



**GRE&T Centre Report 2025**  
Collaborating to  
Power a Better Tomorrow



# Powering the Future: Innovation at the Heart of Alectra

Leveraging digital, data, and AI capabilities to help Alectra anticipate system pressures, respond to customer needs, and deliver on Ontario’s energy priorities.

At the Green Energy and Technology (GRE&T) Centre, innovation is an intentional practice that guides how Alectra prepares for change and demonstrates new ways to deliver value to the communities it serves.

Serving more than one million customers across Ontario, Alectra operates in a province where electricity demand is expected to rise steadily in the coming decades. Ontario’s [Energy for Generations report \(2025\)](#) highlights population growth, economic development, and electrification as key drivers behind a significant increase in electricity demand by 2050. The Independent Electricity System Operator’s (IESO) 2026 [Annual Planning Outlook](#) signals 65% demand growth by 2050, a period of significant transition for the electricity system and for the local distribution companies that support it.

In response, utilities such as Alectra are considering approaches that extend beyond traditional last-mile delivery toward a more integrated, technology-enabled grid, one capable of optimizing distributed energy resources, enabling electrification, and maintaining reliability and affordability.

“Innovation at Alectra is about strengthening how we plan, operate, and serve our customers in an evolving energy landscape. Through the GRE&T Centre, we are harnessing emerging technologies, grid edge solutions, and deeper insights into customer expectations to enhance system readiness, elevate decision-making, and ensure we continue to advance Ontario’s energy priorities.”

— Brian Bentz, President and Chief Executive Officer, Alectra Inc.

For Alectra, this underscores the need to embed greater intelligence and flexibility into the modern distribution system, and to shift toward more predictive and proactive operating practices.

The GRE&T Centre plays a key role in enabling this shift. Working across the enterprise, the GRE&T Centre demonstrates grid-edge capabilities, customer-focused program design, and advanced digital analytics to inform the roadmap of utility evolution. The GRE&T Centre examines how emerging capabilities can enhance visibility into evolving demand patterns, strengthen outage response, and support maintenance and planning strategies. These efforts help Alectra assess how new technologies may improve reliability and customer experience.

Through intentional innovation, partnerships, and pilot initiatives, the GRE&T Centre is building pathways that support Alectra’s preparedness for electrification trends and the evolving energy landscape in Ontario.





# From Pilots to Prepared: Enabling Enterprise-Scale Capability

Translating pilots into platforms by strengthening organizational readiness, operating models, and decision-making for a DSO-enabled future.

For over a decade, Alectra’s innovation team has led initiatives that deliver actionable insights across customer behaviour, grid-edge technologies, operational readiness, and the growing landscape of distributed energy resources (DERs) and Electric Vehicles charging infrastructure. These initiatives have significantly deepened Alectra’s understanding of operational practices and grid-edge dynamics, embedding strategic innovation into core business thinking. They have shaped how the utility evolves its operating model laying the foundation for a Distribution System Operator (DSO) model.

Key initiatives include the **Power.House Pilot**, which operated as a Virtual Power Plant, with integrated residential solar-storage technology; **Power.House Hybrid** explored how

deep home energy retrofits can accelerate the transition from centralized generation to decentralized and cleaner home-based power. **AlectraDrive @Home** and **AlectraDrive @Work** provided insights into customer engagement with managed EV charging.

GridExchange pioneered a transactive energy platform enabling energy exchange and rewards with DER owners. The IESO York Region Non-Wires Demonstration Project (NWA) brought to life North America’s first local electricity market (or flexibility market) at distribution level, and helped demonstrate how DERs can be competitively procured, coordinated, and operated to meet local system needs.

Building on these initiatives, Centricity, an end-to-end Distribution System Operator (DSO) program that embeds DSO capabilities into utility business-as-usual operations, is enabled through the design and operation of Local Flexibility Markets allowing customers and aggregators to actively participate in the distribution system by offering flexible services from distributed energy resources.

These initiatives translated DER and DSO concepts from theory into operational practice, and will continue to guide Ontario’s DER integration strategy, transmission-distribution coordination, and the evolution of a DSO business model in the energy sector.



The work leading to Centricity has deepened our understanding of how customer behaviour and system operations interact at the grid edge, providing valuable perspective as we think about planning and coordination.”

— Elias Lyberogiannis, Executive Vice President, Asset Strategy and Operations, Alectra Inc.

## Innovation in Action: A Decade of Advancing Grid-Edge Solutions

Alectra GRE&T Centre’s initiatives in customer engagement, DERs, and grid-edge technologies have laid the groundwork for advancing Alectra’s journey as a DSO

IESO York Region Non-Wires Alternative (NWA) Demonstration announces Alectra as a delivery partner

AlectraDrive @Home demonstrates managed EV charging at single family and multi-unit homes

Alectra participates and contributes in IESO’s Transmission-Distribution Coordination Working Group (TDWG)

OEB issues Non-Wires Solutions Guidelines  
Ministry of Energy Direction on DSO

2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	
Launch of Power.House pilot program, Canada’s first Virtual Power Plant demonstration	AlectraDrive @Work demonstrates managed EV charging at workplaces	Alectra releases post-pilot Power.House Feasibility Study with mass adoption assessment			Alectra GRE&T Centre is established Alectra launches Grid Exchange and Power.House Hybrid initiatives		Alectra pledges to reach net-zero GHG emissions by 2050 IESO York Region NWA Demonstration completes its first-year market operation, successfully meeting local needs with DERs		NWA pilot completed its second-year market operation, engaging the local community in the energy transition and paving the way for future DSO evolution		Alectra launches Centricity, an end-to-end DSO program, enabled through the design and operation of local flexibility markets



# Transforming the Grid Edge: Electrification for Customers and Communities

Delivering practical eMobility (Vehicle-to-Everything) solutions that reflect how customers are evolving from consumers to active participants in the energy system.

The electricity system is evolving and Alectra’s customers are playing a more active role in shaping that change. As households and businesses adopt electric vehicles, solar panels, battery storage, and smart energy technologies, the distribution grid is becoming more dynamic and bidirectional, with electricity flowing both to and from customers.

These changes place customers at the grid edge, where individual technology choices and energy decisions influence local distribution operations. Understanding how customer adoption affects demand patterns, load growth, and system interactions is essential to supporting electrification while maintaining system readiness. The GRE&T Centre helps translate this grid-edge complexity into practical insights by developing programs and capabilities that help customers better understand their energy usage, improve visibility into charging behaviour, and enable more informed planning.

### Alectra SmartCharge<sup>1</sup>: Enabling Consumer Participation

Alectra SmartCharge supports residential participation in electrification by providing managed EV charger installation and an integrated application that helps customers understand and manage their EV charging. The program explores managed charging strategies and energy management tools while also gathering customer insights that inform future EV infrastructure planning and customer engagement approaches.



Our customers are rapidly innovating at the grid edge. Our role is to match that pace by delivering the infrastructure, programs, and capabilities that turn individual actions into system-wide benefits—enhancing reliability, affordability, and shared value across the energy ecosystem.”

— James Douglas, Executive Vice President, Customer Experience, Alectra Utilities

### AlectraDrive for Fleets<sup>2</sup>: Coordinating Commercial Load

AlectraDrive for Fleets focuses on the unique considerations associated with commercial electrification. Electric fleets operate on varied schedules and require higher-power charging infrastructure, creating new planning challenges. Through load analysis, infrastructure planning, and managed charging approaches, the program supports a deeper understanding of how fleet charging interacts with the distribution system.



### Alectra V2X<sup>3</sup>: Preparing the System for Bidirectional Energy Flows

Alectra V2X is Ontario’s first pilot examining the technical, market, and customer considerations related to bidirectional energy flows with electric school buses.

Insights from these three initiatives bring a broader understanding of how residential and fleet electrification interact with the grid, supporting future planning, customer engagement, and operational strategies across Alectra’s service territory.



### Customer Spotlight

#### Living at the Grid Edge – Emmanuel and Myra Pacheco

Emmanuel and Myra Pacheco’s home offers a glimpse into the future of electricity. In their Brampton residence, solar generation, electric vehicles, advanced load-balancing technology, and panel upgrades enable their multigenerational household to both consume and generate energy.

With real-time visibility into their electricity usage, the Pacheco family is an active participant in the energy system—engaging with new technologies, leveraging available incentives, and making informed decisions about their energy use.

Early adopters like them provide valuable insights into how quickly electrification can accelerate when customers see clear value. They also highlight the barriers that still exist, even for motivated participants, and the capabilities utilities must continue to develop to support widespread adoption.

<sup>1</sup> This project is made possible through financial support provided by the Ontario Energy Board under the Innovation Sandbox Challenge.  
<sup>2,3</sup> These projects were made possible through financial support from NRCan’s Energy Innovation Program through its On-road Transportation Decarbonization Fund and the IESO’s Grid Innovation Fund.



# From Insight to Impact: Operationalizing AI at Scale

Applying AI responsibly to improve outage readiness, optimize supply chains, and elevate service quality across operations and customer touchpoints.

Artificial intelligence (AI) is becoming an increasingly important enabler for utilities, offering new ways to strengthen planning, improve operational preparedness, and enhance customer experience. At Alectra, AI is being introduced in a measured and responsible manner, guided by strong governance, clear oversight, and the close supervision of human expertise.

Alectra’s approach to AI is intentionally people-first. AI applications are designed to support, rather than replace the judgment of employees across planning, operations, customer service, and other critical functions. Through the GRE&T Centre, AI initiatives are advanced only where they address defined operational considerations, align with regulatory expectations, and demonstrate potential to enhance service consistency and preparedness.

### System Awareness and Outage Event Preparedness

An advanced analytics initiative supports preparedness for weather-related events by analyzing historical outage data, weather information, system characteristics, and response metrics. The insights provide enhanced visibility into system conditions ahead of major events, helping operations teams identify areas for closer monitoring, optimize resource readiness, and support Estimated Time of Restoration (ETR) communications. As the initiative evolves, additional data sources may be incorporated to further improve situational awareness.

### Workforce Support and Operational Analysis

The Metering team has collaborated with the GRE&T Centre to co-develop Agent J, an AI-enabled tool that flags potential anomalies and exceptions in consumption and meter performance data. This capability is intended to support triage activities by reducing the need for manual data scanning, allowing employees to focus on investigation and resolution while maintaining full human oversight and accountability.

### Customer Service and Quality Insights

AI is also being explored within Customer Service and Quality Assurance functions to assist with interaction categorization, documentation, and trend identification. These applications may help identify training opportunities, inform process reviews, and support the development of customer self-service resources, contributing to greater consistency in service delivery.

### Supply Chain Planning

The Supply Chain team is examining AI-enabled insights to support planning amid changing material availability, lead times, and Alectra’s buy-Canadian mandate. This work is focused on improving visibility and preparedness to support both routine operations and system events.

Training, change management, and governance remain central to Alectra’s approach to AI, ensuring that tools are introduced thoughtfully and evolve in alignment with organizational and regulatory requirements.



“AI delivers the most value when it empowers our people. Through thoughtful and responsible adoption, we are elevating our workforce and advancing Alectra’s readiness for the energy future.”

— Julia Zhu, Executive Vice President and Chief Digital & Innovation Officer, Alectra Inc.



# Innovation as a Team Sport: Scaling Impact Through Partnerships

Embedding innovation across the enterprise and ecosystem by combining internal expertise with strategic partners to accelerate learning and adoption.

Innovation at Alectra succeeds because it is shared, built through collaboration across internal teams and supported by an ecosystem of partners who bring specialized expertise and new perspectives.

Our most critical partnerships exist within Alectra itself. Innovation delivers value when subject matter experts across planning, operations, engineering, customer service, and system strategy are engaged from the outset. The GRE&T Centre acts as an enabler and integrator—introducing emerging technologies, data-driven approaches, and evolving operating models to support organizational readiness, inform decision-making, and helps ensure innovation remains sustainable beyond individual initiatives.

Strategic external partnerships give Alectra access to specialized capabilities that are already proven in other sectors and jurisdictions, providing mature and scalable tools that can be adapted to utility operations. For example: [Planview](#) provides innovative solutions for asset management. [Google](#) provides enterprise-grade cloud and AI infrastructure. [CrossLeaf](#) applies machine learning to forecasting and asset insights. [SEW](#) brings customer engagement to life through software platforms while [Norda Stelo](#) contributes to vehicle-to-grid technical and regulatory exploration.

Funding partners such as Natural Resources Canada enable demonstration projects, explore emerging approaches, including local flexibility markets and distributed energy resource integration, and assess their potential for broader application across utility operations.



## Collaborating Across the Energy Ecosystem

Active participation in industry forums, academic collaboration, and peer utility knowledge-sharing keeps Alectra connected to evolving policy, technology, and customer expectations, positioning innovation as a shared capability across the energy ecosystem.



Innovation works best when it is embedded across the organization and amplified through trusted partnerships. By connecting internal expertise with external capabilities, we are turning new ideas into practical solutions that benefit both Alectra and the customers we serve.”

— Geri Yin, Vice President, Alectra GRE&T Centre



## Pelmorex: Bringing Weather Intelligence to Enhance System Resilience

[Pelmorex](#), a Canadian weather intelligence company headquartered in Oakville, operates The Weather Network and provides high-resolution weather data and predictive analytics. Alectra’s collaboration with Pelmorex integrates specialized weather data into outage response algorithms, examining how local weather patterns impact the grid. Through co-development of AI-enabled analytics, the partnership enhances situational awareness related to storm impacts, outage risk, and crew deployment, supporting faster, more informed responses during severe weather events.



# Shaping What Comes Next: Readiness, Resilience, and Foresight

Guided by the GRE&T Centre Advisory Committee, we are building long-term capabilities, governance, and intellectual property to sustain innovation and system transformation

Long-term system transformation requires strategic foresight, rigorous governance, and disciplined capability building. At the GRE&T Centre, this perspective is provided by an independent Advisory Committee that brings outside-in expertise to help Alectra navigate an evolving energy landscape with clarity and confidence.

Established in May 2019, the Advisory Committee is comprised of professionals from technology, energy policy, academia, and innovation ecosystems. Members actively participate in design-thinking workshops, strategic discussions, and hands-on sessions that explore new technologies and assess organizational readiness. They challenge assumptions, stress-test strategies, and help ensure that innovative initiatives deliver enduring value across operations, customer experience, and system readiness.

### Ready for What Comes Next

Looking ahead, the GRE&T Centre continues to serve as Alectra’s focal point for readiness, resilience, and foresight. By combining the Advisory Committee’s strategic guidance with hands-on pilot initiatives, AI exploration, and customer-focused programs, the GRE&T Centre translates emerging insights into actionable approaches that prepare the utility for the evolving electricity system. This ensures that Alectra not only responds to change but actively shapes what comes next, building operational strength, supporting grid transformation, and delivering lasting value for customers, communities, and the broader energy landscape.

“The utilities that will thrive in the next decade are not simply those with the most advanced AI. They are the ones that deploy it responsibly, transparently, and in ways that amplify human decision-making—shaping a smarter, more resilient electricity system for the future.”

— Nicholas Parker, Member, GRE&T Centre Advisory Committee

### Advisory Committee Members

#### Chair



Dr. Pina D’Agostino

“True innovation does not just solve today’s problems, it builds the organizational muscle to solve tomorrow’s. The capabilities Alectra is developing now will define its competitiveness for many years to come.”

— Dr. Pina D’Agostino, Chair, GRE&T Centre Advisory Committee

#### Members



Chantel Broten



Lorelei Graham



Raed Kadri



Dr. Janusz Kozinski



Dr. Brian Mergelas



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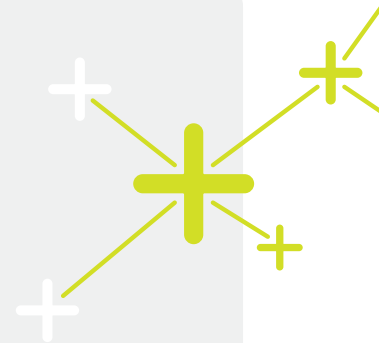


Geri Yin

“Impactful innovations not only optimize a single utility’s operations, they also empower end users, strengthen grid resilience, and ultimately drive the energy transition forward, accelerating our ability to realize electrification goals.”

— Raed Kadri, Member, GRE&T Centre Advisory Committee

For Advisory Committee member bios, please click [here](#).



**Alectra's vision** is to be your trusted energy partner empowering a sustainable and brighter future  
**Alectra's mission** is to provide innovative and reliable energy solutions which deliver lasting value for all  
**Alectra's GRE&T Centre** is where great minds collaborate to power a better tomorrow



Please contact us for more information about Alectra and our efforts to create sustainable value in the energy sector

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