**December 13, 2024**

*Submitted via the Environmental Registry of Ontario (ERO)*

**RE: ERO Number: 019-9285   
Integrated Energy Resource Plan Consultation  
Alectra Utilities Submission**

1. **OVERVIEW**

Alectra Utilities (“Alectra”) is pleased to offer its response to the Ministry of Energy and Electrification ERO Posting 019-9285. Alectra is proud to be an established thought leader in the distribution sector as North America’s largest municipally owned LDC, delivering reliable, safe, and affordable energy to over a million Ontario families and businesses in 17 communities across Ontario.

The following submission is presented from Alectra’s perspective, as a trusted local distribution company (“LDC”) that continually challenges itself to evolve and innovate. With deep visibility and understanding of Ontario’s distribution grid, Alectra respectfully submits the following overall framing to the comments and recommendations contained herein:

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| One of the most important actions that Ontario can take today is to invest in a resilient, modern distribution network. This is an area with the potential to preserve and enhance reliability and resiliency, while enabling fast, affordable connections, economic growth and electrification. Proactive investment in Ontario’s distribution grid will also empower customers using emerging technologies to participate in the grid to provide flexible short, medium, *and* long-term benefits. Ultimately, the distribution sector is central to building out an affordable, reliable and clean energy system to meet the exceptional growth needs of Ontario. |

The Ministry’s policy vision paper, “*Ontario’s Affordable Energy Future: The Pressing Case for More Power*” reflects the scope and magnitude of the efforts needed to support a successful energy transition. Projections show electricity demand growth in Ontario of 75% over the next 25 years. That means Ontario needs 111 TwH more energy by 2050, the equivalent of four and a half cities of Toronto. Alectra’s own growth projections indicate that our peak distribution load will at least double and potentially even triple over the next twenty years. This will be driven by a combination of factors including organic growth (particularly new housing), economic development (especially data centres), and electrification, including EVs and a gradual projected shift to electrically fuelled heat pumps systems, supplementing natural gas in existing homes through hybrid systems, and displacing natural gas in a growing number of new homes over time.

Transmission development, nuclear refurbishment and investments in new generation are all important aspects of Ontario’s Energy Vision. To ensure customers can access and benefit from these investments, the government should make certain that distribution utilities are empowered to ramp up their investment in traditional distribution infrastructure as well as grid modernization technologies to deliver this energy to customers. Many of the actions outlined in the government’s vision paper require lead times spanning decades. The short and medium-term solutions offered by our existing distribution network can optimize the benefits of other long-term actions, and support Ontario’s growth and economic development today. Ontario’s distribution network contains untapped potential, that once unlocked, will serve to meet Ontario’s objectives. To this end, Alectra’s submission is organized into the following sections:

**Forward Looking Planning**

**Prioritizing Grid Modernization**

**The Potential of Distributed Energy Resources**

**Conclusion**

Every stakeholder in Ontario’s energy system has a role to play. The pathway to becoming an energy superpower requires a coordinated approach that leverages our collective strengths to solve the unprecedented challenges ahead. Ontarians are looking to the government for decisive leadership, the regulator for oversight, the IESO for managing the bulk system, and to their local utilities for reliability, customer service, and innovation. Ultimately, a successful energy transition requires everyone to do their part. Ontario’s LDCs are experts in distribution, and they should be given a clear mandate to unlock the potential of their local grids.

1. **FORWARD LOOKING PLANNING**

*What actions should government consider to promote greater access to electricity and accelerate grid-connections that will support economic growth, connecting new homes, and electrifying transportation and heating?*

*How can provincial planning processes be enhanced to support high growth regions, ensure greater coordination between energy resources, and better integrate municipal, distributor and regional planning processes?*

Alectra believes utilities should be empowered to make proactive investments in distribution infrastructure to ensure our systems remain resilient, while accommodating economic growth and electrification. Historically, the ministry and IESO have largely focused on investment in generation and transmission. These investments are critical, however, they are substantially wasted if utilities are not empowered to make corresponding investments to distribute the energy the “last mile”, to customers.

Utilities are significantly constrained by the OEB in their ability to make capital investments. The ministry should give the OEB clear direction to allow for rate increases beyond inflation to fund distribution system renewal and expansion, because currently the OEB’s mandate is to keep rates down in the short term, and this approach will actually be more expensive over time. Proactive refurbishing and replacement of aged infrastructure is more cost effective in the long term vs. waiting for failure. Utilities also need to be more proactive in distribution system expansion to be ready for increased demand.

To that end, the ministry and OEB should recognize the need for and implement changes in how distribution capital planning is done. The traditional method of using historical capital spending data to inform future capital spending is no longer appropriate, because it does not contemplate the unprecedented growth in demand that is projected in the coming years. Growth would be better anticipated by using IESO forecasts, utility load projections, municipal and regional plans and other forecast models to inform investment and system build out decisions.

According to Alectra’s projections, between 2030 – 2040 charging infrastructure expected to grow at 32% each year. If 30% of services convert to heat pumps by 2040, combined with the “unmanaged charging” scenario for EVs and organic growth, Alectra’s winter peak would reach 16,250 MW by 2040, triple the current the system peak demand.

Forward looking planning would also support housing development and economic growth, two key priorities for the government which have not historically been a focus of the OEB. Developers and commercial / industrial customers would benefit from faster connections, predictability of costs, fewer bottlenecks, and less risk of delays if utilities could make more proactive investments infrastructure renewal, as well as system expansion in high growth areas. Proactive investments have the potential not only to enable, but also to create economic growth – the ministry, OEB and utilities should work together to attract domestic, local employment and growth.

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| **Recommendations** |
| Provide clear direction to the OEB that proactive refurbishment and replacement of aged infrastructure should be encouraged, because it is more cost effective in the long term versus waiting for asset failure. |
| Use forward looking IESO and utility growth projections, as well as municipal and regional plans to inform investment decisions; using historical data is no longer realistic for meeting the future needs of the sector. |
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1. **PRIORITIZING GRID MODERNIZATION**

*What specific actions could position the integrated energy resource plan to best leverage distributed energy resources (DER) that enhance local and province wide grids to support energy system needs reliability and the lowest cost?*

*What policy or regulatory changes should government consider to address financial risks and support adoption of DER in the long-term?*

*What actions can the government take to enhance collaboration between the OEB, the IESO, local distribution companies, industry stakeholders, and local communities to support the investment and integration of DER?*

*What further actions could the government take to maintain an affordable energy system for Ontarians throughout the energy transition?*

In planning for the future, utilities will require stable and predictable access to capital to evolve the distribution grid to improve resiliency, and to be able to respond to the trends of growth, electrification and DERs. The modernization of Ontario's grid has not yet been a priority for investment; instead, capital spending has been focused on new generation projects.

A modern distribution grid is one of the keys to unlocking investments and cost savings at both the bulk and local levels to operate more effectively. Without a modern grid, Ontario risks forgoing billions of dollars in value. Alectra appreciates the government’s increased focus on grid modernization investment in *Ontario’s Affordable Energy Future: The Pressing Case for More Power,* which states that **“**distribution grids throughout the province will need to modernize, utilizing and integrating innovative technologies that facilitate active monitoring of their systems, while building better resiliency to changes in weather patterns and extreme weather events”. We encourage more specific policy direction so the OEB has clarity on what types of grid modernization assets they should prioritize for approvals. A summary of the three most pressing grid modernization activities from Alectra’s perspective follows.

It is important to note that the following investments are going to be required for larger utilities under any DER integration model (Dual Participation, Total DSO, or anything in between), so they are absolutely “no regrets actions”. Alectra doesn’t suggest that all ~60 utilities need to make these investments, rather that this could be a function of an LDC-size or DER penetration threshold test done by the OEB, per advice of the EETP report:

1. **Advanced Distribution Management System** – ADMS is an integrative platform that combines our various Control System and Management Systems. This will provide the utilities with full situational awareness, and optimize grid operations to enable the LDC to operate closer to its limits dynamically, reliably and safely. This integration empowers utilities to harness real-time data, deploy advanced analytics, and apply automation, thereby optimizing operations, enhancing reliability, and achieving cost efficiencies.
2. **Distribution and Substation Automation –** Distribution automation uses digital sensors and switches with advanced control and communication technologies to automate feeder switching; voltage and equipment health monitoring; and outage, voltage, and reactive power management. Automation improves grid flexibility, reduces outage restoration time, and provides customers with cost savings.
3. **Network Observability and Analytics - Telemetry, Data, and Software** – Providing comprehensive, multi-temporal insight into asset management, planning, grid operations, encompassing historical analysis, real-time awareness, and future forecasting. These tools enable system engineers and operators to fully extract the grid’s capacity, address local power quality performance issues and support integrated system planning requirements.

Modernizing the grid is essential for maximizing the potential of DERs for the benefit of customers, the distribution system, and the broader grid. The government’s ambitious goals on economic growth, faster connections, and becoming an energy superpower cannot materialize without an urgent and persistent commitment to modernizing the technical, operational, and administrative capacities of LDCs.

The utility of the future must be able to invest in assets and technology (i.e., capital expenditures) and in the services it provides (i.e., operating expenses) in advance of the emergence of acute needs. Proactive investment is the only way to prevent operational bottlenecks.

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| **Recommendations** |
| Provide clear direction to give the OEB clarity on what types of grid modernization assets they should prioritize for approvals. |
| Advanced Distribution Management Systems, Distribution and Substation Automation, and Network Observability and Analytics are the most pressingly needed investments. |
| Direct the OEB to establish an LDC size or DER penetration threshold to ensure that these investments will be made prudently, and where they will have the most value. |

1. **POTENTIAL OF DISTRIBUTED ENERGY RESOURCES (“DER”)**

*What further steps should the government take to enable households and businesses to manage and make informed decisions about their energy use?*

*What actions could the government consider to ensure the electricity system supports customers who choose to switch to an electric vehicle?*

*What actions should government consider that would empower customers to install innovative technologies to generate or store energy on-site to reduce costs and improve resiliency?*

*With the energy sector evolving and distributors considering new roles in serving customers, what barriers exist that limit local distribution companies from taking on new duties that could enable more efficient grid operations, leverage new technologies and further the integration of DERs?*

While bulk grid investment will continue to feature prominently in Ontario’s electricity system, customer-owned DERs such as rooftop solar, distribution connected storage, electric vehicles, and demand response programs should be a bigger part of the province’s energy planning moving forward. DERs enable customers to be compensated for reducing their electricity consumption or providing electricity services to the grid. These resources exist today (and are growing quickly) in major load centers, where it can be challenging to build traditional generation, transmission and distribution infrastructure. In fact, much of the potential for DERs is driven by the same loads which are causing demand growth, including EV charging and the electrification of heating.

DERs are an ideal resource to plan to meet the top 10-15% of demand projections which the IESO is not certain will materialize. This is in large part because of their flexibility, with no requirement for decade long lead-times or binding multi-decade contracts, helping to reduce the risk of stranded assets. The province and IESO should work with LDCs to include DERs in their planning and projections. This could be informed by a provincial DER achievable potential study, coordinated with bottom-up LDC driven potential studies.

DERs will be valuable in the energy transition as a tool to address resource adequacy, to help maintain and enhance reliability and resiliency, and to provide for faster connections and economic growth. Alectra helped prove the potential of DERs in partnership with the IESO’s Non-Wires Alternatives pilot project, which delivered 10MW (2021) and 15MW (2022) of capacity through contracting customer owned resources in the York region. This project was a great example of the benefits of DERs beyond energy and capacity; it was created and wound down within a few years (flexibility and risk of stranded assets), enabled customers to be compensated for participation (offsetting their energy costs), and deferred the need for investment in traditional infrastructure (NIMBYism and siting concerns).

As we continue to integrate DERs into the electricity system, the government should establish a clearly defined implementation process. This starts with a recognition that current incentive models must continue to evolve to support LDCs’ role in the advancement of DERs. The grid modernization investments listed above, along with Advanced Metering Infrastructure, are fundamental to a future where DERs are appropriately valued and utilized, but beyond that, utilities need a clearer definition of their role in the evolution of DERs.

The OEB has already taken steps to require utilities to consider DERs in their planning through the Benefits Cost Analysis (BCA) Framework, but the government should also provide guidance to ensure utilities are encouraged and incented to pursue these solutions where they may be more cost effective than traditional infrastructure. This is not a new solution. Other jurisdictions have addressed the significant investment required to meet their load and EV growth by harnessing the potential of DERs, and empowering LDCs to identify and implement the cost-effective DER solutions.

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| **Recommendations** |
| Work with agencies and utilities to include DERS in provincial energy planning processes, including an achievable potential study informed by top down (IESO) and bottom up (LDC) projections and analysis. |
| Provide the OEB and utilities with a clear definition of their role in these activities. |
| Recognize and take steps to address the fact that current OEB incentive models must continue to evolve to support LDCs’ role in the advancement of DERs. |

1. **CONCLUSION**

One of the most important actions that Ontario can take today is to invest in a resilient, modern distribution network. This is an area with the potential to preserve and enhance reliability and resiliency, while enabling fast, affordable connections, economic growth and electrification. Proactive investment in Ontario’s distribution grid will also empower customers using emerging technologies to participate in the grid to provide flexible short, medium, *and* long-term benefits. Ultimately, the distribution sector is central to building out an affordable, reliable and clean energy system to meet the exceptional growth needs of Ontario.

Growth and electrification are certain to have a material impact on electricity costs. It’s inevitable that customers will see an increase in electricity rates as Ontario’s system is renewed and expanded to accommodate growth and electrification. As an industry, we must clearly communicate that rising electricity costs are a direct result of investment that is necessary to maintain and improve reliability, accommodate growth, and enable electrification. It is important to be transparent about the long-term value propositions, risks, and objectives in our communications. It’s also important to recognize cost mitigation elements including new rate structures such as the Ultra-Low Overnight (ULO) rate, the Ontario Electricity Rebate (OER), and how more electricity use is expected to result in less alternative fuel use generating savings for customers and emissions reductions.