



# EV Market Update

Electric Mobility Highlights from April 2022

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#### Notes to the Reader

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# IN FOCUS

An analysis on a featured topic every month, written by our leading electric mobility experts.

## Tipping the Scales towards Public Charging Profitability



Jeff Turner



Hannah MacDonald

**Public charging is critical to enable EV adoption because it provides charging for those who cannot at home, it eases range anxiety, and it showcases local infrastructure availability. Yet, the majority of EV drivers do most of their charging at home. This dominant preference makes the business case for public charging inherently difficult. The challenge is even more significant for public fast-charging stations due to the high operating cost and uncertain utilization and revenue potential. This article will review the challenges of the business case, recent efforts to improve profitability in the City of Vancouver, and two key drivers of station profitability.**

### Looking to the private sector

Until recently, various levels of government and many utilities have led the efforts to build out public charging. These efforts have included direct investment in infrastructure as well as funding for private actors to cover upfront costs. These investments have not necessitated profitability, as the infrastructure build-out aligns with policy and climate action for government, or with beneficial electrification objectives for utilities.

Increasingly, these entities are looking to the private sector to expand and accelerate the public charging infrastructure build-out. However, the business case remains challenging. Even with public sector funding to cover some of the upfront costs, the operational challenges limit profitability.

### Innovations in Enabling EV Business Cases

The City of Vancouver has an ambitious climate plan and a target that 50% of the kilometres driven on Vancouver's roads will be by zero-emission vehicles by 2030. The City has developed its own network of EV charging infrastructure but is looking to understand how to invigorate the private sector offerings. Last month, Council reviewed a staff recommendation for new licensing fees to achieve this end. All gas stations and parking lots in the City will need to pay a **\$10,000 fee** when renewing their business license if their site does not offer Level 2 or DCFC charging. To avoid the fee, gas stations would be required to provide 50 kW of charging capacity (e.g., a single 50 kW DCFC) and parking lots (with over 60 stalls) would need to have 26.6 kW of charging capacity (e.g., 4 Level 2 chargers on dedicated circuits). Council sent the amendments to a public hearing (see our British Columbia section for more details).

Vancouver is building the case for this fee based on modeling to assess the potential profitability of charging infrastructure under different scenarios. Dunsky completed this analysis on behalf of the City of Vancouver using our Charging Site Business Case tool, which accounts for a variety of factors, including installations costs, operations and maintenance costs, and various revenue streams.

## Two Key Factors with a Significant Impact on Profitability

Through the Vancouver analysis and our experience in other jurisdictions, our Mobility team identified two key factors in BC that can have a significant impact on the private sector business case for investing in charging infrastructure.

**Demand charges** can make up a major portion of operating costs in many jurisdictions. The value of the demand charge under many commercial businesses' current rate depends on the peak power consumption of that site, regardless of how frequently that peak was attained. This can be particularly problematic if charging site utilization is relatively low, and the revenue collected by that site is small compared to the demand charge. For a deeper discussion of the demand charge challenge, check out the February 2022 In Focus: Leveling the playing field for fast charging.

One effort to mitigate this challenge is Hydro Quebec's Tariff BR, targeted at fast-charging station operators. This rate offers lower demand charges in exchange for a higher energy charge, depending on the overall utilization of the site. If a charging site sees relatively low utilization, reduced demand charges will make it easier for the site owner to recover operating costs through user fees. As utilization increases over time, the rate transitions gradually back towards the standard rate structure, given that the impact of demand charges is not as severe if that fixed cost can be distributed across a larger number of users.

**Low carbon fuel credits (LCFC)** are available to EV station operators in British Columbia, based on the amount of energy dispensed to vehicles. LCFC offer a substantial revenue source, which can improve a site's business case. These types of credits are not yet available across the country but may become a revenue source under the upcoming federal Clean Fuel Standard.

## A Still Uncertain Business Case

The profitability of private-sector public charging is not yet a given in Canada. The demand charge rates and the availability of low carbon fuel credits vary widely across provinces and territories, and station utilization varies greatly within them. Improving the business case through regulatory and policy changes can help to drive private investment in charging infrastructure, which will ultimately enable and accelerate EV adoption.



Questions? Continue the conversation with [Jeff Turner](#) and [Hannah MacDonald](#)

# KEY MARKET UPDATES

Overview of key transportation electrification initiatives in Canada announced or ongoing this month, at the federal and provincial level.

Regulatory Hearings

Electrification Initiatives

## Canada



### Transport Canada increases incentives and expands eligible vehicles under iZEV

- EVs with a base model Manufacturer's Suggested Retail Price (MSRP) of up to \$55K and up to \$65K with additional options are now eligible for incentives, up from \$45K and \$55K respectively
  - Larger zero-emissions vehicles are now eligible - including station wagons, SUVs, pickup trucks, minivans and vans are now eligible for the incentive, where the base MSRP of up to \$60K, and \$70K for additional options
  - This update marks the most significant change since the iZEV program was announced
- For more information, see the [Release](#)

### TUGLIQ Energy receives \$2.6M from NRCan to explore off-grid charging in Nunavik, QC

- TUGLIQ Energy will assess EV charging and innovative EV technology in a hybrid diesel-renewable smart grid
  - The project aims to reduce emissions and will provide job opportunities for Inuit attending the Arctic Remote Energy Networks Academy
  - TUGLIQ received funding through the Green Infrastructure – Electric Vehicle Infrastructure Demonstration Program for this demonstration project
- For more information, see the [Release](#)

### NRCan releases latest EVAFIDI Evaluation

- The Electric Vehicle and Alternative Fuel Infrastructure Deployment Initiative launched in 2016 to fund EV charging, natural gas and hydrogen refuelling sites. This is the second program evaluation and was completed by Dunskey
  - The program met or exceeded its approval targets, reaching 1,096 EV sites installed, 15 hydrogen sites and 22 natural gas sites. Of those, many are still in development, with only 622 EV sites, 5 hydrogen and 11 natural gas stations open to the public
  - The program leveraged \$2 of private funding for each public dollar, reaching \$260M in total investment
- For more information, see the [Evaluation page](#)

## KEY MARKET UPDATES

# Canada



### Canadian Association of Physicians for the Environment report outlines dangers of Traffic-Related Air Pollution health impacts

- The new report outlines Traffic-Related Air Pollution (TRAP) impacts, including disproportional impacts on respiratory and cardiovascular systems, as well as impacts on the nervous and reproductive systems
- These impacts are important for Canadians, as one-third of our population lives within 250m of a major road which increases exposure
- These findings align with a similar analysis by the American Lung Association that found that zero-emission transportation and electricity generation would generate \$1.2T in public health benefits in the US by 2050
- ▶ For more information, see the [Canadian Association of Physicians for the Environment](#) report and [American Lung Association report](#)

### Toronto, Halifax business associations call for EV supports

- The Toronto Board of Trade released its SuperCharge Roadmap, outlining challenges and recommendations to decarbonize infrastructure to secure Toronto's place as a leading low-carbon jurisdiction
- The recommendations include a reintroduction of provincial incentives for EVs and charging infrastructure, to provide advisory support framework to enable fleet transitions, and to empower local distribution companies to proactively address impacts
- The Halifax Partnership developed Halifax's Inclusive Economic Strategy for 2022-2027, which calls to implement HRM's EV Strategy, including working with partners to increase electric vehicle charging infrastructure throughout Halifax (Action 59)
- For more information, see the [Toronto Region Board of Trade SuperCharge Roadmap](#) and [Halifax Partnership Inclusive Economic Strategy](#)

## KEY MARKET UPDATES



# British Columbia

## BC Hydro Revenue Requirements Application 2023-2025

- **Background:** BC Hydro submitted its request for an average annual increase of 1.1% in August 2021. The Electrification Plan requests an additional \$2M per year in capital funding for EV charging infrastructure beyond the base capital plan to build 325 DCFC ports at 145 sites by the end of 2025
- **Update:** In April, BC Hydro responded to BCUC and intervenor information requests (IRs):
- Regarding the Public EV Fast Charging Rate Application Decision (Jan. 2022), BC Hydro does see any requirement to change the approvals or requested rates. Regarding the EV Costs Regulatory Account, it noted that BCUC did not decide on previous years' under-recoveries and, therefore, the approach for under-recoveries will be dealt with in the future EV application. Further, it noted that regulatory accounts are not necessary to set future rates, and BC Hydro is already required to separately track EV charging costs and revenues. BC Hydro estimated the rate and bill impacts of the above items are ~0.1% in FY2023 and unchanged in FY2024 and FY2025
- On performance metrics, BC Hydro provided its 2022/23-2024/25 Service Plan. The Plan's 'Goal 2: Grow out Load' has the objective to grow load while keeping rates affordable and competitive. A key strategy is supporting EV adoption by reducing connection costs, encouraging off-peak charging and expanding charging infrastructure. One metric for this goal is 'Load Growth Supporting CleanBC', which includes EV adoption (and heating and industrial electrification) with a target from 900 GWh in 2022/23 to 3,800 GWh in 2024/25. Separately, it reported revenue from home charging, light industrial and commercial fleet charging is expected to be \$42M in FY2023 up to \$233M in FY2031. Estimated residential load attributable to EVs is 0.5% in FY2020 up to 2.5% in FY2025
- BC Hydro provided its forecast O&M costs per station from \$27K in FY2020 to \$12K in FY2025. The decrease is due to equipment reliability, installations at dual stations and in urban areas increasing O&M efficiency, and active management of costs and service providers. Station utilization assumptions are 4.6% for FY2023, 6.4% for 2024 and 8% for 2025
- Regarding Non-Wires Alternatives (NWA) trials, BC Hydro noted that in its charging direct control trial it learned that capacity savings of 3.3 kW could be achieved from a single charger. In a survey, 83% of participants never opted out, 17% rarely did) and customer acceptance was very good with no reported disruption to use (87% reported no disruption, 13% did not know). Its Connected Charger Rebate program will provide an additional \$200 incentive for eligible networked chargers, which will top-up the up to \$350 Clean BC charger rebate (the latter not being required to be networked). According to the 2020 Residential End Use Survey, of customers who charge their vehicle at home, 67% use Level 1 and 38% use Level 2 charging. Based on CleanBC rebate applications, 25% of Level 2 chargers are networked
- The procedural conference took place on May 6. Following the conference, the BCUC will review intervenor submissions of intent to file evidence
- ▶ For more information, see the [Application](#) or the [Proceeding documents](#)

## KEY MARKET UPDATES

# British Columbia



## BC Hydro Mainwaring Substation Upgrade Project

- **Background:** BC Hydro submitted an application to upgrade the Mainwaring substation in November 2021. The substation, located in south Vancouver, is the seventh-largest distribution substation in the BC Hydro system. Load forecasting for the station included EV load assumptions based on vehicle stock and shifting charging demand, which contributed to the decision to seek the substation upgrade.
- **Update:** In April, BC Hydro replied to intervenor information responses:
- BC Hydro noted that the current application uses March 2020 EV load forecasts, not the December 2020 forecasts used in its Integrated Resource Plan Application and Revenue Requirements Application 2023-2025, due to the timing of the application submission. The December 2020 forecast is 13% lower by FY2040 than the March 2020 forecast (due to updated ICBC actuals, lower fuel costs and lower overall vehicle ownership). However, BC Hydro noted that the differences are not significant given the level of uncertainty, and the application's forecast is reasonable
- BC Hydro also noted that the increase in DSM capacity savings within the Revenue Requirements Application 2023-2025 would not justify deferral of the proposed work at the Mainwaring substation because the work is driven by the need to maintain the reliability, as well as to address safety, environmental and reputational risks
- Final written arguments from intervenors and BC Hydro will be submitted in May
- ▶ For more information, see the [Application](#) or the [Proceeding documents](#)

## TransLink shared its 2022 Investment Plan and Transport 2050 for consultation

- In April, TransLink shared these Plans for public consultation, as a follow-up to its Transport 2050 - its new 30-year transportation strategy
- The Investment Plan included \$1.5B in funding for fleet and facilities to advance its Low-Carbon Fleet Strategy, including putting 462 battery-electric buses in service by 2030, construction of an electrified Marpole Transit centre to support the deployment of 350 e-buses, design and construction of charging infrastructure and other upgrades at 3 other transit centres and on select routes
- ▶ For more information, see the [Release](#) and the [2022 Investment Plan and 10-Year Priorities Discussion](#)

## KEY MARKET UPDATES



# British Columbia

## BC Hydro released \$27M 5-year EV Infrastructure Plan

- BC Hydro released its Plan for FY2022-2026 in January, which supports the accelerated provincial target of 100% ZEV sales by 2035 and a Dunsky study completed for the Province that states that full geographic coverage would require 194 fast-charging sites with a capital budget of \$27M (excluding external funding from the federal and provincial governments)
  - The Plan targets a total of 145 sites and 325 stations by December 2025, requiring the installation of 73 sites and 224 stations. The Plan includes 140 to 150 stations with output of 100+ kW by 2026
  - The utility flags that the gap between its planned 145 sites and the needed 194 sites will be filled by other station operators (e.g., FortisBC, BC Government, private actors) and greater spacing along remove highways
  - The utility outlined its planning framework principles: coverage, capacity (meeting market demands), collaboration (working with BC Government and other operators), and sustainment (enhancing service at end-of-life)
- For more information, see the [Infrastructure Plan](#)

## City of Vancouver considers a \$10,000 fee for gas stations and parking lots without EV charging

- In April, staff brought a recommendation to introduce a \$10,000 fee when renewing their business license if their site does not offer EV charging. To avoid the fee, gas stations would be required to provide EV charging with a capacity of 50 kW (e.g., one DCFC) and parking lots (with over 60 stalls) would need to have 26.6 kW (e.g., four dedicated Level 2 chargers)
  - The staff report included the business case analysis, prepared by Dunsky, and stakeholder feedback. The winter 2022 survey of gas stations, parking lots, and EV companies identified that cost was a barrier to installing EV charging and required more than 2 years' lead time due to supply chain issues. The majority of licence holders who do not currently have enough EV charging to meet the proposed specifications said they are somewhat or very likely to install enough EV charging to meet the minimum specifications
  - Council approved the amendments in principle, contingent on a public hearing process on this fee
- For more information, see the [Staff report](#), [Council minutes](#) and [News article](#)

## KEY MARKET UPDATES

# British Columbia



### BC funds \$8M in zero-emission transportation projects

- BC announced funding in the second round of its CleanBC Go Electric Advanced Research and Commercialization (ARC) program, which supported 17 projects, many with an electrification focus
  - Zen and the Art of Clean Energy Solutions received \$133K to further develop its ZEV route energy analysis modelling tool, to plan bus and heavy-duty fueling and charging infrastructure deployment
  - Delta-Q Technologies received \$300K to develop and commercialize high-power and high-voltage onboard battery chargers for commercial and industrial EVs
  - Gregory C. Marshall Naval Architect received \$948K to develop a low-weight, 40-foot electric utility catamaran for coastal transportation, patrol, and eco-tourism
- For more information, see the [Zen release](#), [Delta Q release](#) and the [Naval Architect release](#)



## KEY MARKET UPDATES

# Alberta



## ENMAX and EPCOR 2023 Cost-of- Service Review

- **Background:** In January, EPCOR submitted its 2023 Phase I Distribution Tariff Application with \$0.33M in capital addition for additional capacity due in part to EV adoption and charging and \$0.38M for a grid adaptation study. ENMAX submitted its 2023 Phase I Distribution Tariff Application with \$2M in grid innovation research and pilot projects in 2023, which may include a continuation of its Charge Up EV charging pilot exploring V2G.
- **Update:** ENMAX submitted information request responses, which included EV references
- ENMAX noted the accelerating EV adoption in Calgary as part of the rapid pace of change that requires ENMAC to invest in studies to prepare and respond to evolving customers (even with the results of the Distribution System Inquiry). EVs were also flagged as a future trend break - where historical trends cannot be relied upon to forecast future impact.
- ENMAX provided some additional information on its Chare Up (V2G) program, which will provide information on how V2G export technically impacts its system, how customers expect to use vehicle-to-grid at a practical level, how the technology impacts its crews' ability to safely perform work in areas with V2G capabilities, and how this technology might be employed as a non-wires solution to the benefit of all customers
- ENMAX provided data on Calgary EV adoption, ranging from 235 vehicles in 2015 to 2016 in 2020, which were viewed as one of the multiple signs of increasing electrification
- In discussing the needs of its System Control Centre Replacement project, the control room will have new roles and technologies, which could include deployment of a distributed energy resource (DER) management system in support of the distributions system operator role. An example of the DER assets included "a fleet of electric vehicles", among others, which could deliver grid services
- ▶ For more information, see the [Proceeding 26617](#), the [EPCOR application](#), or the [ENMAX application](#)  
*Note: log-in to the AUC website is required to view the above files*

## KEY MARKET UPDATES

# Alberta



## AESO Net-Zero Emissions Pathways

- **Background:** In December 2021, the AESO announced it would be analyzing potential pathways to net-zero emissions from the Alberta electricity sector by 2035. The analysis intends to forecast the potential dynamics of technological advancements, consumer behaviour and potential government policies. These pathways will assess the decarbonization of the electricity system, as well as the potential for increased electrification of other sectors of the economy. This analysis will inform future long-term outlooks
  - **Update:** In April, the AESO posted stakeholder comments on the March Stakeholder Engagement presentation, which included comments on the integration of EVs
  - Direct Energy/NRG Curtailment Solutions noted that AESO should consider the impacts of changes in utilities' retail EV rate design and potential arbitrage opportunities in AESO's markets on EV charging profiles
  - ENMAX identified that clear direction from the provincial government or AUC is needed on how distribution facility owners should proceed with electrification efforts, regardless of federal-level commitments. While it is monitoring EV uptake for forecasting, ENMAX expects that AESO will collaborate closely in the future to further refine the load assumptions and anticipated DER deployment
  - The Pembina Institute noted that EV adoption is based on an earlier federal plan, not the most recent Emission Reductions Plan (ERP), flagging that modelling should account for increasing EV ambitions as a sensitivity. This ambition is supported by the data points that 54% of Albertans say the next vehicle they purchase in 1 to 5 years will be electric, the City of Edmonton has 60 e-buses in operation. The Office of the Utilities Consumer Advocate also highlighted that the modelling may need to be revised based on the ERP and the role of the electricity sector in achieving emission reductions (including by supporting EVs).
  - TransAlta identified a concern that the load forecast (specifically, the peak demand profile) did not reflect a strong consumer behavioural response with respect to rates for EV charging. They noted that a key assumption must be that rate designs will incentivize efficient EV charging load profiles that seek to minimize peak demand
- For more information, see the [Net-Zero Emissions Pathways site](#) or the [stakeholder feedback](#)

## KEY MARKET UPDATES

# Saskatchewan



## SaskPower 2023-24 Rate Application

- **Background:** SaskPower submitted an application to the Saskatchewan Rate Review Panel (SRRP) for a 4% rate increase in both 2022 and 2023, its first rate increase in four years. SaskPower is also requesting to change its rate design for customers in several rate classes who pay separate demand and energy charges. The request is to revise the rates to gradually move certain demand costs currently collected in the energy charge to the demand charge.
- **Update:** SaskPower provided a mid-application update and provided responses to Round 2 interrogatories
- The mid-application update noted an increase in revenue for 2022-23 by \$58M relative to the initial submission. This revision is due to increase sales volumes, which are due in small part to electrification-related energy use such as EVs
- Final submissions from stakeholders and interested parties are due May 3. The final report will be presented in July
- ▶ For more information, see the [Application page](#) or [SaskPower mid-application update](#)

# Manitoba



## Manitoba's Vehicle Technology Centre receives \$2.9M for zero-emission transition

- The PrairieCan's Regional Innovation Ecosystems funding will go to the Winnipeg-based non-profit, which is focused on technological advancement within Manitoba's heavy vehicle manufacturing industry
- The funds are intended to assist manufacturers in their transition to zero-emission propulsion and to support digital initiatives needed for low-volume, high-value manufacturing
- The Centre works with its 24 manufacturer members, including NFI Group (buses), Buhler Industries (four-wheel-drive tractors), and Fort Garry Fire Trucks.
- ▶ For more information, see the [Release](#) or [News article](#)

## KEY MARKET UPDATES

# Ontario



### OEB Design of an Optional Enhanced Time-of-Use Rate

- **Background:** The OEB is developing a report to advise on the design of an optional enhanced Time-of-Use (TOU) rate to further incent demand-shifting away from peak periods to lower-demand periods.
  - **Update:** The OEB posted a supplemental report and letter for the Minister of Energy in April
  - The supplemental report investigated additional benefits of the Overnight Pricing Plan (OPP). The report found that the majority of the estimated increase in consumption as a result of the OPP is likely attributable to participants using EVs more, and internal combustion engine vehicles (ICEVs) less, which contributes ~\$200 in societal benefits annually. The report also indicated that the bill savings from converting from an ICEV to an EV may be more than \$2K per year due to lower fuel costs
  - The letter from the minister noted that the Ministry is looking to a final rate design and implementation details of the OPP, including any regulatory changes that may be needed, by April 2023
  - The Province also released a statement highlighting its support of the rate, noting that EV users could save up to \$90 per year, and that shifting electricity use to these hours makes better use of excess overnight electricity
- For more information, see the [OEB supplemental report, the Minister's letter](#) or the [Release](#)

**NEW!**

### Milton Hydro 2023 Electricity Distribution Rates

- Milton Hydro submitted its application to raise its electricity distribution rates as of January 1, 2023
  - Part of the expenditures includes bringing the utility's System Control Room in-house to ensure capacity is available for customers to fuel EVs, as well as reliability and outage response. In the business case, the rationale for this control room included distributed energy resources (DERs) and EV penetration as a new source of energy needing to be managed. The in-house control system would be better able to integrate a Resource Management System (DERMS) to manage these resources
  - The application also included interview results with a small cohort of customers, where most interviewees noted that they think they or their businesses will have an EV in 10 years
- For more information, see the [Proceeding documents \(EB-2022-0049\)](#)

## KEY MARKET UPDATES

# Ontario



### Hydro-One Joint Transmission and Distribution Rate Application

- **Background:** In August 2021, Hydro-One Networks submitted a joint application to the Ontario Energy Board (OEB), to revise its rates for Transmission and Distribution from 2023 to 2027 (EB-2021-0110).
  - EV demand is embedded in overall load forecasts. EVs also arise in the application's request for a new 'Externally Driven Distribution Projects Variance Account' to record revenue impacts related to the distribution capital investment plan, including spending related to DER connections. The account could capture variances resulting from new work outside the plan, including infrastructure deployment to meet electrification or transportation (e.g. EV adoption) policy objectives.
  - **Update:** Hydro-One provided an evidence update, which included updated interrogatory responses which mention EVs
  - Hydro-One noted that its planned investments over 2023-2027 to accommodate an expansion of EVs is \$89.6M. Additional investments will be made by Facilities and Real Estate to install new charging infrastructure to support the roll-out of electric vehicles at 10 Hydro One sites, which are estimated to be \$0.7M annually over the various sites based on historical costs
  - The utility noted that there is no specific investment for consumer EV load because EV load projections are embedded in its load forecasts. But, Hydro-One is proactively assessing the impact of EV penetration and the best approach to minimize future upgrade costs to ratepayers
- For more information, see the [Proceeding documents \(EB-2021-0110\)](#)

**NEW!**

### OEB Framework for Review of Intervenor Processes and Cost Awards

- The OEB established an initiative to review intervenor processes and cost awards practices
  - On April 29, the Electricity Distributors Association (EDA) submitted a response to OEB questions on the framework. One question asked if there are existing issues that do not currently have policy development work underway, which should be addressed through generic hearings instead of through individual applications. The EDA identified that local distribution companies see an emerging need for an electric vehicle-specific rate class and rate design and to address the regulatory issues of grid investments driven by decarbonization (among other issues), though noted that the OEB is likely tracks these issues as they are repeatedly raised
- For more information, see the [Engagement page \(EB-2022-0011\)](#)

# Ontario



**NEW!**

## IESO Northwest 2021 Integrated Regional Resource Plan

- **Background:** The IESO launched a regional electricity planning process for the Northwest region of Ontario in November 2020. The process takes a 20-year outlook with will result in an Integrated Regional Resource Plan (IRRP) by late-2022
  - **Update:** In April, the IESO held a public webinar with an update on regional electricity systems needs and to collect feedback. The presentation outlined that the IESO assessed regional electricity system needs based on low, reference, and high demand scenarios, as well as additional growth sensitivities - including high EV adoption in Thunder Bay. In this scenario, preliminary analysis by Synergy North showed local EV adoption in line with the 2020 IESO Annual Planning Outlook would not result in a significant change to their forecast
- For more information, see the [Engagement page](#)

## Major public transportation electrification investment and operational announcements in Ontario, including transit, trains, and ferries

- The IESO announced \$14.6M in funding, along with \$10.3M from the Toronto Transit Commission (TTC), City of Toronto and PowerON, in two projects exploring how large batteries can help subways and electric buses reduce peak demands and strain on the electricity system. PowerON will explore a bus smart charging management system to optimize battery and grid charging. The TTC will explore using an energy storage system to maximize subway train regenerative braking
  - The Province announced the expansion of the GO rail network in the Greater Golden Horseshoe. The project will electrify over 600 km of track, and will introduce a new high-speed electric train fleet, reaching speeds of 140 km/hr, aiming to add service by 2025 or 2026
  - The Ontario Ministry of Transportation also announced that two new hybrid-electric ferries preparing to start service this summer in the Kingston area. OPG is building the on-shore battery storage system and charging infrastructure, which will include two fast charge eFerry stations. Construction of charging infrastructure is expected to start early in 2022, and be completed in 2023, when the ferries will become fully electric
  - These efforts will be supported by the research, development and testing of innovative and smart charging technologies
- For more information, see the [IESO transit release](#), [Ontario GO Train release](#), the [Ministry of Transportation ferry tweet](#) or the [OPG ferry release](#)

# Ontario



## IESO funds Artificial Intelligence EV Pilot in Ottawa

- The pilot project, called EV Everywhere, will test an AI software platform that provides Hydro Ottawa with visibility of and support to manage EV charging. The platform aims to reduce the strain on the local grid by collecting input from customers, optimizing charging times and determining the strategic placement of battery storage.
  - The platform will also create an online service for EV owners that will pool the storage and charging capabilities of EV batteries to smooth out demand peaks and take advantage of lower-cost energy at off-peak. The automated system will also gauge customer interest and impacts
  - The total project cost, split between the ISEO and project proponents is \$4.8M, and is enabled with regulatory support from the OEB's Innovation Sandbox
- For more information, see the [Release](#)

## Ontario creates new Electrification and Energy Transition Panel

- The Province created the new panel via an order in Council for up to one year with a mandate to advise on how to coordinate integrated long-term energy planning, considering growing demand, emerging technologies, low-carbon fuel switching, sustainability and affordability
  - The three-member advisory group will be chaired by David Collie, a former president and CEO of Ontario's Electrical Safety Authority
- For more information, see the [Order in Council](#), the [Minister of Energy tweet](#) or the [News article](#)

## City of Toronto enhances EV-Readiness requirements in latest Toronto Green Standard

- The City released version 4 of its Standard in April, increasing the requirement for EV charging through EV-Readiness and/or EVSE installations of Level 2 or higher
  - EV-Readiness is now required in the low-rise standard. Low-rise buildings must have an energized outlet or EVSE for Level 2 charging for each dwelling unit. For multi-unit apartments or townhomes with shared, common onsite residential parking spaces now require an energized outlet or EVSE dedicated to each space
  - The mid- to high-rise standard moved EV-Readiness from optional to a requirement, where all residential parking spaces in apartment, mixed-use, and multiple dwelling unit buildings must have an energized outlet (excluding visitor parking). Other building types must have an energized outlet in 25% of all spaces
- For more information, see the [Release](#), [Low rise standard](#) or [High rise standard](#)

## KEY MARKET UPDATES

# Quebec



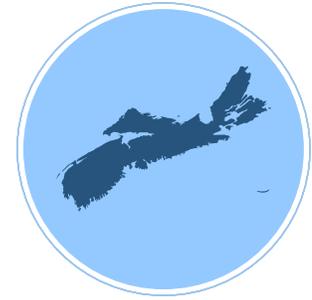
### Québec announces \$22.7M to Prevest to produce e-buses

- The project will support the development of a 100% electric bus from Prevest and a system capable of converting buses from diesel to electric
  - The Province announced that it will provide a loan of \$15M through Investissement Québec and a grant of \$7.5M from the Electrification and Climate Change Fund
- For more information, see the [Release \(FR only\)](#)



## KEY MARKET UPDATES

# Nova Scotia



**NEW!**

## NS Power 2022 Load Forecast Report

- NS Power submitted its Load Forecast in April with a net annual increase of 0.3%
  - The 2022 Load Forecast shows higher growth in the near-term (compared to the 2021 forecast) due to greater customer growth and higher average use. The mid to long-term growth is driving higher EV sales driven by the Province's goal of 30% ZEV sales by 2030, as well as heating electrification and hospital expansions
  - NS Power estimated there were ~950 EVs on the road by the end of 2021
  - The EV load forecast incorporates the provincial and federal sales mandates, and incorporates light-, medium- and heavy-duty fleets. The forecast estimates that there will be over 75,000 EVs on the road by 2031, mostly light-duty (compared to 58,000 vehicles in the 2021 forecast)
  - The forecast outlined estimated average energy and peak demand impacts, which ranged from 4.3 MWh/year and 0.9 kW/vehicle on peak for light-duty to 113.9 MWh/year and 7.3 kW/vehicle for heavy-duty.
  - The peak impact assumes that 70% of charging is managed by NS Power (including smoothing through vehicle-grid integration and time-of-use tariffs, measures that are currently being piloted) and 30% is unmanaged. The blended impact (of managed and unmanaged impacts) is forecast to be 0.9 kW/vehicle, whereas unmanaged peak impacts are 1.3 kW/vehicle.
  - Overall, the EV load is estimated to be 12 GWh in 2022 up to 510 GWh in 2032. The blended impact translates to an EV peak of 2 MW in 2022 to 29 MW in 2032, where unmanaged impact translates to 4 and 131, respectively.
- For more information, see the [Matter No. M10569](#)

## KEY MARKET UPDATES

# Newfoundland & Labrador



## NRCan confirms funding for Newfoundland Power fast-charging stations

- The \$1M investment will support the installation of 38 fast-chargers along the TransCanada Highway in Newfoundland and Labrador
- The chargers are part of the takeCHARGE network, a joint initiative between Newfoundland Power Inc. and Newfoundland and Labrador Hydro
- The remainder of the funding will come from the utilities from ratepayers. See our October 2021 In Focus for more information
- ▶ For more information, see the [Release](#)

# Territories



## Yukon to invest in EV charging and broader ZEV incentive program

- The Yukon Government released its 2022-23 Budget in March, which outlined \$2.1M in funding for transportation electrification to support its climate targets
- The budget speech noted \$1.5M to expand the charging network in communities and along highways of electric vehicle chargers with 19 fast chargers installed by the end of the year
- The Good Energy program will also be expanded, which provides rebates for new and used EVs, charging stations, and zero-emission snowmobiles, motorcycles, and bicycles
- ▶ For more information, see the [Budget overview](#), [Budget speech](#) or [News article](#)

# ADDITIONAL UPDATES

Other electrification news items that may be of interest - click on a title to read the original article.

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[Équiterre and Green Communities Canada launch Canadian Electric School Bus Alliance to promote and advocate for e-buses](#)  
[Winnipeg Transit applies to CIB to fund 110 e-buses](#)

[City of Saint John announces plan to have a zero-emission fleet by 2040, including transit buses](#)

[Winnipeg Transit applies to CIB to fund 110 e-buses](#)

[ENMAX unveils two electric medium-duty fleet vehicles for utility use](#)

[Quebec confirms funding for 12000 e-buses announced at COP26 \(FR only\)](#)

[Electric Circuit and the Association of Electric Vehicles of Quebec announce EV education provincial tour \(FR only\)](#)

[Drive Electric NL opens EV Resource and Learning Centre in St. John's and receives \\$80K from Province for EV education](#)

# CONTACT US

We invite you to get in touch with us to discuss any upcoming opportunities or questions, or to provide us with feedback on future issues:



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