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Re: EB-2021-0118: Report of the Framework for Energy Innovation Working Group to the Ontario Energy Board – Invitation to Comment

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On June 30, 2022, the Framework for Energy Innovation Working Group ("FEIWG") delivered its Report to the Ontario Energy Board ("OEB") outlining steps it can take to facilitate cost-effective use and integration of distributed energy resources ("DERs"). The FEIWG Report captures the discussion of the FEIWG and offers recommendations to the OEB for consideration. Subsequently, the OEB invited interested parties to provide written comment on the analysis and recommendations set out in the Report (and subgroup Reports). In seeking feedback, the OEB has categorized issues into a series of questions for consideration.

Toronto Hydro-Electric System Limited ("Toronto Hydro") appreciates the efforts of the OEB, OEB staff and all members of the FEIWG in advancing the discussions with respect to these issues and provides its responses and observations to the OEB's discussion questions below. Toronto Hydro is a member of the Ontario Energy Association ("OEA") and supports its submissions. Toronto Hydro is not a member of the Electricity Distributors Association.

DISCUSSION

Toronto Hydro supports the greater use of DERs and is a leading innovator of Non-Wires Alternatives

For more than a decade, Toronto Hydro has been a leader in connecting and integrating DERs into its distribution system. 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. 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 lead this energy transition, and has a track record of developing novel, outcome-focused innovations that deliver positive benefits to customers. Currently, Toronto Hydro has over 2,000 distributed generation projects operating within its service territory, up from just dozens at the start of the previous decade, and developed efficient settlement processes to support a range of DER

programs, including net metering.[1] DER readiness also features prominently in Toronto Hydro distribution System Plans. For example, investments in Generation Protection, Monitoring and Control technology are alleviating connection capacity constraints and are providing essential situational awareness and control capabilities to the Control Centre so more DERs can operate safely and reliably on the grid.[2]

Even more pertinent to this proceeding, the utility developed and implemented Local Demand Response, a Non-Wires Alternative project that successfully deferred distribution grid expansion investment at Cecil TS.[3] Local DR was proposed by Toronto Hydro in 2014, approved a first time by the OEB in 2015, and again in 2020 when Toronto Hydro requested to expand its application elsewhere on the distribution system. Toronto Hydro's submission here and its participation in the FEI WG is directly informed by the experience it has gained with NWAs over the last eight years. Few utilities in North America are so endowed.

Stakeholders expect utilities to play a greater role connecting and integrating DERs

Integrating DERs for NWAs purposes or other leading-edge applications is a considerably different exercise when DER penetration is low compared to when it is high, as many are forecasting it will be. Already, there are increasing expectations that utilities will play a greater role integrating DERs into new, varied and concurrent opportunities.

At the bulk system level, DERs have already been found to have the technical potential to economically meet a portion of Ontario's urgent capacity need within this decade.[4] The IESO has also instigated a number of proceedings that explicitly or implicitly require utilities to develop new capabilities to enable DERs to participate in bulk system procurements and wholesale markets.[5] The Energy Transformation Network of Ontario ("ETNO") also recommended Ontario modernize to enable "integration of increased number of DERs in a way that maximizes their value to the ratepayer" and that local distribution companies ("LDCs") are "well positioned to manage the DERs connected at the distribution system and behind-the-meter."[6]

At the Regional level, DERs are already feature prominently. In Toronto's most recent Integrated Regional Resource Plan, NWA opportunities were frequently considered as a potential resource and Toronto Hydro

[1] Including net-metering, energy storage, combined heat and power, closed transition, load displacement, and generation under various IESO programs including Feed-in-Tariff (FIT), microFIT, Process and Systems Upgrade Initiative (PSUI), and Renewable Energy Standard Offer Program (RESOP).

[2] EB-2018-0165, Exhibit 2B, Section E5.5, Generation Protection, Monitoring and Control.

[3] Toronto Hydro's Local Demand Response project at Cecil Transformer Station was approved by the OEB in its 2015-2019 CIR application and is deferring station upgrades through a novel use of battery storage and other resources. This non-wires alternative solution is funded through a blend of cost-effective capital and operational spending that is successfully delaying the need for much larger capital investments in the Spadina-College area.

[4] Initial results of the IESO's commissioned DER Potential Study finds DERs can contribute 25 to 80 per cent of Ontario's additional capacity needs over the next 10-years. However, less than one-third of DER economic potential is achievable under existing market conditions and compensation mechanisms (DER Potential Study, slide 19).

[5] In 2019, the IESO launched its Innovation White Paper Series on Exploring Expanded DER Participation in IESO-Administered Markets including identifying barriers to integration including enhancing transmission-distribution interoperability. These important findings has led to the launch of the DER Market Vision / Market Design Project and the T-D Coordination Working Group looking to implement foundational and enhanced participation models for DERs IAMs. And distribution-connected resources are within scope of the Long-Term RFP currently under development.

[6] ETNO – Distribution System Structures for a High DER Future – A Blueprint to Guide the Local Energy Transition in Ontario, December 2021, available at: (ETNO Final Report (ieso.ca))

was identified as the entity that should coordinate NWAs as potential solutions.[7] 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, Local DR, beyond Cecil TS.

It is therefore not surprising that the FEIWG identified clarifying the role of distributors in an evolving sector as a cross-cutting issue in its Report.

Toronto Hydro agrees, and is already leading new innovations that it expects will deliver positive outcomes. 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.

Grid modernization is necessary for utilities to connect and integrate higher volumes of DERs

On the critical path to a future where DERs are increasingly integrated with distribution operations is a need to modernize the distribution system. In the next two decades, Ontario is set to undergo an energy transition that projects a degree of behind-the-meter DER proliferation that cannot occur without the modernization of local distribution grids and operations. 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 in the next 5-10 years, these outcomes will not be realized along the timeframes contemplated by customers, innovators, and policymakers.

This begins with the fundamental challenge of preparing the grid for higher levels of DER penetration. It is well understood that distribution grids have been optimized for the one-way delivery of safe and reliable electricity to passive energy consumers. At high levels of adoption, DERs can violate finely tuned protection schemes that were put in place to enable the highly reliable and resilient electricity service that customers expect. To overcome these limitations, utilities must invest in field technologies, communications infrastructure, and automated control platforms to deliver a step-change improvement in the visibility and real-time control of the distribution system, including visibility and control of behind-the-meter assets. Building on these technology enhancements, utilities must also develop enhanced tools and planning processes to lower deployment time and facilitate more flexible and efficient connections for customers, minimizing operational and technical bottlenecks.

These same investments should be understood as necessary and foundational to the eventual establishment of matured local opportunities for DER services. This more mature state could see utilities moving beyond the case-by-case deployment of NWAs to a more standardized and automated approach

[7] https://www.ieso.ca/en/Get-Involved/Regional-Planning/GTA-and-Central-Ontario/Toronto

that can function at scale. As local utilities embark on this journey toward an expanded operating model, it will be necessary to establish capabilities that either do not exist at present or are in early stages of development.

For example, utilities will need to invest in short-term forecasting, planning, and dispatching capabilities that together will allow for the active, real-time management of DER value as it relates to highly dynamic and complex system needs. In addition to technological solutions, incremental investments in the skilled resources necessary to manage entirely new business functions, including the implementation of novel commercial arrangements, contractual vehicles, customer relationships, and regulatory mechanisms, will be necessary.

This roadmap illustrates how activities to connect and integrate higher volumes of DERs in the future require planning and investment in the near term – as well as supportive regulatory innovation, which is at issue in this consultation.

The OEB can take near-term actions to accelerate efficient DER adoption and integration in Ontario

As the work of the FEIWG and subgroups helpfully articulate, with respect to prospective opportunities for DER, Ontario is not necessarily lagging other jurisdictions in NWAs, but applications like Toronto Hydro's Local DR program are nevertheless rare. More can and should be done. Toronto Hydro submits that the OEB can take immediate actions to support the adoption of NWAs as alternatives to traditional forms of capital investment, and the recommendations the utility offers below are intentionally designed to be action-oriented.

In addition, Toronto Hydro's recommendations are largely incremental to the current regulatory regime and leave its core foundations in place. Toronto Hydro takes the position that more radical departures from established regulatory principles are unnecessary to animate more and better use of DERs in Ontario, and that such an overhaul has the potential to increase risk and create unintended, detrimental consequences. Toronto Hydro has held this position through the OEB's preceding consultations on DERs and, at the early stages of an energy transition driven by electrification and decarbonization, believes that regulatory stability will be even more essential if Ontario is to take the lowest-cost path forward over the coming decades.

KEY RECOMMENDATIONS / NEXT STEPS:

Toronto Hydro recommends the OEB do the following with respect to utility roles and responsibilities in connecting and integrating DERs that will enable more NWA opportunities in the future:

1. **Provide guidance on utilities roles and responsibilities:** Provide guidance to utilities that they should be planning to connect and integrate higher volumes of DERs into their distribution systems, both for local opportunities (e.g., Non-Wires Alternatives) and other potential value streams at the bulk system, societal and individual customer level.

2. **Grid modernizing investments:** At a minimum, this guidance should address investments that:
    a. Increase DER hosting capacity on the distribution system
    b. Improve generation monitoring, protection and control capabilities
    c. Improve DER dispatching capabilities, including incorporating protocols for dispatching on behalf of the IESO

3. **Grid modernization and distribution system planning:** Provide guidance to utilities that investments in grid modernization to connect and integrate DERs should form part of the utility's customer engagement and Distribution System Plans.

4. **Grid modernization incentives:** adopt the Weighted Average Cost of Capital ("WACC") as a suitable incentive for investments necessary to connect and integrate DERs. This incentive should be closely monitored and reviewed as necessary in the future.

5. **Recover costs from stakeholders in proportion to how they benefit from grid modernizing investments:** In recognition that investments needed to connect and integrate DERs in Toronto provide value to Toronto Hydro *and* provincial ratepayers, Toronto Hydro recommends an expansion to the types of investments that qualify as Renewable Enabling Improvements.

Non-Wires Alternatives

Toronto Hydro recommends that the OEB take the following actions specifically with respect to DER NWAs:

6. **Use the Innovation Sandbox to accelerate NWA projects:** The OEB's Innovation Sandbox should promote Non-Wires Alternatives through services including collaborating on the design of applicable Benefit-Costs tests and associated utility incentive mechanisms. Integrate Grid Innovation Fund opportunities as available and necessary to provide complementary funding for bulk-system benefits realized through NWA projects.

7. **Establish DER performance thresholds for NWAs:** Do not approve any NWAs where there is not a high degree of certainty that the NWA can perform in an equivalently safe reliable fashion as a traditional distribution investment.

8. **Develop a broadly-scoped NWA BCA Framework:** Develop a broad and flexible BCA Framework for the purposes of evaluating projects proposed through the Innovation Sandbox. Refine the BCA Framework as stakeholders gain greater experience as those projects are realized, including through experience gained at the Innovation Sandbox (Recommendation 6). Customer-specific, grid, bulk system and societal benefits should be within scope.

9. **Develop a NWA cost and incentive framework:** Provide the following incentive for NWA projects identified in utility DSPs:
    a. For operating costs of the NWA: full cost recovery (i.e., costs not subject to stretch/productivity factors);
    b. For capital costs of the NWA: WACC; and,

c. A performance incentive, proportionate to the size of the net benefit of the NWA as determined by the BCA Framework.

10. **Develop a DVA to capture NWA costs and incentives:** Create a DVA where costs and performance incentives for NWA projects identified between rebasing applications can be accounted for to ensure those projects can proceed fully funded between rebasing applications.

RESPONSE TO DISCUSSION QUESTIONS

1. What is the relative priority of the issues and next steps identified by the FEIWG?

Relevant Toronto Hydro recommendations: 1-10

Toronto Hydro has purposefully drafted its recommendations to address the full set of issues identified by the FEIWG in a fashion that focuses on actions that could be implemented in the immediate term, subject to future review and refinement as NWAs become more widely adopted by utilities.

The objective of these recommendations is to improve the economic efficiency of DER adoption (i.e., drive projects to connect at higher-value locations), and to guide utilities to be ready to integrate DERs as they are adopted in greater numbers (i.e., ensuring projects can be integrated to deliver its full value stack potential).

2. What is the appropriate scope of a BCA Framework? In other words, should a narrow or broad set of benefits and costs be considered with respect to deployment of DERs as alternatives to traditional solutions to meet electricity distribution system needs?

Relevant Toronto Hydro recommendations: 8

Toronto Hydro agrees with the Utility Incentives ("UI") sub-working group's Report which noted that "most DERs cause benefits that are beyond the distributor," and respectfully submits there four distinct potential beneficiaries:

a) ***Value to participating customers***: energy autonomy, cost reductions, energy bill avoidances, decarbonization and/or ESG goals, reliability, back-up generation, etc.
b) ***Value to transmission and distribution grid networks***: capital deferral, power quality improvements, reliability improvements, etc.
c) ***Value to the bulk system***: energy, peaking and baseload capacity, ancillary services
d) ***Value to society***: decarbonization goals, energy security, electrification, etc.

Because DERs have the technical potential to deliver value stacking opportunities beyond the distribution system, a broad scope of benefits should be considered in calculating the net benefit of an NWA. Societal, bulk system, transmission/distribution system and customer-specific benefits should all be within scope of the BCA Framework.

More specifically, the capital deferral benefit, which will be a critical component of a NWA BCA Framework, should be calculated as the difference between the revenue requirement of the NWA and the revenue requirement of the traditional investment, over a defined period of time (approximately 10 years, subject to future review).

The BCA Framework should also be flexible to allow LDCs to identify the specific benefits that apply to the specific case and circumstances of its NWA project from among the broad scope of benefits included in the BCA Framework.

Finally, Toronto Hydro notes that the BCA Framework is also an input into a performance incentive for the utility leading the NWA (see response to Question 4).

3. How might the OEB remove disincentives for utilities to adopt DER solutions?

Relevant Toronto Hydro recommendations: 1, 5, 9 and 10

Under the current regulatory construct, operating costs are typically subject to price cap regulation that builds in an expectation of productivity and an incremental incentive to stretch for additional efficiency gains. On the basis that NWAs would only be pursued if they provide a net benefit, and that NWAs typically involve an expenditure of OPEX to defer an expenditure of CAPEX, operating expenses for NWAs should not be subject to "X-factor" expectations.

In addition, a dedicated DVA to account for costs and incentives of NWA projects should be developed. Such a mechanism would remove a disincentive to the pursuit of NWA opportunities that emerge between the five-year rebasing periods.

More generally, guidance from the OEB that utilities should take reasonable steps to investment in grid modernization necessary to connect and integrate DERs would be welcome to encourage utilities to bring forward well-developed plans within their DSPs.

Finally, increasing the scope of costs eligible for recovery through the REI mechanism would be a fairer way to recover grid modernization investments that enable DERs to participate more freely in bulk system opportunities. The IESO's funding contribution to Toronto Hydro's Dual Participation Pilot follows this principle.

4. Is providing incentives to distributors to facilitate adoption of DER solutions (i.e., non-wires alternatives) appropriate? Under what circumstance?

5. If incentives are appropriate, how should the OEB select/develop the form of incentive that should be available?

5(a). Are there options the Incentive Subgroup did not identify that should be considered?

Questions 4, 5 and 5(a) are addressed together.

Relevant Toronto Hydro recommendations: 4, 5, 6, 8, 9 and 10

Yes, providing incentives to distributors that execute NWAs that deliver net benefits is appropriate. The UI sub-group of the FEI notes there are four categories of stakeholders that may have a claim on some or all benefits from a DER: third party DER providers; participating customers; non-participating customers; and distributors. "Getting the incentives right for each of the stakeholders is key to ensuring that the optimal DER solution is in fact implemented, and therefore ensure that the total benefit is also maximized".[8]

In competitive markets, firms that adopt innovations that provide value to their customers perform better than their counterparts that don't. The principles of performance-based regulation seek to act as a proxy to a competitive market.

However, it is frequently noted that the benefits of NWA's, which favour procuring services to displace capital investment, accrue to other parts of the energy system and their stakeholders, but not utilities. In 2014, Toronto Hydro highlighted this when it undertook its Local DR pilot at Cecil TS. Toronto Hydro's decision to proceed with Local DR at that time was made despite the incentives implicit in its regulatory treatment, not because of it.

Toronto Hydro believes there are three incentives that together would ensure that net benefits of NWAs could continue to accrue to customers while also better reflecting performance-based regulatory principles that apply to utilities.

First, utilities should be able to promptly recover the costs required to develop and execute a NWA. As discussed in Question 3, operating expenditures should not be subject to X-factor expectations. Second, any capital expenditures required for the project should be allowed to enter rate base and be recoverable in the normal course. WACC is an adequate incentive for those capital expenditures. A DVA should be established to account for these costs and incentives so to alleviate funding constraints between rebasing applications.

Finally, Toronto Hydro submits that a benefit sharing incentive, based on the BCA Framework's calculation of net benefits, should be implemented. A benefit sharing regime is the appropriate design for this incentive because it encourages utilities to develop projects that maximize net benefits, which in turn maximizes the benefits to customers. Toronto Hydro submits that it would be reasonable to share the net distribution benefits of an NWA on a 50/50 basis with customers. The OEB could also include a smaller share of the non-distribution benefits as a utility incentive to encourage NWAs designed to address needs beyond distribution applications. If such a paradigm is adopted, Toronto Hydro notes that the OEB could quickly refine and revise these shares as more projects are brought forward or as the Innovation Sandbox is engaged (Recommendation 6).

6. What should the OEB consider when setting expectations to ensure distributors appropriately consider DER adoption when planning and operating their systems (e.g., industry guidance, additional

[8] FEIWG – Utility Incentive Subgroup Report, June 8, 2022, at pg. 12.

filing requirements for Distribution System Plans, new requirements for reporting and sharing information)?

Relevant Toronto Hydro Recommendations: 1 and 6

Toronto Hydro notes in its previous responses the potential benefits of OEB guidance with respect to utility roles and responsibilities to encourage utilities to plan for grid modernization necessary to connect and integrate higher volumes of DERs in the future.

Toronto Hydro further suggests that reporting on NWA projects that engage the Innovation Sandbox initiative (Recommendation 6) would provide suitable information sharing opportunities, particularly if use cases beyond deferring grid expansion investments are found to produce positive business cases.

At this time, Toronto Hydro does not believe new RRR requirements or filing requirements are necessary, or at least should not be the OEB's top priority. Toronto Hydro notes its experience growing Local DR from a pilot to a mature and expanding system planning tool was done successfully under current reporting and rate filing rules, and on that basis does not appear to be an immediate barrier to NWA adoption.

CONCLUSION

Toronto Hydro appreciates the opportunity to provide these comments, all of which are respectfully submitted.

Please do not hesitate to contact me about any of the aforementioned.

Sincerely,

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