and notes the OEB's Framework for Energy Innovation ("FEI") consultation is set to examine a Benefit Cost Analysis ("BCA") framework for distributors in 2023. As this framework matures and develops, it can be expected additional value streams for DERs will be opened, augmenting the broader province-wide assessment of DER potential. To this end, in continuing its market enhancement efforts, Toronto Hydro encourages the IESO to remain agnostic to the role of distributors in order to enable different paths that may emerge along different time periods.

- **Align telemetry and metering requirements with expected resource contribution:** Just as the safe and reliable operation of wholesale markets is critical to enabling DERs at the bulk system level, so too is the safe and reliable operation of transmission, sub-transmission and distribution systems. As the entity closest to customers, LDCs have and need visibility into these systems to maintain reliable operations. This will be even more crucial as new DER value stacks are unlocked (i.e. DERs providing both distribution and bulk system services). All are foundational elements necessary for the realization of a DER policy framework that serves customer needs and Toronto Hydro looks forward to working with the IESO towards a clear set of protocols and processes to support that result.

- **Other Considerations:** The DER Potential Study's primary recommendations focus on enabling DERs within the IESO's purview. While important, the Study's specific recommendations do not address the holistic and strategically sequenced approach needed to translate economic potential into achievable opportunity. Toronto Hydro observes what is labelled as "other considerations" including steps to coordinate on and integrating DERs are in many instance prerequisites to enable and unlock full DER potential.

Conclusion

As the electricity sector embarks upon the energy transition, DERs will be relied upon to do more to serve Ontario's energy needs as they are adopted in greater numbers. Toronto Hydro is primed to be an important partner to the IESO in this energy transition, and looks forward to working with the IESO in developing pathways that encourage DER market participation that drives rate-payer value.

Toronto Hydro appreciates the opportunity to provide these comments and would be pleased to speak to any or all parts of its submission.

Sincerely,

Kaleb Ruch
Director, Energy Policy & Government Relations
Toronto Hydro-Electric System Limited

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Appendix: Responses to IESO Feedback Questions

Takeaways, Recommendations, and Additional Analysis

Topic	Feedback
Does the report highlight the most relevant results and takeaways from the study? What other results or messages from this study are of high importance?	
Do the recommendations capture appropriate actions to acquire the DER potential revealed in the study? Based on the study results, are there other actions that should be considered?	See submission comments.
Building on the work completed in this study, are there other areas of analysis that should be considered or undertaken that can provide meaningful insights for the IESO and others in the sector?	As noted in the Study's *Other Considerations* recommendations, the IESO is encouraged to engage in pilot and demonstration projects for emerging DERs, including LDCs, to test and demonstrate technology applications and confirm the forecasted achievable potential and contributions of these resources. Toronto Hydro agrees, and notes its GIF Dual Participation pilot is an excellent example that the IESO can build on to better understand and unlock the complete value stack of distributed energy resources at the distribution and bulk system level. In partnership with the OEB's Innovation Sandbox, Toronto Hydro encourages the IESO to continue to pursue such pilots with LDCs to better understand transmission-distribution interoperability frameworks and to test appropriate Benefit Cost Analysis tests for these resources as identified by the Framework for Energy Innovation ("FEI") consultation.

General Comments/Feedback

Questions Relating to this Study