



Where great minds collaborate  
**to power a better tomorrow**

Alectra Green Energy & Technology Centre

2021 Annual Report

  
**alectra**  
GRE&T Centre



# Discover



Where great minds collaborate  
**to power a better tomorrow**

# Discovering the possibilities

The Alectra Green Energy and Technology Centre (GRE&T Centre) is a dedicated innovation hub that helps us explore the possibilities for a bright new energy future.

We are in a changing energy landscape. There is a growing mainstream interest in emerging technologies, energy markets, Distributed Energy Resources (DERs), and electric vehicles. Our customers, communities, and businesses expect more sustainable energy options to support them as they strive to meet their net zero goals and mitigate climate change. They also expect advanced technology solutions that are more connected, automated, and intelligent, but also straightforward and user-friendly. We at Alectra want to be an energy ally for our customers and communities as they navigate the cleaner and more empowering energy options of today and of the future.

With a focus on innovation, green energy, and new technology, the GRE&T Centre is providing Alectra with the resources to proactively engage with customers and energy innovators so that we can help lead this energy transformation. The GRE&T Centre is a place of collaboration where we can build and deliver the tools and new clean energy options our customers and communities are looking for.



**Grid Innovation**  
Leveraging grid modernization technologies to enable a more sustainable grid  
Focus on Distributed Energy Resource (DER) integration, a Distribution System Operator (DSO) model, and a Transactive Energy Platform



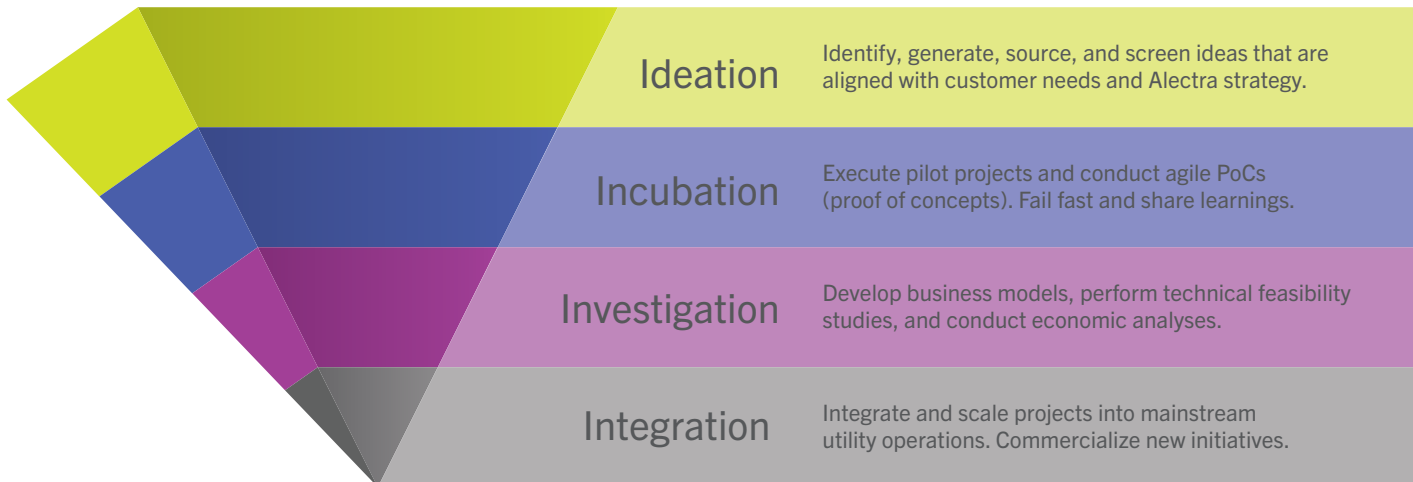
**Smart Cities**  
Powering homes, buildings, and transportation with smart, clean technologies  
Focus on e-Mobility



**Advanced Planning**  
Harnessing emerging technologies and cross-industry solutions to enable a digitalized utility of the future  
Focus on market intelligence, advanced data analytics, and integrated end-to-end solution design and deployment

## GRE&T i4 Innovation Framework

The i4 Innovation Framework guides the work of the GRE&T Centre from the inception of new ideas to commercialization.





# Collaborate



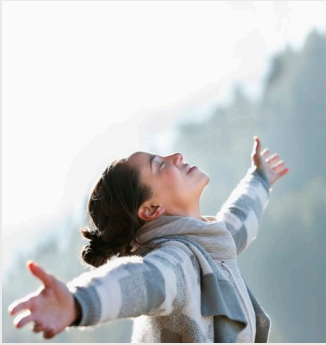
**When we receive recognition from our peers, it inspires us to continue on our path to drive industry innovation. We can spur more innovation and get the whole sector moving forward together.**

– Brian Bentz, President and CEO, Alectra Inc.

Since its inception, the GRE&T Centre has focused on enabling innovation and emerging technology for new clean energy projects in our transforming energy sector. This focus has highlighted the importance of collaboration. We believe the best innovation and industry transitions can only be successful with great collaboration. That is why we are so pleased to have worked together with industry partners to continue delivering exciting projects and grid modernization initiatives which are helping to shape the broader energy sector.

We are very appreciative of the industry endorsements we have received in the form of partnerships, awards, and accolades.

## 2021 Awards



### OEA Innovation Award

Alectra was awarded the Ontario Energy Association (OEA) Innovation Award recognizing the breakthrough ideas, new technology, and creative adaptation of existing technology in Alectra GRE&T Centre projects.



### 2022 Clean50 Emerging Leader

In September 2021, Sara Ganowski, Specialist, Smart Cities, GRE&T Centre, was recognized as a Clean50 Emerging Leader.

### 2022 Clean50 Individual Leader

In September 2021, Neetika Sathe, Vice-President, GRE&T Centre, was recognized as a Clean50 Individual Leader.



### AESP Energy Award

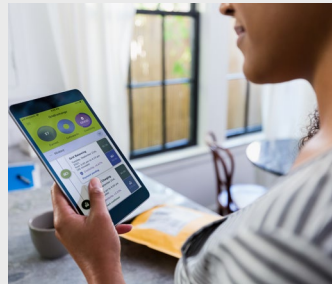
The IESO received the Association of Energy Services Professionals (AESP) Energy Award for the IESO York Region Non-Wires Alternatives Demonstration Project. The Project was recognized for its innovation in exploring market-based approaches to secure energy and capacity services from Distributed Energy Resources (DERs) for local and system-level needs, while coordinating across the electricity system. We are so proud to be the delivery partner in this impactful project.

## 2021 Highlights



### Customer-Friendly Overnight Electricity Rate

In November 2021, the Minister of Energy directed the Ontario Energy Board (OEB) to study and advise on a new ultra-low overnight electricity pricing option for Ontarians to support the decarbonization of transportation and EV drivers. Alectra provided the OEB with insights and inspiration for a new electricity rate based on various pricing models, including a similar low overnight rate plan that it piloted through the GRE&T Centre's Advantage Power Pricing Pilot. The Minister of Energy announced the launch of this new optional rate plan in February 2022.



### GridExchange Pilot Completed

GridExchange is a transactive, blockchain-backed energy platform that offers customers the ability to participate in an energy marketplace which offers compensation and rewards. The 21 residential customers and 4 local businesses participating in the pilot in late 2021 not only benefited from compensation for their participation, but also produced an impressive savings of 294 kgCO<sub>2</sub> and 1606 kWh of energy.



### An Historic Milestone for DERs in Canada

The IESO York Region Non-Wires Alternatives Demonstration Project met an historic milestone in June 2021, when DERs participating in the Project were activated to help reduce local peak demand during a heatwave in southern Ontario. This was the first time in Canada that DERs secured through a Local Energy Auction were used to help reduce local peak demand.



### Thought Leadership

In 2021, we contributed to industry conversations at 25+ conferences and events, as well as through podcasts and industry articles. Topics included:

- Innovating at the grid edge through DERs
- Using non-wires alternatives to drive grid modernization
- Electrification of transportation and accelerating the transition to EVs through incentives and new electricity pricing models
- Equity, diversity, and inclusion in the electricity sector
- Artificial Intelligence
- How Smart Cities can support community net zero goals

# Q&A

## Discovering the Possibilities

We asked our GRE&T Centre leaders Dr. Giuseppina (Pina) D'Agostino, Brian Bentz, and Neetika Sathe about their thoughts on the GRE&T Centre and what it means to them.



**Dr. Giuseppina (Pina) D'Agostino**  
Alectra Board Member and Chair of the  
Alectra GRE&T Centre Advisory Committee



**Brian Bentz**  
President and CEO of Alectra Inc.



**Neetika Sathe**  
Vice-President, GRE&T Centre

**Q The GRE&T Centre has been described as a think tank, collaboration hub, and ground zero for innovation at Alectra. Why is it important to you that Alectra has the GRE&T Centre to serve these functions?**

**Brian**

We are working in a changing energy landscape where new options like electric vehicles, battery storage, and artificial intelligence programs to manage home and office environments are rapidly becoming “need to have” products for our customers. The GRE&T Centre provides us with the resources to proactively engage with our customers and energy innovators so that we can help lead the transition to a modern energy system that enables those products and services. The simultaneous modernization of our electric grid is critical to facilitate the market transition.

**Q The GRE&T Centre’s purpose statement “Where great minds collaborate, to power a better tomorrow” was established when the GRE&T Centre launched in 2019. What did that statement mean to you then, and how does it continue to apply today?**

**Neetika**

When we first launched the Centre we knew we needed to focus on innovation, green energy, and emerging technology. These areas were always intended to be in the DNA of the Centre. What evolved was the recognition that collaboration would be a critical part of our success. The most effective innovation comes from collaboration. That is what sparked the idea of great minds coming together to power a better tomorrow.

You can see the importance of collaboration as you consider how the world has collaborated in the fight against COVID-19. Collaboration enables solutions for overarching needs across the world. It is the tool to help pivot the energy sector in a way that can deliver the world’s climate change aspirations. We need to think

and work across departments, organizations, and communities. There is no entity and no one piece of the puzzle that can deliver climate change solutions. We must necessarily work together. There is heightened importance on collaboration now more than ever before.

**Q As you reflect on 2021, what do you value most about the GRE&T Centre?**

**Pina**

The best part of the GRE&T Centre is its true and authentic energy from people power. The Centre has a vast talent pool including energetic staff, visionary leaders, and stellar strategic advisors. It delivers innovation through the combined efforts of this constellation of talented energy. It is a safe and smart space to embrace and test new ideas, making it a magnet to attract talent and creating a culture of honing talent.

**Q What do you consider the greatest achievement of the GRE&T Centre in 2021?**

**B** There are several achievements that deserve recognition. One that stands out is the IESO York Region Non-Wires Alternatives (NWA) Demonstration Project. It is a ground-breaking project that is empowering customers with Distributed Energy Resources (DERs) to help reduce electricity demand on the grid and has the potential to help lower energy bills. We are midway through this two-year pilot which includes a variety of diverse customers and technologies. It is an important initiative for Alectra and for the energy sector. The interest displayed by participants shows us that customers have a desire to engage in different ways and are willing to become more active participants in energy decisions and discussions.

---

I would also like to highlight the GridExchange pilot which was completed in late 2021. GridExchange is a platform that enables residential and business customers in our territory to connect to energy markets and leverage their DERs to participate in two-way power flow and energy services. We have been very encouraged by the great feedback we have received from pilot participants.

We also received the Ontario Energy Association (OEA) 2021 Innovation Award. This award recognized Alectra for working with industry partners to deliver innovative projects like the IESO York Region NWA Demonstration Project and GridExchange. We are pleased to be recognized for our contributions towards a clean energy future. We believe we are doing the right thing in the sector, and when we receive recognition from our peers, it inspires us to continue on our path to drive industry innovation. We can spur more innovation and get the whole sector moving forward together.

**N** Another accomplishment is the great strides we have taken to be a trusted ally for internal customers, like our colleagues and our peers. We are not only launching pilots for new energy solutions, but we are also supporting the various departments across our organization with their efforts to innovate. We are supporting our fleet department with electrification, helping our facilities department with the implementation of more EV chargers, and developing a GHG tracker for our Strategy and Sustainability business unit to track the hourly GHG emissions being produced within Ontario's electricity system to enable the development of additional mitigation plans to reach our own net zero goals. Another emerging area of innovation is evolving our data analytics capabilities in operations in areas such as vegetation management. We have successfully collaborated with Asset Management engineers to combine historical reliability data sets, distribution system maps and recent satellite imagery to predict and mitigate outages from tree contacts.

**Q** **Since early 2020, the world has been confronting the COVID-19 pandemic. What challenges and what new opportunities did the pandemic bring in the energy sector?**

**P** The pandemic has become an opportunity to recognize and reinforce our resilience. It has highlighted that one of our greatest strengths, and one of our greatest achievements in 2021, is resilience. With wisdom and great leadership, our organization was able to get through the challenges of the pandemic. The GRE&T Centre was at a nascent year, still building culture, organizing, and populating its staff, when we were hit by the pandemic. Against this backdrop of pandemic challenges, during the early years of developing the GRE&T Centre, you see a succession of successes. Honours, awards, and accolades have come to us during this challenging time. Despite it all, we were able to do well.

**N** I completely agree. Through the pandemic, we have been able to continue working towards our objectives and our vision and mission. We have been nimble and agile and we have had lots of accomplishments in 2021. I believe the real reason we could do that is because we are a purpose-built organization. We are well aligned. It's been easy to row in the same direction and align in the same direction because we have such a strong purpose.

**Q** **What do you think will be the next trend in customer expectations? What will they be expecting of their electric utility?**

**B** The next trend is upon us now – electrification of transportation and the development of small, locally sited electricity generation technologies like batteries, co-generation equipment, and solar generation. The market for these products is developing rapidly, driven by climate change, competition, and consumer demand. And the costs of this equipment are, in many cases, competitive to grid power and are increasingly becoming viable for businesses and homeowners.

Customers expect Alectra to be a trusted resource for them as they begin to add these new, efficient, and cleaner assets to their energy systems. That is why the GRE&T Centre is so important at Alectra. The work of the GRE&T Centre prepares us to help customers take advantage of the energy options that are quickly becoming mainstream technologies.

## Discovering the Possibilities

---

**P** Customers are also looking to us for help in a real and meaningful way. They want to know about available support and how they can be saving in dollars and cents. Customers want to know that the companies they support are caring and in tune with what is happening in the world. Customers care to know how a company is purpose driven. They want us to be stewards of the earth, to invest in sustainability goals, and to think about the environment in a meaningful way. Alectra is delivering energy solutions and can make a meaningful contribution to do our part and tackle the climate crisis. You can also see how Alectra cares about its communities through company sponsorships, the diverse employees we hire, and the students we have supported on their learning journey.

**Q** **You raise a great point about the importance of corporate social responsibility. People want to work for and support organizations that have a positive impact on their communities. In what ways do you see the work of the GRE&T Centre supporting corporate social responsibility goals?**

**N** GRE&T Centre projects have been focused on sustainability from the beginning, even before sustainability was a mainstream goal for customers. We aim to develop energy solutions that benefit the customer, the electric grid, and the planet. Projects that are a win for the customer, for the electric grid, and for the planet are necessarily ticking the box for sustainability.

The focus on people and communities, as well as equity, diversity and inclusion is a critical and welcoming focus in business. We are recognizing ED&I principles in our business practices, including recruitment, community support, and procurement, and we strive to create an inclusive environment.

**Q** **There has been rapidly increasing interest in e-Mobility over the past year. The combination of technology improvements, government mandates, and public support for decarbonization seems to be giving a boost to EVs. What does this mean for Alectra and the GRE&T Centre?**

**P** e-Mobility means opportunities. It provides opportunities to grow, attract talent, forge new partnerships, commercialize more intellectual property (IP), and be a leader in the community. We have a team in place with the know-how to embrace these opportunities and to scale e-Mobility initiatives to meet this growing interest in EVs.

**N** Enabling e-Mobility is about modernizing the grid, enhancing customer engagement, and growing the utility business. We are there to support customers as an energy ally when they make new energy decisions, like transitioning to an EV. We are enabling the fuel pumps of tomorrow, which, most of the time, will be in their homes, businesses, or public charging stations in their communities.

**Q** **What are you most looking forward to in 2022?**

**P** Once it is safe to do so, I am looking forward to more in-person connections. The best energy comes from physical proximity, collaboration, and people getting together.

**B** As I think about Alectra in 2022 and beyond, I am inspired by the opportunity to build the next generation utility and new opportunities for our customers. I would like to express my gratitude to the GRE&T Centre team and all of the employees at Alectra who make it possible. It has been an outstanding year by an exceptional team.



# Alectra GRE&T Centre Advisory Committee

The Advisory Committee provides strategic advice and guidance regarding GRE&T Centre pilots, demonstrations, partnerships, and engagement activities. The Committee is continuously looking at the future of Alectra through an innovative lens, sharing insights on local and global trends and issues, and bringing a fresh, outside-in perspective to strategic deliberations.

The Committee includes Alectra leaders and experts recruited from various fields who provide a wide spectrum of skills and points of view to ensure that the GRE&T Centre can deliver initiatives that are relevant, forward thinking, and applicable to the ever-changing energy industry. This composition provides immense value because it enables both provocative questions and pragmatic discussions. The synergy created in this collection of great minds is helping the GRE&T Centre navigate the new normal and empower our clean energy future.



**Dr. Giuseppina (Pina) D'Agostino**  
Alectra Board Member and Chair  
of the Alectra GRE&T Centre  
Advisory Committee



**Dr. Janusz Kozinski**  
Committee Member



**Brian Bentz**  
President and CEO of Alectra Inc.  
and Ex Officio Committee Member



**Chantel Broten**  
Committee Member



**Dr. Brian Mergelas**  
Committee Member



**John Matovich**  
Executive Vice-President, Alectra  
Energy Solutions and Services and  
Ex Officio Committee Member



**Lorelei Graham**  
Committee Member



**Nicholas Parker**  
Committee Member



**Neetika Sathe**  
Vice-President, GRE&T Centre and  
Ex Officio Committee Member



# Transform



Right from the start, when we installed the panels, my question was ‘Can we give to the grid?’  
And now we’re doing it and we’re getting reimbursed. This is great.

– GridExchange customer

# Supporting a sustainable grid

Enabling grid innovation and unleashing the potential of grid modernization technologies is a strategic area of focus for Alectra. The Grid Innovation team at the GRE&T Centre is piloting new initiatives, testing technologies, and building new energy markets to enable a more sustainable, flexible, and reliable grid. Through our explorations, we are demonstrating how utilities can better support customers with new energy options, and we are advocating for electric utilities to lead the energy transformation to the grid of the future.

## GridExchange Pilot

GridExchange is a transactive, blockchain-backed energy platform that offers electric utility customers the ability to participate in an energy marketplace. Customers with energy assets like solar panels, battery storage, or electric vehicles (EVs) are able to receive compensation and rewards for managing their energy use, such as deferring the charge of their EV to off-peak hours or sharing energy from their solar panel. Customers review and confirm participation in these offers in real time on a mobile and web app, with a transaction as seamless and as familiar as online shopping. We are pleased to be demonstrating how different players can come together to try out new solutions like GridExchange. The pilot is empowering customers, reducing their energy costs, and encouraging the adoption of clean energy resources.

The pilot was conducted from August 2021 to January 2022 with 21 residential customers and 4 local businesses located across Vaughan, Markham, Richmond Hill, Barrie, and Hamilton. It is partially funded by Natural Resources Canada's Green Infrastructure Fund and includes Sunverge Energy Inc., Flo, and Savage Data Systems as partners.

### PILOT RESULTS

**3**  
MONTHS

**21**  
RESIDENTIAL  
CUSTOMERS

**4,881**  
TOTAL kWh  
DELIVERED/REDUCED

**1,606**  
kWh ENERGY  
SAVINGS

**294**  
kgCO<sub>2</sub> REDUCED





### Power.House Hybrid Pilot

This pilot is demonstrating how utilities can collaborate with municipalities and customers as trusted partners and innovative leaders, developing practical solutions to help meet Canada's GHG reduction targets. It is enabling net zero energy emission homes by integrating a hybrid set of electrical and thermal equipment into a virtual power plant platform. This novel solution adjusts heat and electricity consumption within a home to minimize its carbon footprint, provide backup power, and optimize power and heat use during peak energy times. The homes include solar panels, battery storage, smart EV chargers with bidirectional meters, and a hybrid heating system with air source heat pump, smart air handler, and a tankless boiler.

In 2021, ten new units were commissioned, bringing our total fleet of POWER.HOUSE™ and Power.House Hybrid homes to 32. The solar generation from these homes reduced GHGs by approximately 70,000 kgCO<sub>2</sub> in 2021. Further analysis will quantify additional savings from battery and thermal equipment. We look forward to collecting more data and analyzing the potential impacts and benefits of implementing more Power.House Hybrid systems across our territory.

The Power.House Hybrid project is funded by Natural Resources Canada's Green Infrastructure Fund. Partners include Enbridge Gas Inc., the City of Markham, and Toronto Metropolitan University (formerly Ryerson University).

### POWER.HOUSE™ Pilot

This ongoing pilot provides residential customers with an integrated solar-plus-storage unit and an energy management system that protects their home against power outages, reduces electricity bills, and lowers their carbon footprint. It operates as a virtual power plant for optimal operation on the local electricity grid.

The pilot has been extended for another two years (until March 2023) to test emerging technologies and new use cases.

The POWER.HOUSE™ pilot was launched with project partner, Sunverge Energy and funded by the IESO's Conservation Fund.

## IESO York Region Non-Wires Alternatives (NWA) Demonstration Project

This project, which is Canada's first local distribution-level electricity market, aims to explore how Distributed Energy Resources (DERs) can be used as Non-Wires Alternatives (NWAs) to help meet electricity system needs while also contributing to transmission-level needs and coordinating across the electricity system. These NWAs can be used for managing local peak demand and can offer services to defer, reduce, or avoid costs associated with expanding distribution networks as well as transmission network and resource infrastructure.

In the Project's first year, the Local Capacity Auction garnered high interest from market participants with 2x the capacity registering in the auction, demonstrating a clear demand for opportunities to participate in energy and ancillary service markets and to provide various local and system-level grid services. The Project then reached an exciting and historic milestone in June 2021 when DERs were activated during a scorching heatwave to help reduce local peak demand. This was the first time in Canada that DERs secured through a Local Energy Auction were used to help reduce local peak demand. During the six-month commitment period, the Project saw nine activations that coincided with the hottest days of the year, which achieved an average of ~8 MW of peak demand reduction and 200 MWh delivered/reduced. The participants who own and/or operate the DERs earned a total of ~\$125,000 per MW during the commitment period. The procured DERs delivered an impressive ~80% of energy requirement, reiterating the significant interest from customers in participating in a local energy market.

In the Project's second year, we introduced a local reserve service with financial benefits for standby power or demand reduction, that can be called upon on short notice. We successfully procured the 15 MW target (from the 30 MW of registered capacity) of which 6.8 MW is reserve-capable. The Local Capacity Auction cleared at \$0.40/kW-day (\$50,000/MW-year) which was a significantly more competitive clearing price compared to the first year's clearing price of \$0.64/kW-day (\$80,000/MW-year).

Alectra is the delivery partner for the IESO York Region NWA Demonstration Project, a two-year pilot running from 2020–2022. The Project is made possible by funding from the Independent Electricity System Operator (IESO) Grid Innovation Fund and the Natural Resources Canada's Smart Grid Program.

### PROJECT RESULTS IN SECOND YEAR

15

MW PROCURED

30

MW OF REGISTERED CAPACITY

6.8

MW IS RESERVE-CAPABLE

\$0.40

PER kW-DAY LOCAL CAPACITY AUCTION CLEARING PRICE



The IESO York Region NWA Demonstration Project has enabled us to engage with local communities on our journey towards a sustainable and clean energy future.

— Geri Yin, Head of Grid Innovation, GRE&T Centre



# Accelerate



We're listening to customer feedback, studying best practices, and identifying insights from our pilots so that we can understand our customers' needs as they shift to electric mobility. There are many opportunities for Alectra to support customers with smart charging technology, customer engagement tools, and alternative rates. Our vision is to be an ally to our customers as they transition to EVs and build Smart Cities.

— Daniel Carr, Head of Smart Cities, GRE&T Centre

# Enabling transformation in e-Mobility

We can see that our communities are changing. They are building smart cities that incorporate innovative technology to improve livability, workability, and sustainability for residents. At the Alectra GRE&T Centre, our Smart Cities team is helping communities power homes, buildings, and transportation with smart, clean technologies, with a focus on electric vehicles (EVs).

The future of e-Mobility is full of activity. We are now seeing broad adoption of EVs, including passenger, public transit, and corporate vehicles. And we expect more electrification of delivery fleets and heavy-duty vehicles in the coming years.

To support this growing activity, we're conducting research and implementing pilot and demonstration projects that explore the business models, vendors, technologies, and customer support required. This includes:

- Supplying information and resources on our website
- Using technology solutions that make EV charging accessible and cost-effective
- Helping cities and businesses transition transportation and fleets to electric
- Advocating for electricity rates for EV drivers
- Planning for the increased electric load from EV charging
- Evaluating innovative energy options, like vehicle-to-grid connections, as a source of back-up power and economic value
- Empowering our pilot participants who are excited about saving money, testing new technology, conserving energy, and being a steward for our planet, and
- Supporting the sustainability goals of our communities

## AlectraDrive @Home

This pilot explores how electric utilities can provide managed charging solutions for people at their homes. It provides the convenience of charging at home, helps customers manage costs, includes incentives for charging at off-peak times, and helps utilities manage the growing electric load from EVs. As we see increasing amounts of EVs in our communities, this pilot is really helping us to better understand EV charging behaviour so that we can support our customers, who are increasingly transitioning to EVs.

In 2021, we collected over one year of data from 200 EV drivers in single-family homes and multi-unit residential buildings. We look forward to continued learnings about how customers respond to incentives to shift their charging behaviour, and how utilities can play a role in providing charging infrastructure and managed charging services at home.

The AlectraDrive @Home pilot (2019–2023) is made possible through the financial support of the Independent Electricity System Operator's Grid Innovation Fund and by Natural Resources Canada's EV Infrastructure Demonstration Program. Partners in this project include Generac Grid Services, GEOTAB, Flo, Robertson Bright Inc., and Plug'N Drive.



### AlectraDrive @Work

Through this pilot, we are facilitating charging as a convenient amenity for employees and visitors at workplaces. The pilot includes various municipal buildings and businesses, like the Alectra Corporate Office in Mississauga, the Markham Civic Centre, and the Mississauga Central Library, which are testing technology solutions for managed EV charging so that we can help businesses and building owners manage the flow of electricity needed to serve their buildings and their EV charging stations. It aims to minimize electricity costs while also enabling the convenience of charging at work.

The AlectraDrive @Work pilot (2018–2022) is made possible through the financial support of the Independent Electricity System Operator's Grid Innovation Fund and by Natural Resources Canada through its financial support of the Charge the North Project led by GEOTAB. Partners include ChargePoint, Eguana Technologies, Generac Grid Services, GEOTAB, Flo, Plug'N Drive, Robertson Bright Inc., Schneider Electric, and Util-Assist.

### Advantage Power Pricing (APP)

APP was part of the Ontario Energy Board (OEB) examination of alternative electricity pricing models for residential customers. Through APP, we designed and delivered 3 new pricing options and measured results from more than 15,000 customers. The results provided valuable insights into consumer behaviour and preferences which ultimately inspired a new province-wide pricing option (the ultra-low overnight pricing geared towards EV drivers) announced by the Minister of Energy in early 2022. This pricing option intends to support the decarbonization of transportation and provide customers with choice and the ability to save money. We are proud to support the OEB to enable alternative rates, like this one, which was tested in the APP pilot.

APP was made possible through the support of the OEB through its Regulated Price Plan (RPP) Roadmap Pilots initiative. Partners included BEworks, Util-Assist, Bidgely, Energate (Tantalus), ecobee, Nest, and Eaton. The pilot was underway from 2017–2019 and pilot results analysis was conducted in 2020–2021.

### Other e-Mobility Initiatives

In addition to our EV pilots, the GRE&T Centre has been proud to work on many other initiatives that support e-Mobility.

- Administering \$2 million in federal funds through Natural Resources Canada to deliver incentives for EV infrastructure to eligible organizations
- Analyzing GHG emissions and cost savings of electrification to support businesses and fleets with their decision to go electric and to help meet net-zero emissions targets
- Using expertise gained through pilots to develop commercial offerings
- Participating in and supporting government-funded studies to the impact of EVs on the electric grid
- Supporting the events and initiatives of our industry associations



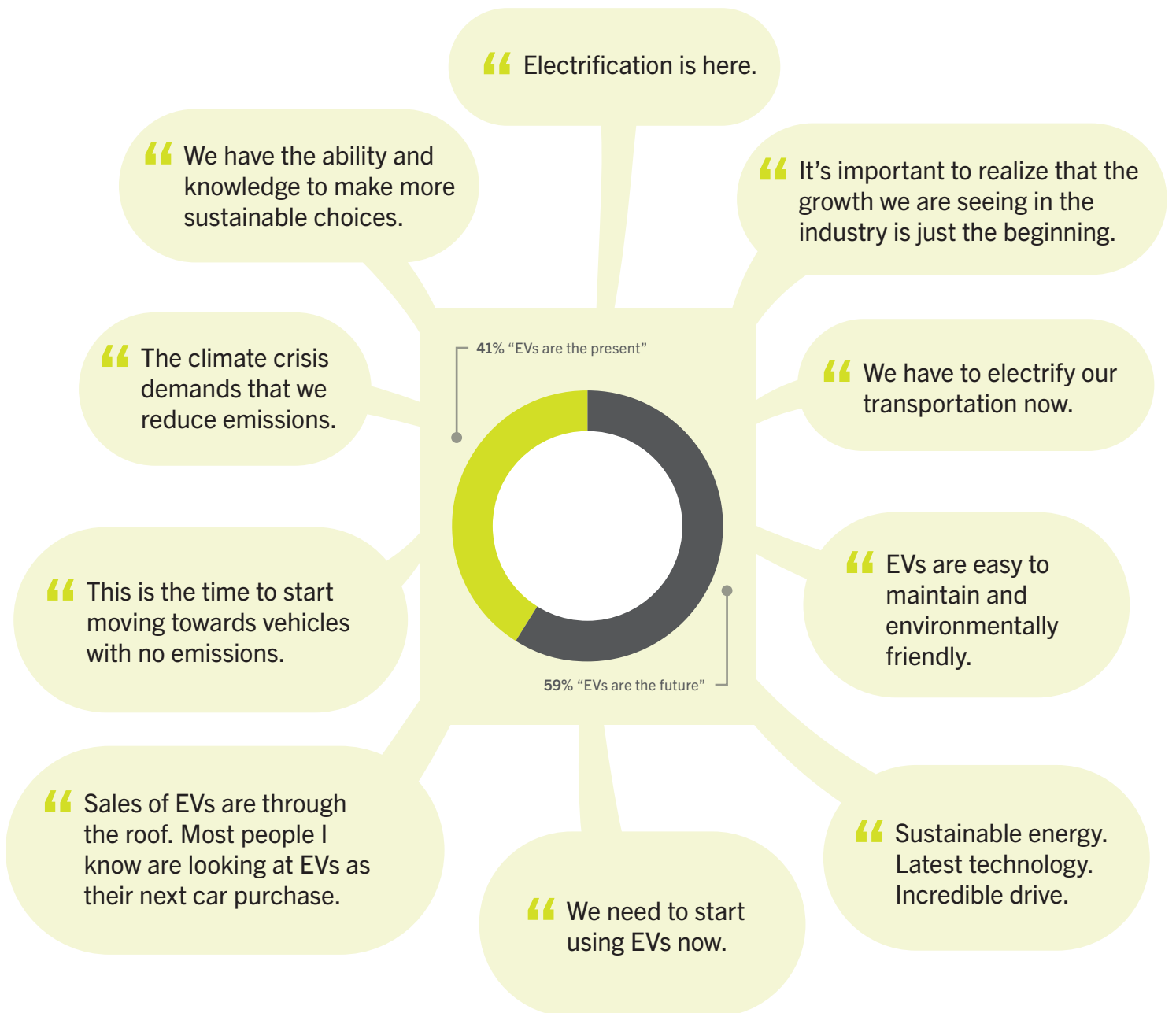


# Customers raise their voices **about EVs**

In an Alectra poll, close to 8,000 consumers were asked

**“What’s your stance on electric vehicles, would you say they are the future or the norm of today, the present?”**

The results of this 2021/2022 survey show that 41% recognize EVs as a present necessity, however, many still see barriers or experience deterrents to EV adoption. This highlights an opportunity, and a need, for more action to enable the flourishing of EVs for a cleaner and more sustainable tomorrow.





# Innovate



Collaboration with the GRE&T Centre is helping the Asset Strategy and Operations team to better understand the connections between the traditional work of the electric utility and the innovations changing our energy industry. We recognize the critical need to incorporate both into utility planning.

—Mike Matthews, EVP, Asset Strategy and Operations, Alectra Utilities Corp.

# Harnessing emerging technologies

We recognize that the energy sector is transforming. We are choosing to explore new opportunities and to facilitate change for a bright new energy future for our customers and our communities.

The GRE&T Centre Advanced Planning team focuses on enabling innovation and emerging technologies at Alectra. We are trying out innovative practices, integrating new technology, and exploring new business models. We are testing the systems and tools that will prepare our electric utility for the new energy solutions of the future.

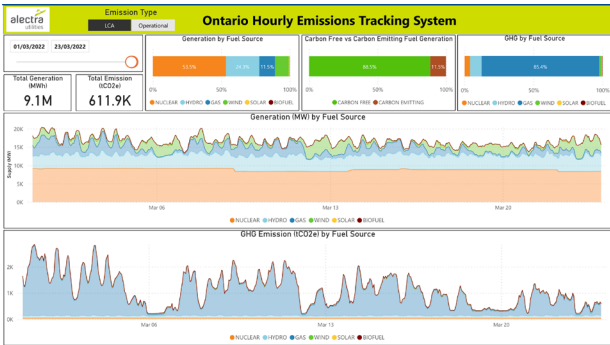
Supporting this energy transition requires long term planning, market intelligence, data analytics, innovation, and a customer viewpoint. It will require us to embrace the same tools that are disrupting the energy sector to empower a new energy ecosystem. It is about designing solutions and proactively mitigating problems while maintaining the same safe and reliable access to energy our customers expect. It will include new technology, artificial intelligence, automation, and solutions that have not yet been invented. That is what Advanced Planning is all about. It is about preparing for the future.

## Navigating Trends

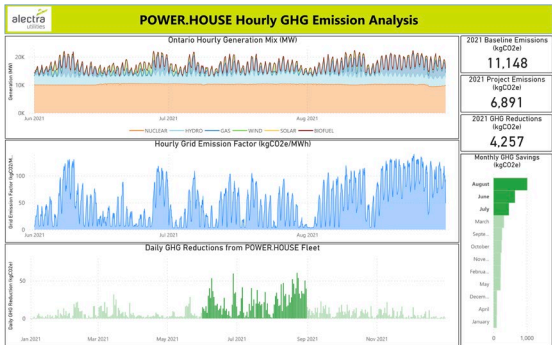
The key to Advanced Planning is navigating the latest market intelligence. We are identifying and following emerging megatrends. We are streamlining the sharing and retention of market intelligence across our organization. We are transforming the novel ideas of the future into simple and comprehensive solutions that can better serve our customers today. Whether it is all-electric homes, long duration storage, vehicle-to-grid (V2G) connections, the growth of Internet of Things (IoT) technology, or opportunities for distribution automation, we are exploring the emerging trends today, so that we at the electric utility can be ready to connect customers with the needs of tomorrow.

## The Power of Data

Using data analytics we can review historical data for better planning, to predict challenges, and to make proactive process improvements. Data can help our customers by providing insights about energy consumption on the journey towards net zero goals, and much more. As data becomes a bigger and bigger piece of all industries, we are finding smarter ways to use it for more efficient and effective energy systems.



We are using data to track GHG emissions in Ontario which will provide us with a better understanding of the changing supply mix and its impacts on our journey towards net zero targets.



We are using real time data to track GHG emissions reductions for participating homes in the POWER.HOUSE™ pilot.



# Reach Net Zero



Through the Alectra GRE&T Centre, we are using new technology and delivering innovative projects that facilitate the sustainability efforts of our customers and our communities.

—Norm Loberg, Chair, Alectra Inc. Board of Directors

# Building our energy future

The GRE&T Centre is aligned with Alectra’s vision of being Canada’s leading provider of distribution and integrated energy solutions, creating a future where people, businesses, and communities will benefit from energy’s full potential.

We support Alectra’s mission to provide customers with smart and simple energy choices, while creating sustainable value for our shareholders, customers, communities, and employees. And we are proud to be a part of Alectra’s strong commitment to sustainability.

We see great opportunity for utilities to support the sustainability efforts and net zero goals of our customers and communities. Over this past year, there seems to have been a growing global movement regarding climate change. Most people, governments, and organizations are looking at building a low carbon future. Electric utilities can play a significant role in reducing GHG emissions and delivering solutions for climate problems to help build that future. We are proud to be able to enable this transition and we are so excited to continue on our path to deliver clean, customer-friendly energy solutions to power a better tomorrow.

**DISCOVER**  
**COLLABORATE**  
**TRANSFORM**  
**ACCELERATE**  
**INNOVATE**  
**REACH NET ZERO**





---

**Alectra's vision** is to be Canada's leading distribution and integrated energy solutions provider, creating a future where people, businesses and communities will benefit from energy's full potential.

**Alectra's mission** is to provide customers with smart and simple energy choices, while creating sustainable value for our shareholders, customers, communities and employees.

**Alectra's GRE&T Centre is where great minds collaborate, to power a better tomorrow.**

Alectra GRE&T Centre  
395 Southgate Drive  
Guelph, ON N1G 4Y1

[Alectra.com/innovation-Alectra](https://www.alectra.com/innovation-Alectra)

