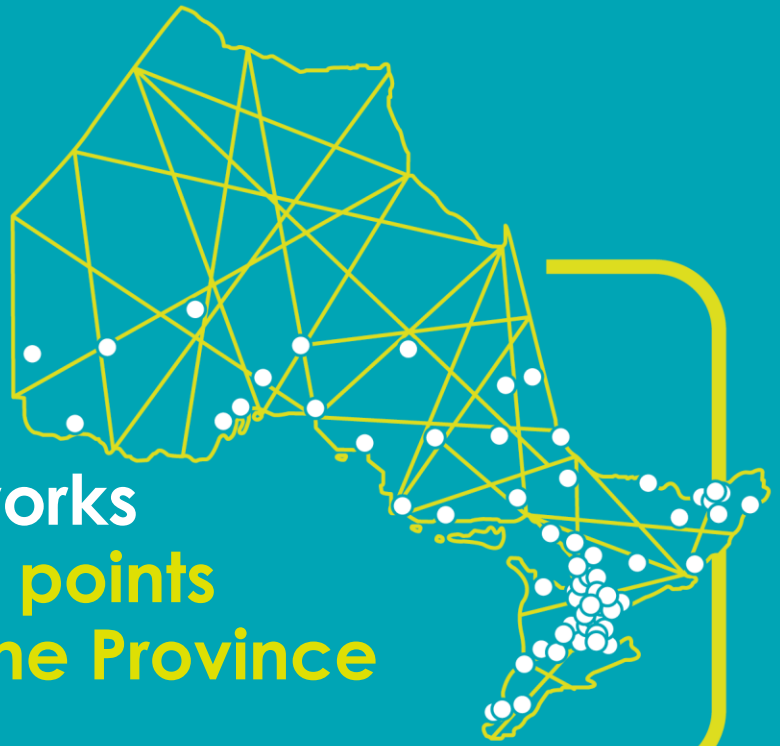
Flavio Volpe
President
Automotive Parts Manufacturers' Association

ivy Charging Network



Ivy is one of Ontario's largest electric vehicle charging networks

We operate over 180 charging points connecting EV drivers across the Province

Charging Levels Explained.

Level 2 (AC Charger)

An amenity for guests/visitors

- **7 – 19.2 kW** of charging power
- Charges a car at **5-15% per hour**
- Ideal for longer parking dwell times (>60 min)

Level 3 (DC "Fast" Charger)

A fill-up stop along your route

- **50-200kW** of charging power
- Charges a car up to 80% in **20-40 minutes**
- Ideal for quick stops (<45 min)

Municipalities are eligible for **up to 90% of capital cost reimbursement**

Provincial funding applications open now

→ ***MTO's EV ChargeON Program***

Federal funding applications open in Spring 2024

→ **Natural Resources Canada ZEVIP**
(Zero Emission Vehicle Infrastructure Program)

Ivy can support your municipalities' application process

Image: Bruce Peninsula Tobermory, ON

What Projects are Eligible?

EV charging station sites must:

- be publicly accessible 24/7
- Meet minimum charging port amounts
  4 X Level 2 **OR** 2 X Level 3 **OR** 1 of each
- be located in a community with
  a population of 170,000 or less
  or in any Indigenous community in Ontario

Most of Ontario's municipalities would meet these requirements

Ontario Funding Maximums

Charger Type	Output	Maximum Funding*
Level 2 "AC Charger"	**3.3 kW - 19.2 kW**	Up to 50% of total project costs, to a **maximum of $5,000 per connector**
Level 3 "Fast charger"	**20 kW - 49 kW**	Up to 50% of total project costs, to a **maximum of $15,000 per charger**
	50 kW - 99 kW	Up to 50% of total project costs, to a **maximum of $50,000 per charger**
	100 kW - 199 kW	Up to 50% of total project costs, to a **maximum of $75,000 per charger**
	200 kW +	Up to 50% of total project costs, to a **maximum of $100,000 per charger**

**Additional, federal funding is available in Spring 2024 to stack on top of this provincial funding*

Image Credit: Beamsville downtown https://cibontario.ca/lincoln

Thank you Ontario Municipalities!

Please contact
kush@ivycharge.com
with any questions about EVs, charging infrastructure or funding applications

ivy Charging Network

Ivy Background Information

Our mission is to enable the electric revolution right here in Ontario by providing simple, intuitive, and reliable electric vehicle charging solutions

Powered by

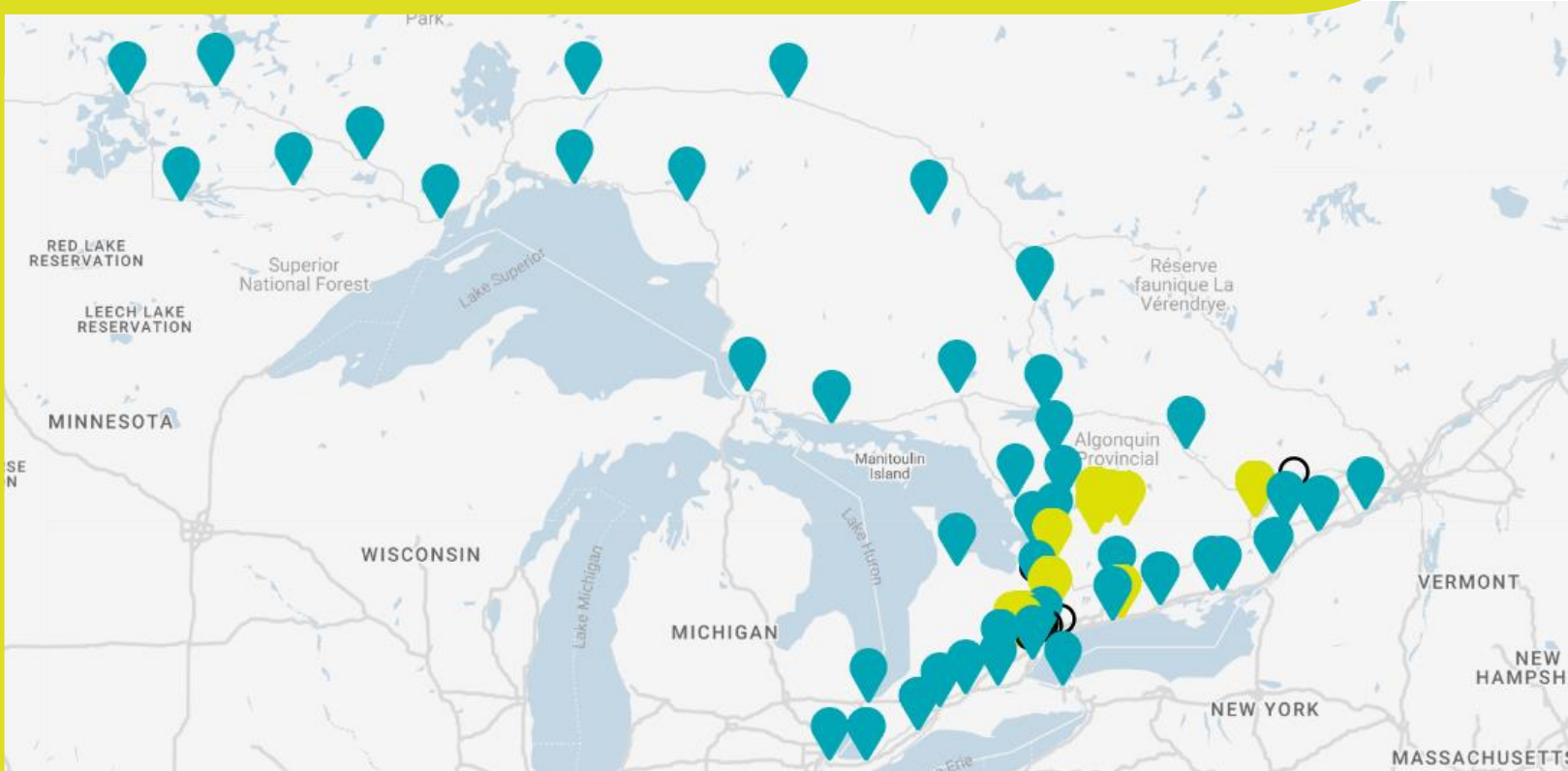
hydro one

ONTARIO POWER GENERATION

We are an ideal project leader to build & operate a region-wide charging network:

Founded by two of Ontario's largest clean energy leaders, OPG & Hydro One, Ivy is uniquely positioned to seamlessly install and operate EV infrastructure

Our network coverage



Legend

- Level 3 Charger
- Level 2 Charger

We build powerful partnerships across the province

Retail & Hospitality

KELSEYS original ROADHOUSE

Tim Hortons

HARVEY'S

SWISS CHALET ROTISSERIE & GRILL

Holiday Inn Express & Suites

Comfort INN by CHOICE HOTELS

Real Estate

FIRST CAPITAL

EFFORT TRUST

Greenergy

Federal & Municipal Gov't

Newmarket

Carleton PLACE

AURORA

HALTON HILLS

NCC CCN Canada

Ivy is the official fast-charging network of ONroute

Thank you

ivy Charging Network

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Electric Vehicle Charging Infrastructure – Will We be Ready?

AMO LAS Energy Symposium - Toronto, ON – November 3rd, 2023

Alexandre Lalonde – Head of eMobility North America, Hitachi Energy

Hitachi Energy

About Hitachi Energy

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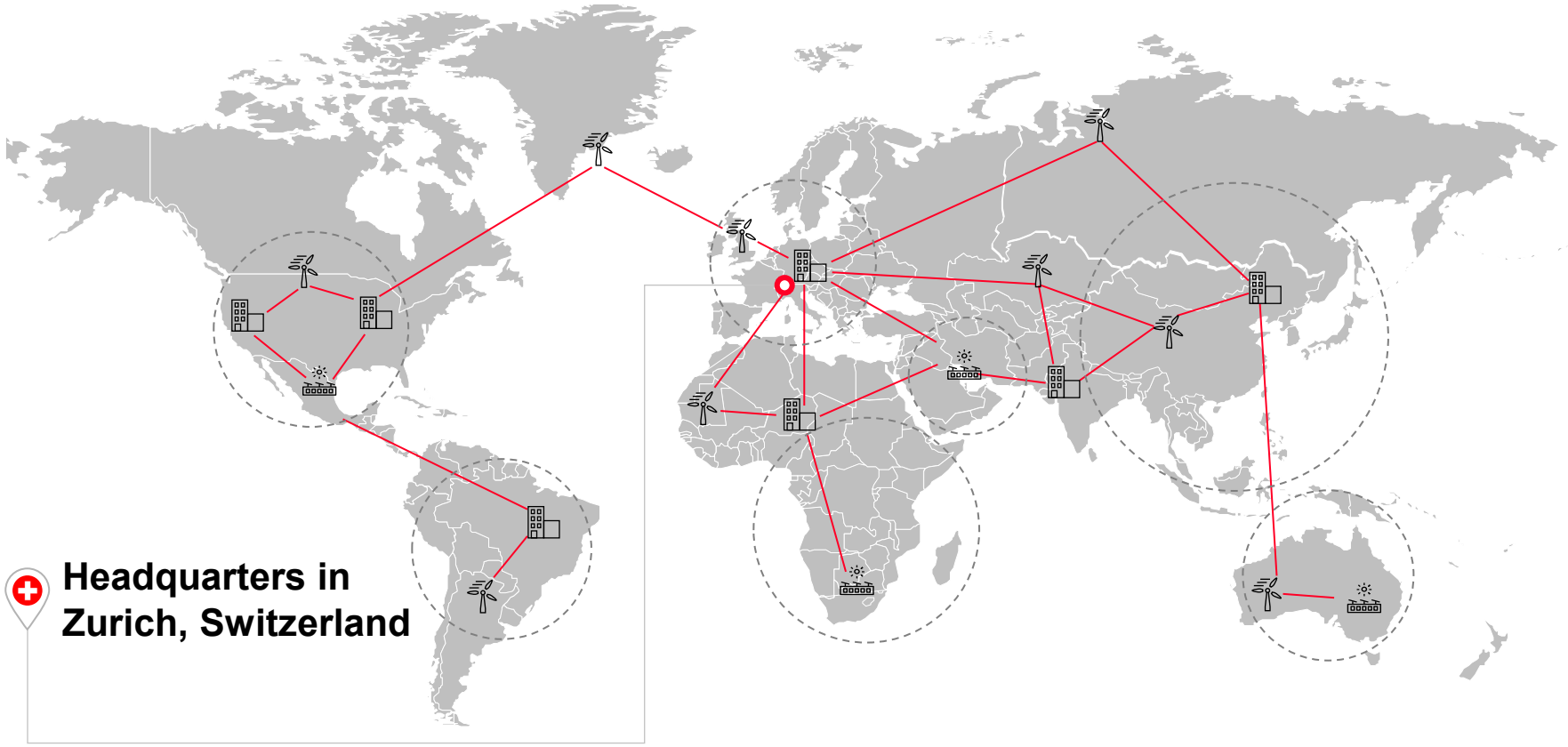

Headquarters in Zurich, Switzerland

40,000 employees

90+ countries with 200 offices

~250 years' heritage combined

5,500 sales employees & field engineers

2,000 engineers & scientists in R&D

Four Business Units

Grid Automation	**High Voltage Products**
Grid Integration	**Transformers**

Customers

- Transport & Infrastructure
- Industry
- Utilities

Offering

- Services
- Software & Automation
- Systems
- Products

Geographies

- Asia, Middle East & Africa
- Americas
- Europe

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Heavy Duty Vehicles Electrification – Quebec Context

4000 transit buses in Quebec

Mandate for 55% to be electric by 2030

NovaBus won a bid for 1229 long-range electric buses

150,000 Heavy Duty Trucks

Quebec Government Policies

- **Electrification framework policy and fight against climate change – Plan for a green economy 2030**
- **Sustainable mobility plan – 2030**

Nova Bus makes history by winning a bid for an order of up to 1,229 long-range battery electric buses in Quebec

May 8, 2023
Announcement, Corporate

Simard Transport Initiates Electrification of its Truck Fleet With Four eCascadia

18 July 2023 Autosphere
Autosphere » Fleet » **Simard Transport Initiates Electrification of its Truck Fleet With Four eCascadia**

London, United Kingdom

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Berlin, Germany

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Västerås, Sweden

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RTC Project – Quebec City

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Scope

1x 1MW capable charging system (600kW installed)

5x Charging interfaces

- 2x 200kW CCS Cable with manual retractor (w/ power sharing capability)
- 2x 200kW Pantograph depot version pantographs (w/ power sharing capability)
- 1x 200kW Pantograph On-route version

Smart Charging software solution

CCS Charging Interfaces (ceiling mounted)

Charging System

Pantograph Charging Interfaces

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What's next?

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Penske Pilot – California, USA

Scope

- 1x 1MW Outdoor Grid-eMotion System
- 10x CCS Charge Box (sequential/simultaneous)
- Charging Management System
- Interoperability testing with:
  - Daimler eCascadia
  - Daimler eM2
  - Ford eTransit

Timeline

- Commissioning October 2023
- Go-live date: Nov. 2023

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What's next?

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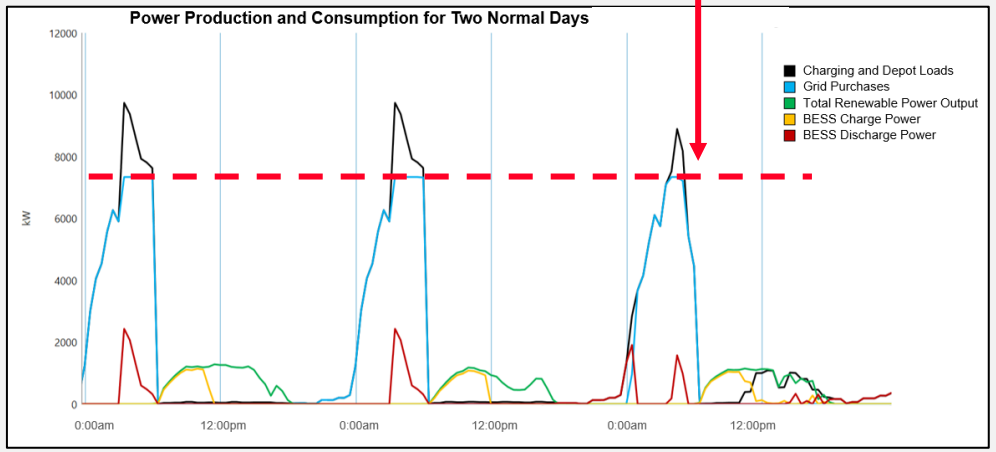
Example of large scale project using Grid-eMotion being deployed in the United States

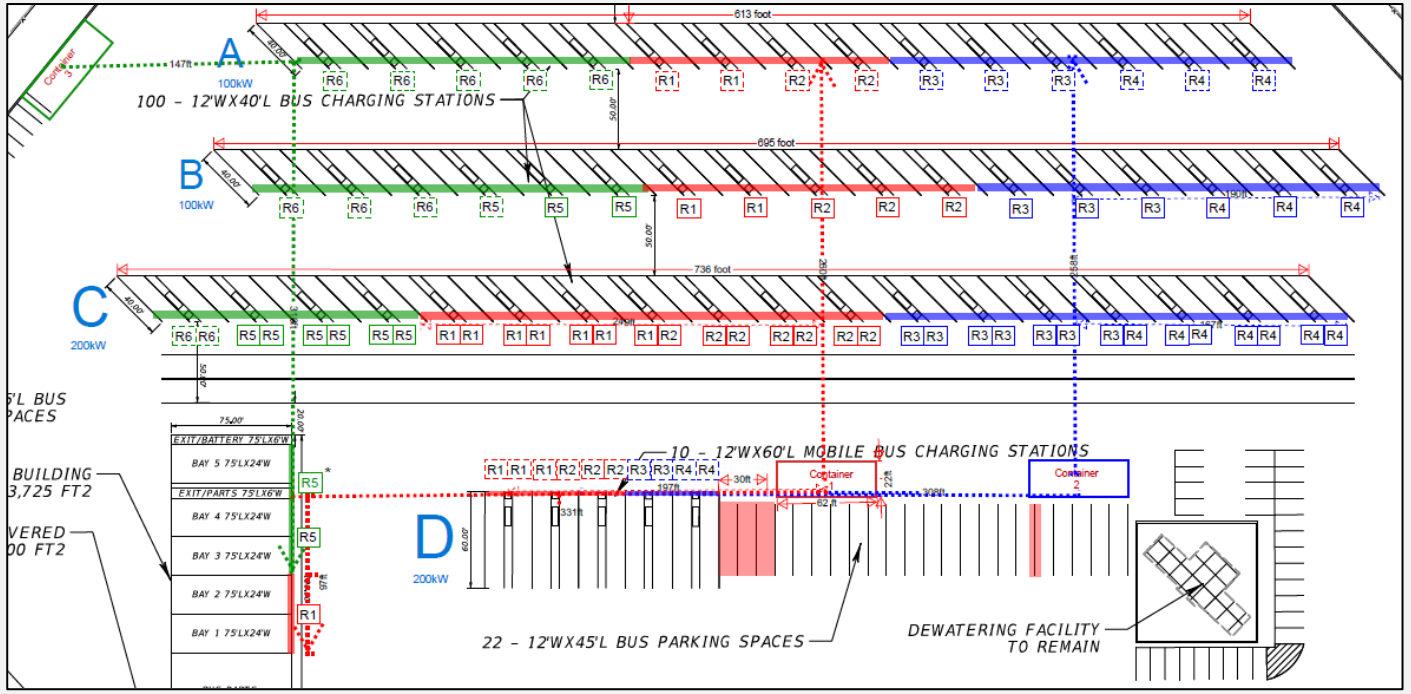
Phase 1 (mid-2024): 60 buses

- 10MW (5x 2MW) of charging capacity
  - Installation futureproofed to 16MW
  - Grid-eMotion Indoor – MV input
  - Energy & Charging Management System

Phase 2 (2025) : 130 buses

- Upgrade charging infrastructure to 16MW
- DER Integration (BESS + Solar)





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What's next?

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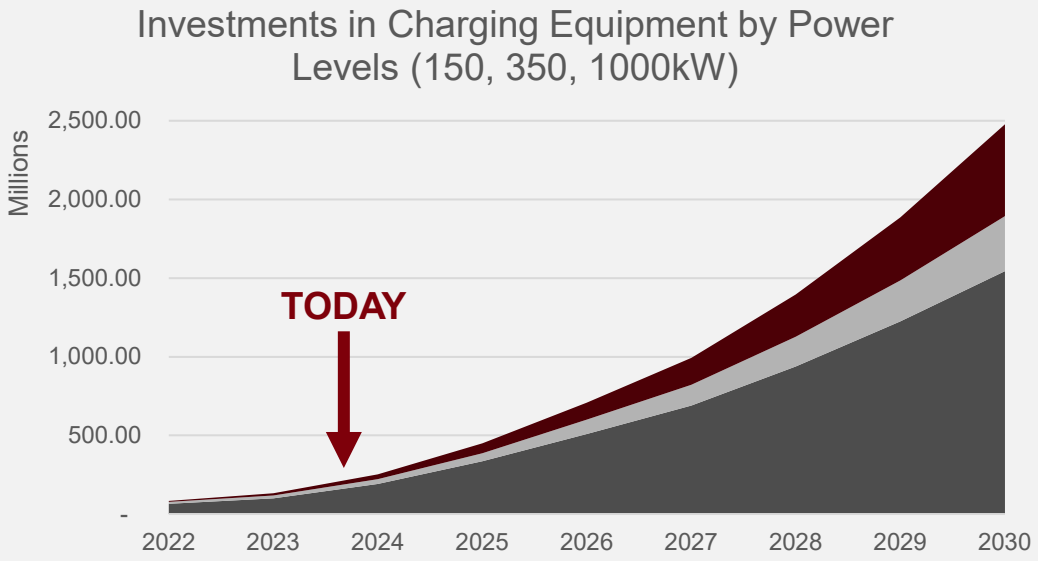
Markets



Public Transit

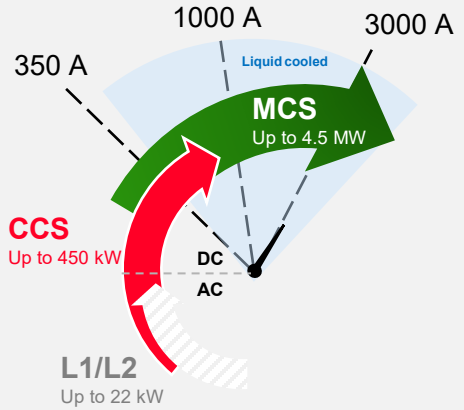
Commercial Fleets

High Power Public Charging Stations

Technology

Next-Gen Power Cabinet

Next-Gen Dispenser



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Inspire the Next

Electric Vehicle Charging Infrastructure – Will We be Ready?

AMO LAS Municipal Energy Symposium

Daniel Carr

Head, Smart Cities

November 3, 2023

Presentation Overview

- About Alectra
- Infrastructure to support e-mobility
  - Vehicles
  - Charging infrastructure
  - Electric infrastructure
- Insights from Alectra's experience
- A view towards the future

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About Alectra

Alectra is an energy company that distributes electricity and provides innovative energy solutions to customers in the Greater Toronto and Hamilton area, with over C$5.7 billion in assets and 1,500 employees.

Alectra Utilities serves over 1 million residential and commercial customers by distributing electricity; regulated by the Ontario Energy Board.

Alectra Energy Solutions and Services provides innovative energy solutions, such as EV charging infrastructure, microgrids, energy storage, solar PV, metering, street lighting deployment services.

More than **1,000,000** customers

2nd largest municipally - owned utility in North America**

17 communities served

1,921 square-kilometre service territory

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Public Charging Initiatives

Alectra is providing charging infrastructure for:

- the **public and commercial customers,** through its competitive business, and:
- **fleet and employees,** through its utility business

Alectra is making **over $6M in federal EV infrastructure incentives** available for public charging and electric fleets.

Multiple approaches (and parties!) will be needed to build out the charging network

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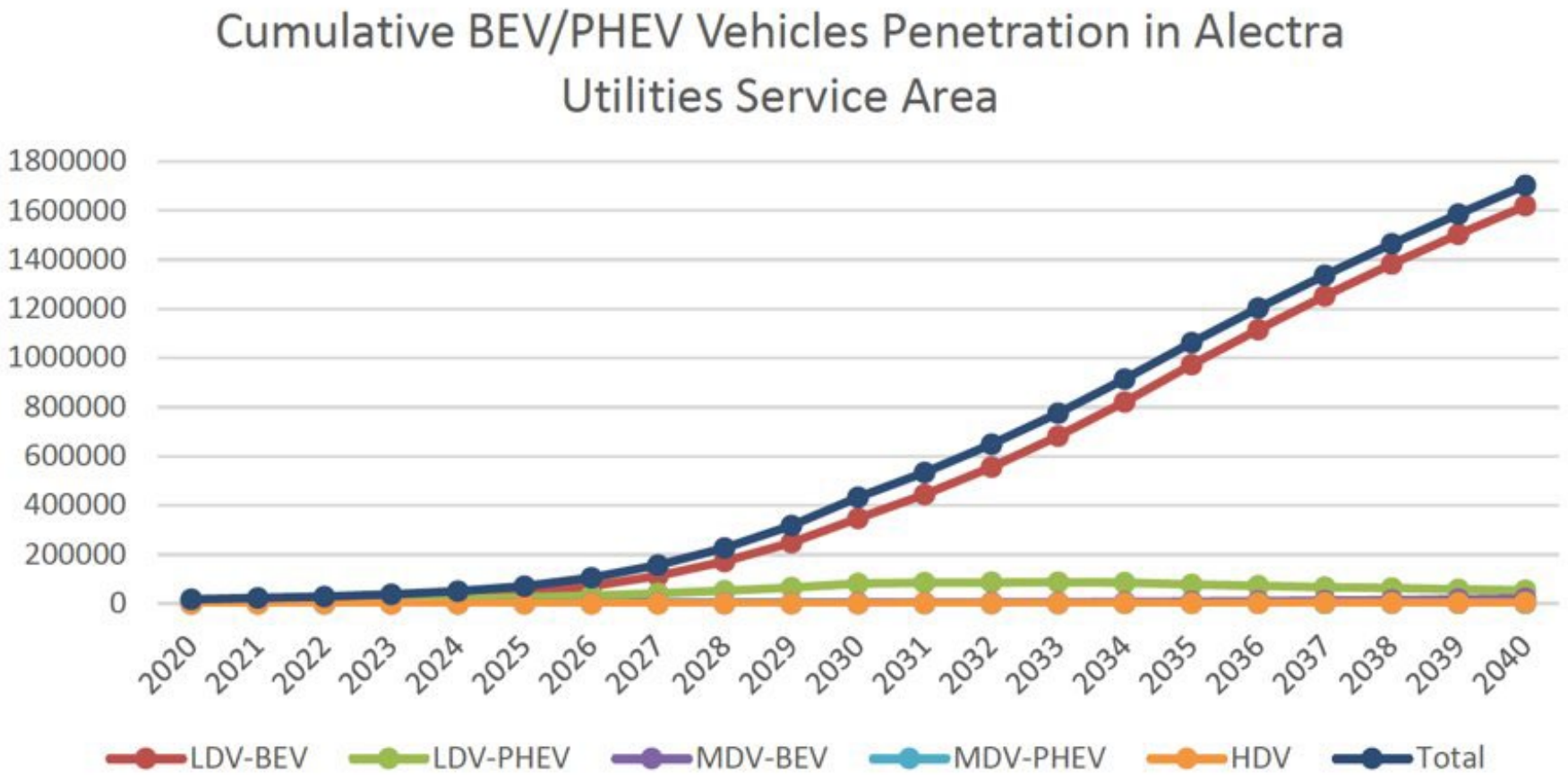
Growth Trends

It is projected that the number of electric vehicles in Alectra territory will grow from **20,000** in 2020 to **over 400,000** by 2030. **Growth rate of 34%+**



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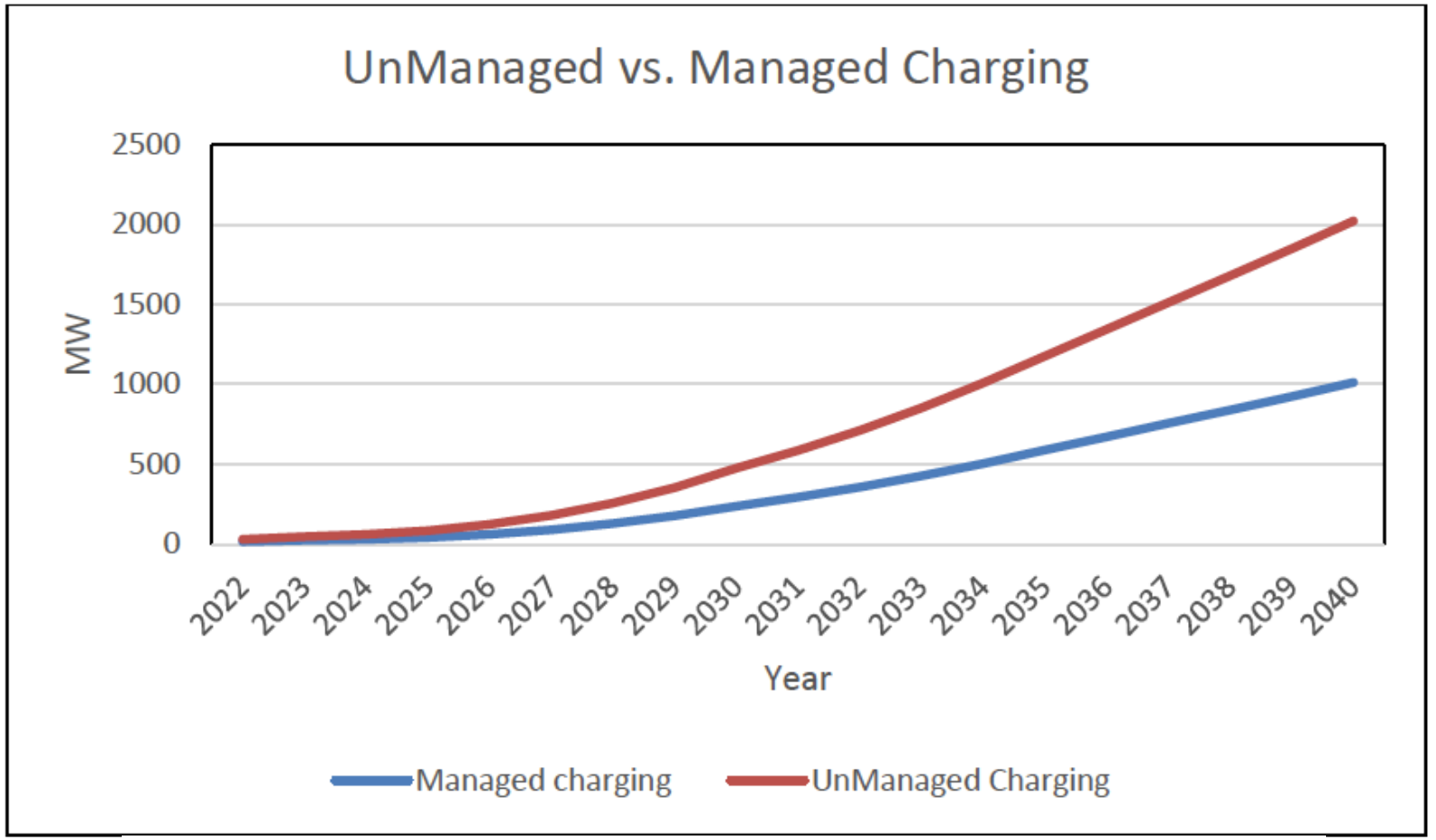
GRE&T Centre

The Importance of Managing EV Charging



Managed charging and rates can reduce the impact of EVs on peak.

Lower peak demand means less additional infrastructure, leading to lower costs

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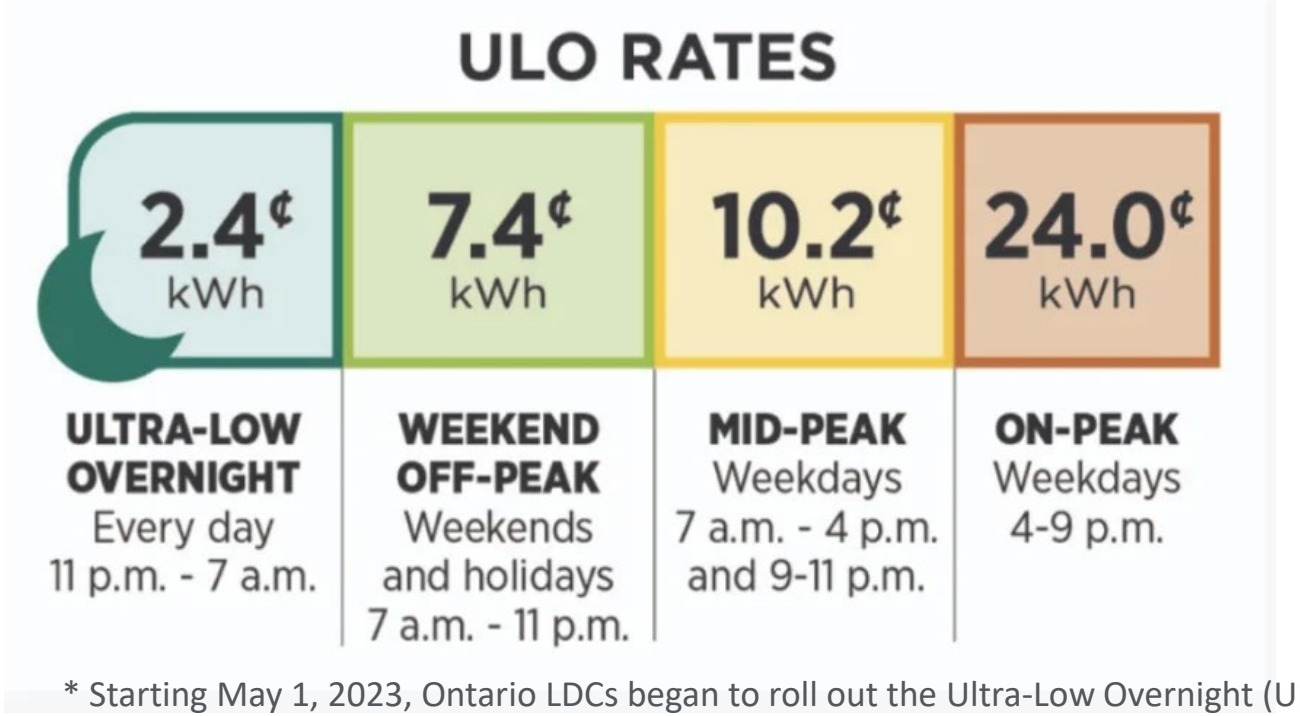
Ontario's Ultra Low Overnight (ULO) rate

Insights developed through Alectra's RPP Roadmap pilot (sponsored by OEB) laid the groundwork for Ontario's ULO plan



* Starting May 1, 2023, Ontario LDCs began to roll out the Ultra-Low Overnight (ULO) electricity price plan for residential customers

Benefits

- ~$90 savings per year/customer
- Shifting demand to overnight uses Ontario's excess clean energy
- ~$5.7 million annual provincial savings in capacity costs

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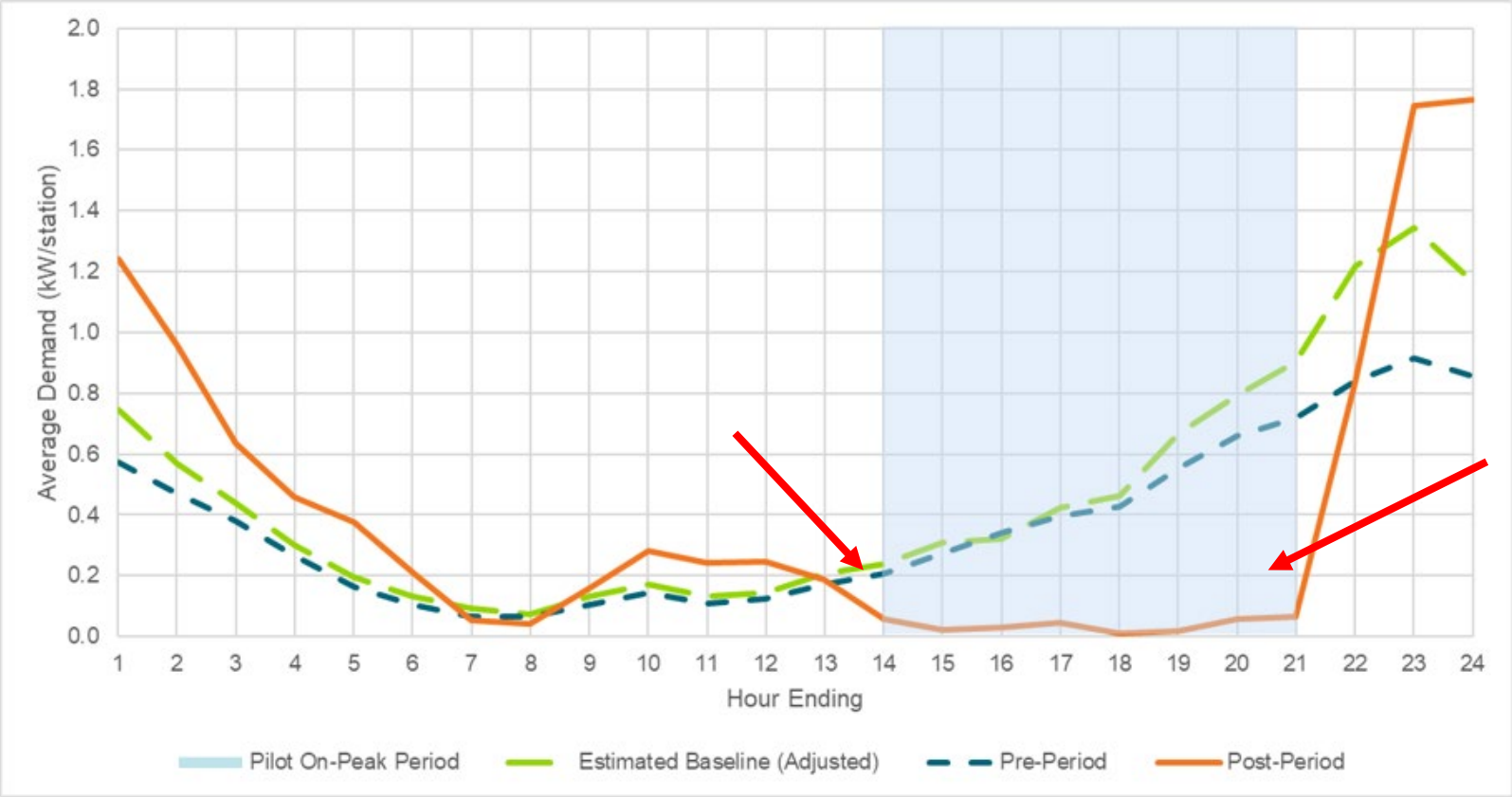
Managed Charging

Average Non-Holiday Weekday Post-Period & Baseline Demand for MURBS



Initial Results

Multi-unit residential buildings (MURB) participants are delivering a **price-based demand reduction of approximately 91%** of baseline during on-peak hours (1pm – 9pm on non-holiday weekdays).

Group 1: Smart Charging (MURB & SFH installs)
Group 2: Charge Rewards (loyalty program/point system)
Group 3: Control Group (no incentives)

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Implications for the Future

Electrification…

- Can benefit customers and society by lowering fossil fuel consumption/GHGs
- Creates opportunities for the electricity system and its stakeholders
- Poses challenges to traditional utility processes and business models

- Utilities currently have neither a mandate nor a remunerative incentive to manage load

- Multiple potential approaches – what's the right one?
  - Efficiency, affordability, economic development, time-to-market, scale potential, etc….

- Things are not standing still…

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