



ERO Posting Submission

DATE: November 4TH, 2022

TO: Katerina Downard – Environmental Policy Office

FROM: Nuclear Innovation Institute / Bruce Power Net Zero

CC: N/A

RE: *Rural Ontario needs EV Infrastructure*

Passenger vehicles are a defining feature of the modern world, but they also have contributed to unstable amounts of carbon dioxide being pumped into the atmosphere—the effect being a catastrophic disruption of the earth’s climate. Individuals, municipalities and businesses are seeking ways to lower emissions and greenhouse gases (GHG), which are forcing changes to how we live. A major component to lowering GHG emissions is electric vehicle (EV) adoption—but for rural regions that have always relied on internal combustion engine (ICE) vehicles, EV adoption has not been that easy. This is certainly true for regions like Bruce, Grey and Huron counties, where there is a significant need for public EV charging infrastructure.

Not only do residents in Bruce, Grey and Huron want a strong EV infrastructure network, but so do those who travel to the area. The region’s tourist economy has been built to accommodate car travel. Now is the time to build EV infrastructure to attract the next generation of visitors. Failure to do so could leave the region falling behind.

Currently, the EV charging network is unevenly distributed throughout Bruce, Grey and Huron counties and lacks the type of charging that best suits the needs of EV drivers. The current network is dispersed and small—and Ontario zero-emission vehicle (ZEV) and EV drivers sense that. For regions that rely on significant levels of tourism to support their local economies, it is critical that would-be tourists are confident they can access a sufficient and reliable network of charging stations while on the road.

This submission will outline how the Government of Ontario can help address the challenges facing rural regions like Bruce, Grey and Huron when it comes to public EV charging infrastructure.



Key takeaways

- When travelling, EV drivers favour areas where they are confident they can access a dependable network of public charging stations. Support for EV charging infrastructure in the Bruce, Grey and Huron region is crucial to meet the demands of local EV drivers and also for the many tourist visitors.
- According to the results of a survey the Nuclear Innovation Institute (NII) conducted with Plug'n Drive, EV drivers prefer access to Level 3 charging stations along major roads and highways and Level 2 charging stations near local restaurants, attractions and downtown cores. Support for this type of infrastructure will be critical.
- The installation of efficient EV charging infrastructure has been limited by a lack of coordination; whenever possible, public-private partnerships should be supported. Additional government funding is required for infrastructure installation.

What we do

The Nuclear Innovation Institute (NII) is an independent, not-for-profit organization that provides a platform for accelerating the pace of innovation in the nuclear industry. NII's goal is to shape a Canadian nuclear industry that embraces new thinking, new technologies and new lines of business that play a central role in the global shift to a low-carbon future.

Bruce Power NetZero Inc. is an Ontario corporation which owns and operates a nine-megawatt renewable energy project located adjacent to Bruce Power. Its purpose is to advance projects that deliver a clean energy mix for the province and Canada. Bruce Power aims to be the first nuclear plant in North America to achieve net zero greenhouse gas emissions by 2027. Each day Bruce Power produces 30 per cent of Ontario's electricity and is responsible for the avoidance of about 19 million tonnes of greenhouse gases a year.

NII, in collaboration with Plug'n Drive, conducted a study on EV infrastructure across the Bruce, Grey and Huron region—using Plug'n Drive's network of existing EV drivers to gain insights on preferred charging locations and types when travelling. EV drivers reported that easy access to EV charging stations is a key element in their decisions on where they choose to travel to.

Counties like Bruce, Grey and Huron risk losing tourists if they don't increase the number of EV charging stations in their region. Throughout the survey, EV drivers were also asked about their travel habits and what their preferred charging experience is, focusing on Level 2 and Level 3 chargers. This data is helpful in assessing how the infrastructure of the area compares to what visiting EV drivers might expect.

The full report can be found here: [*Plugging In: Why Bruce, Grey and Huron must prepare for an electric vehicle future.*](#)



Rural Ontario has limited public EV charging infrastructure

- **ERO Q1:** Where are the geographic areas in Ontario where there are gaps in public EV charging infrastructure?

Both the residents of the Bruce, Grey and Huron region and those travelling to the area rely on passenger vehicles. Our charging infrastructure is currently dispersed and small. In 2021, across the nearly 12,000 km² Bruce, Grey and Huron region, there were just 45 accessible charging stations with 111 individual plugs.

EV drivers prefer to travel to places where they know they will be able to access a reliable network of public charging stations. The limited ability to charge an electric vehicle is one problem; the perception that it is difficult to do so is another. EV drivers were asked about their perceptions of the current EV charging network in Bruce, Grey and Huron. Unfortunately, **more than 80% of the ZEV/EV network** currently believe that **accessing charging** in Bruce, Grey and Huron is either **difficult or very difficult**.

Changing this perception first requires fixing the reality on the ground. EV drivers who responded to the Plug'n Drive survey reported that they prefer access to Level 3 charging stations along major roads and highways. These types of chargers represent less than a quarter of the charging stations across the region. EV drivers also reported that they seek access to Level 2 charging stations on-street (in downtown cores or near local attractions/facilities) when they are travelling. While this type of charging stations represents 39% of the small, existing regional network, vastly more of these chargers are needed to service those near local restaurants, attractions, arenas and downtown cores.

To meet demand and promote increased adoption in areas that rely heavily on passenger vehicle travel and transportation, charging infrastructure must be put in place. For road trip vacations and weekend getaways, **more than 70% of EV drivers** stated they would **only choose locations or would give preference to locations where they know they can access public infrastructure**.

These findings highlight the challenges that EV drivers face in Ontario due to a lack of infrastructure, particularly in rural areas. It is evident that Bruce, Grey and Huron counties do not currently meet the standards of EV drivers. The few chargers that have been installed have been placed sporadically, without a vision that incorporates the preferences of EV drivers.

Travel habits for EV drivers

- **ERO Q2:** In what kinds of situations are public EV chargers most useful (e.g., type of trip, length of trip, type of charging location)?

The Plug'n Drive survey asked EV drivers a series of questions about their travel habits, their preferred public charging options when travelling and their perception on the ability to find public charging throughout the region.

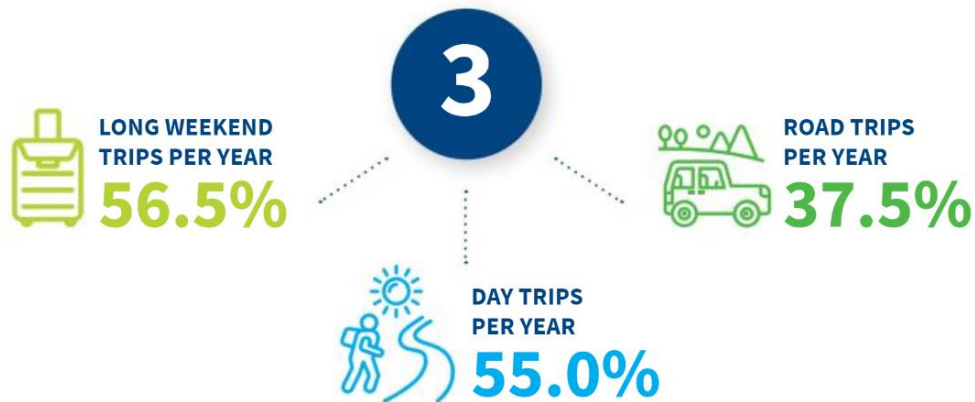
In the survey, EV drivers were presented with three different travel habits:



- Road-trip vacation (defined as four or more days)
- Weekend getaways (defined as three days or less)
- Day trips (more than 200 km away from their home but returning the same day).

Figure 1: Travel habits of EV drivers (2021)

TRAVEL HABITS OF EV DRIVERS



For all types of travel activities, the results showed that EV drivers are well travelled. For all three types of travel activities, the response “three or more times” per year was the most common answer. The survey also determined that EV drivers are more likely to use their EVs for weekend getaways and day trips.

For road trip vacations and weekend getaways, **more than 70% of EV drivers** stated that they would only choose—or would give preference to—**locations where they know they will be able to access public charging infrastructure**. Two-thirds said the same thing about the choices they make for day-trip travel.

EV drivers stated that **access to public charging infrastructure is “very important”** when it comes to deciding where they travel. Lack of public charging was the most common response when asked why they do not take their EV on vacation, which included all three types of travel: road trip vacations, weekend travel and day trips.

While the number of charging stations and plugs in the region is important, the type of charger and where these chargers are located is even more significant. The Plug’n Drive study focused on Level 2 and Level 3 charging.



Figure 2: Types of charging EV drivers want (2021)

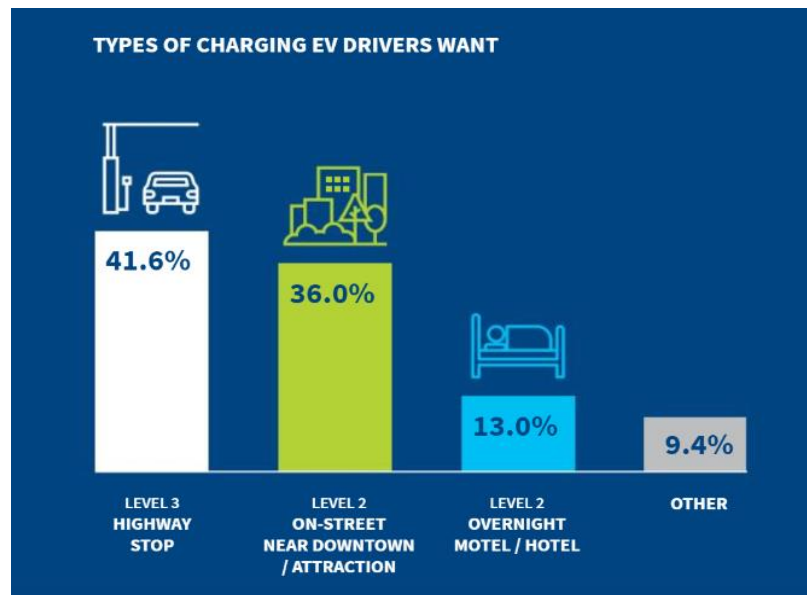


Figure 2 shows that in 2021, **nearly 42% of EV drivers choose Level 3 highway rest areas** to reduce the time they need to wait for their vehicles to charge. Level 2 on-street charging is preferred by 36% of respondents. Public spaces such as arenas, community centres and parking lots that are highly visible are used year round—and are usually owned by municipalities—provide the optimal location for this type of charging. **Level 2 chargers are perfect for ‘topping up’** while vehicle owners are grabbing a coffee, watching a hockey game, shopping or taking in an event.

Overall, the current level of available charging stations desired by EV drivers is far below the demand that can be expected from the growth in the years ahead.

Barriers to Ontario's expansion of public EV charging stations

- **ERO Q3:** What are the challenges with increasing public EV charging in Ontario and how could the government help address those challenges?

Establishing an electric vehicle charging network is essential to meeting demand and encouraging greater adoption of electric and zero-emission vehicles. More and more people are selecting electric cars as a result of rising gas prices and a cultural movement toward a low-carbon future. Although local residents and visitors in Bruce, Grey and Huron may favour driving or investing in electric vehicles, the region has not been able to adequately support them. The lack of electric vehicle charging stations makes it difficult to buy a zero-emissions vehicle or travel to our region in one.

A coordinated approach is essential to installing the right kinds of chargers where they are needed, creating a seamless network of plugs that can put drivers at ease and close the gap on range anxiety. In the Bruce County region, two private companies, Bruce Power Net Zero Inc.



and Westario Power, are working towards a solution to build up the EV network in the region. Bruce Power Net Zero Inc. and Westario Power have partnered with ChargePoint to offer a turnkey program to municipalities in the Westario Power service area to install and operate Level 2 electric vehicle charging stations in public spaces.

Even with community support from private companies in the region such as Bruce Power Net Zero Inc. and Westario, municipalities still possess limited funds to put towards EV infrastructure. Individual municipal transportation planning should include commitments to public charging infrastructure enhancements, leveraging government support programs (like the Government of Canada's Zero Emissions Vehicle Infrastructure Program) and collaborate where possible to reduce installation costs. To encourage Bruce, Grey and Huron residents to make the switch to EV vehicles, the infrastructure needs to be installed. In order to eliminate the gaps in the Bruce, Grey and Huron regions, further government funding is required.

Rural Ontario needs EV infrastructure

There is a widespread agreement, from climate scientists to auto and energy industry analysts, that an accelerated shift to electric cars running on clean electricity can have a profound impact on decarbonizing our economy. This emerging revolution remains barely visible. The portion of EVs on the road is still small, and deep driver prejudices and fears are yet to be overcome.

Bruce, Grey and Huron counties want to create a dependable charging network for electric vehicle users—both to residents and tourists—and eliminate the “range anxiety” that they may be currently experiencing due to the lack of EV infrastructure in the area. It is crucial that visitors and residents are aware that they have an adequate and dependable network of charging stations. Willingness to buy electric vehicles is dependent on access to reliable charging; you simply cannot go electric without it.

The goal is to allow EV drivers to travel across the region without concern of when or where they will be able to get their next charge. A clear and coordinated strategy for installing EV charging capacity across the region must be created by governments at the municipal level, supplemented by support from the provincial level, to create a sufficient and reliable network of charging stations.

Moving forward

Should you have any questions about the content contained within this submission, please feel free to contact the Nuclear Innovation Institute by e-mailing Jordan Durrer at Jordan.Durrer@nii.ca.

