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

Submitted via engagement@ieso.ca

Re: Regional Planning Process Review Update – August 25, 2022

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 August 25, 2022 the Independent Electricity System Operator ("IESO") provided an update to its Regional Planning Process Review pertaining to tools and methodologies to support the need characterization and options development for non-wires alternatives ("NWA") in Integrated Regional Resource Plans ("IRRPs") and is soliciting stakeholder feedback on proposed methodologies. Toronto Hydro appreciates the IESO's efforts to address potential barriers to NWAs in regional planning and provides comments and feedback to the IESO's engagement questions below.

Toronto Hydro

Toronto Hydro is a leading enabler of NWA solutions in Ontario. The utility's Local Demand Response project at Cecil Transformer Station was approved by the Ontario Energy Board ("OEB") in its 2015-2019 CIR application and successfully deferred station upgrades through a novel use contracted Demand Response ("DR") and front-of-the-meter battery storage. Toronto Hydro's subsequent Distribution System Plan filed as part of its 2020 to 2024 Distribution Rate Application included proposals to expand its NWA application. In Toronto's most recent IRRP, NWA opportunities were frequently considered as a potential resource and Toronto Hydro was identified as the entity that should coordinate NWAs as potential solutions.

Toronto Hydro's comments herein are informed by its experience planning and receiving regulatory approval for innovative NWA solutions connected to its distribution system.

Comments

- *Embed flexibility within a standardized framework:* while a prescribed framework to consider NWAs in IRRPs is important to enhance transparency for stakeholders and improve consistency between regions, Toronto Hydro cautions against a one-size-fits-all approach. Thus far, most publicly available data indicate NWA's support localized solutions. In the Toronto planning region, the utility remains the most intimately familiar with the profiles that support those localized solutions and is well positioned to continue leading the deployment of the range of technologies in the NWA portfolio. There must be flexibility for the LDC's to work within the local operating environment to ultimately make the most cost-effective selection. As the IESO is aware, whether implementing traditional wires or NWAs, LDCs make decisions based on the local system need and reliability and risk considerations downstream from the transmission/bulk system. While this can be done in compliance with a general framework, LDCs need to retain the authority, autonomy, and flexibility to procure and coordinate those alternatives in a way that is consistent with best practices in integrated system planning and operations. While consistency across regions is an important objective, flexibility within the framework is imperative for the process to remain nimble and purposeful for regions like Toronto where NWAs are already part of the planning landscape.

- *Hourly demand profiling methods should be flexible to leverage LDC data if it is available*: to the point above, as the regional planning stakeholder closest to customers, LDC information may be useful in augmenting the IESO's approach to generate more accurate forecasts for a particular region – particularly as the industry enters a period of uncertainty in the pacing and timing of electrification. To encourage innovation, the IESO's profiling methods should be flexible to incorporate utility information pertaining to potential demand profiles (see TH response to feedback questions below for further detail).

- *NWA options analysis should consider localized value:* DERs have the potential to provide multiple value streams, from those that benefit the customers who adopt them, through to bulk system and society more generally. In instances where LDCs are pursuing grid modernization

that allows for local value to be leveraged, local opportunities are in an important value stream that should be considered in the context of NWAs. Toronto Hydro is exploring through its GIF Dual Participation Pilot how local needs addressed by NWAs can simultaneously provide bulk system value.[1]

- *Changes to regional planning must remain in step with regulatory and market changes:* the regional planning process requires the combined participation of the IESO, transmitters and distributors. The IESO indicated upcoming work in 2023 will focus on implementation pathways and potential procurement mechanisms for cost-effective NWAs – noting on the regional planning side, the entity responsible for implementing these solutions is underdetermined and will be explored here. The OEB's response to the Framework for Energy Innovation ("FEI") will be relevant to how NWAs and DERs more generally are assessed and considered by the LDC. The OEB's determination of distribution-level benefits will have important implications in evaluating the overall potential for DERs within an immediately local context and, ultimately, system-wide when those local opportunities can be leveraged at the regional/bulk level. The IESO should ensure the decisions contemplated at this forum remain consistent with, and remain sufficiently flexible to respond to those regulatory developments. It is vital that regulatory planning frameworks remain aligned to ensure a consistent DER framework is established in Ontario.

Conclusion

Toronto Hydro appreciates the opportunity to provide these comments, all of which are respectfully submitted. The utility 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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[1] In 2022, Toronto Hydro developed a Dual Participation Pilot that received funding from the Grid Innovation Fund to aggregate local, behind-the-meter ("BTM") demand response resources that are currently participating in Toronto Hydro's Local DR program to simulate participation in the IESO's Capacity Auction, and subsequently simulate managing this capacity in real-time energy markets. The project expects to provide insights into the potential benefits of creating a new market participation pathway that enables the same DER to provide services to the bulk system as well as the distribution system.

Appendix: Responses to IESO Feedback Questions

Hourly Load Forecasting

Topic	Feedback
What other data or considerations should we include in hourly load profiling?	Toronto Hydro submits, the accuracy of hourly load forecasting for a local area is heavily dependent on the granularity and quality of data available. Toronto Hydro observes the proposed methodology is "top down" and relies on linear regression of historical data. This approach may be effective for shorter term planning, but in the long term, it lacks local factors and more sophisticated ways of accounting for technology-specific load profile variations as consumer behaviour shifts into the future. For example, for DERs such as EV's, historical data will not be as informative in modelling what future daily demand variability will look like. Bottom up, localized, and technology specific information could be complementary the IESO's proposed methodology. The IESO's framework should remain flexible to incorporate that information if it is available. Additional data considerations that can inform a more accurate hourly load profile include: • *Customer Classification*: energy profiles are not necessarily closely correlated to traditional customer classifications (i.e. residential, commercial, industrial). Techniques must be incorporated to classify customers differently (e.g. clustering). • *Disaggregation*: profiles that include elements of bi-directional power flow may have to be disaggregated further to separate demand and supply profiles. • *Access*: as noted in Toronto Hydro's general comments, LDCs are the regional planning stakeholder closest to customers and the data noted above is most readily accessed by LDCs.

Non-Wires Options Analysis

Topic	Feedback
Are there any other NWAs or opportunities that should be considered in the IRRP's options analysis? How can the options analysis methodology be improved?	With respect to the NWAs options analysis, it is unclear how scalability and diversity factor into the selection process. Toronto Hydro notes, certain NWA technologies might be cost effective only within certain capacity, reliability or security thresholds to solve a localized issue. Consideration should be given to mechanisms that exist to compare a portfolio of NWA's operating at various points of scale relative to the peak demand forecast. Additionally, if the market needs to develop incentives or other market mechanisms for developers and market participants, costs should be reflected in the options analysis. To this point, consideration needs to be made for T-D interfaces and how NWA options can be made more attractive to market participants by stacking benefits. The LDC has a big role to play to facilitate faster adoption of NWAs at the local level. This will be key to unlocking the potential of NWAs. Toronto Hydro GIF Dual Participation Pilot could be leveraged here.
Are there operational considerations that should be accounted for when assessing non-wires solution that relies on a dispatch component? For example, does the current storage sizing approach sufficiently account for how it could be operated in today's system? If not, what improvements would be needed?	NWAs should be subject to a performance threshold, whereby they are not approved without a high degree of certainty that the NWA can perform in an equivalently safe reliable fashion as a traditional wire investment. In regards to storage, dispatchability is a critical and integral component of this resource class. The ability to meet demand when required goes to the core of the competitiveness of NWA's. Without that component, it is simply a resource that needs to be grid-backed to achieve similar reliability and security of supply profiles. Storage sizing alone is not sufficient to address capacity shortfalls. There must be elements of clustering to enhance diversity and promote system responses in more discrete stages through the promotion of distributed control and intelligent networks.