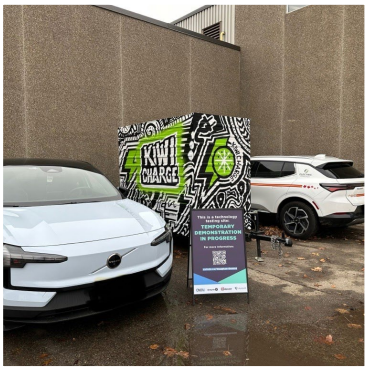
Demonstration Zone

2024

EV Charging Innovation

Demonstration Project: Portable Level 2 EV Charging

Innovator: Kiwi Charge Inc.
Product: Kiwi V2 (Trailer Kiwi)
Demonstration Period: November 20, 2024 – December 21, 2024



VAUGHAN OVIN Ontario vaughan ECONOMIC DEVELOPMENT

Executive Summary

The City of Vaughan is testing leading-edge technology to evaluate how innovative solutions can address real-world mobility and transportation challenges.

Through the Ontario Vehicle Innovation Network (OVIN) Demonstration Zone, Kiwi Charge Inc. conducted a demonstration project to evaluate the feasibility and effectiveness of their portable Level 2 electric vehicle (EV) charging stations.

The demonstration took place at three selected locations over eight days: Vaughan's Joint Operations Centre; and two community centres – Father Ermanno Bulfon and Vellore Village. The goal was to assess public demand, infrastructure gaps, and the viability of mobile charging solutions in areas where permanent installations are cost-prohibitive or technically challenging.

The portable unit delivered 17 charging sessions, averaging 1–1.5 hours and 17 kWh per session. The project validated the technology's reliability, ease of deployment, and potential as a planning tool for future infrastructure investments. Key findings revealed higher utilization at Vellore Village, indicating a greater demand for public charging infrastructure in that area.

The demonstration confirmed that Kiwi Charge's solution could potentially serve as a flexible solution for municipalities seeking to expand mobile EV charging access.

The OVIN Demonstration Zone is an initiative that is part of Vaughan's Transportation Innovation Program (TIP), which aims to test smart mobility solutions in real-world environments. This demonstration was completed in partnership with **Vaughan's Facility Management, Policy Planning & Special Programs, and Transportation and Fleet Management** teams.

The Innovator

Kiwi Charge Inc. (Kiwi Charge) is a Toronto-based company specializing in portable and autonomous EV charging solutions. Their mission is to make EV charging more accessible, particularly for users without access to home charging infrastructure. The company offers EV charging as a service through a flexible subscription model, ranging from free to premium tiers. Subscribers benefit from reduced $/kWh rates based on their plan and driving habits.

Demonstration Overview

The demonstration was planned and executed to evaluate the effectiveness, safety, and reliability of Kiwi Charge's portable solution to help the City provide portable public charging options for:

- Areas where there was no permanent charging infrastructure installed were either not available or cost-prohibitive to install.
- Capturing user feedback for the City's EV charging network planning by providing data to support a confirmation of demand prior to significant capital investment in installing permanent EV chargers.

The portable charging station was available across a combined ten days for the demonstration project: two days at Vaughan's Joint Operations Centre for an initial test with internal staff, and then four days each at the community centres for public testing.

Demonstration Zone

Key Outcomes

The demonstration consisted of Kiwi Charge providing a portable charging trailer with two charging ports for use over four days at two different community centres within the City of Vaughan. The charges were offered to the public free of charge, and data was collected regarding the reliability, effectiveness and the public's interest in making use of the portable chargers. Two community centres were selected for the demonstration to evaluate the feasibility of public use and collect data on the centres' EV charging demands.

The portable charging unit (a trailer-sized station) was effective in providing a total of 17 charging sessions that averaged between 1-1.5 hours in duration and discharged an average of 17 kWh per session.

The demonstration project was a success. The project confirmed the potential viability of the Kiwi Charge portable chargers to help fill in gaps in public charging infrastructure during temporary events or in locations where permanent installations are cost-prohibitive or not technically possible.

Key outcomes included:

- Kiwi Charge provided a total of 17 public charging sessions over eight days at two community centres.
- Mean duration was 1-1.5 hours and discharged an average of 17 kWh per session.
- They conducted four charging sessions at the Joint Operations Centre (JOC) prior to public testing.
- Data from the demonstration user survey can also be used as a planning tool for organizations to confirm public interest in public access to charging infrastructure prior to making a large capital expenditure on a permanent installation.
- The Project Team Committee provided insights to Kiwi Charge on municipal operations for existing electric vehicle infrastructure
- The demonstration provided the City with insights on how portable or on-demand charging units could be potentially incorporated into operations, and evaluated demand at locations without existing infrastructure.
- The demonstration provided the City with insights on how portable or on-demand charging units could potentially augment existing sites with charging infrastructure to increase capacity

Exclusions

Demonstration projects through the OVIN Demonstration Zone are temporary and limited in scope and duration due to the time constraints of the OVIN Demonstration Zone program. The project evaluated key features of Kiwi's portable charging service, as determined by the Project Advisory Team.

Conclusions and Recommendations

There is no need to perform further demonstration projects on this specific product from Kiwi Charge. It would be considered ready as a viable and beneficial product for locations without a permanent charging infrastructure.

Further time would be required to evaluate Kiwi Charge's other portable charging products. Specifically, they are developing autonomous portable charging systems and are also looking at larger capacity Battery Energy Storage Systems (BESS) that would allow for Direct Current Fast Charging (DCFC) capability.

Results from the demonstration suggest it may be worthwhile to evaluate Kiwi Charge's other portable charging solutions in future demonstration projects to determine if the technology is effective in temporary events. In addition, Kiwi Charge may wish to pursue future demonstration projects to help develop and refine its pricing structure.

Demonstration Zone Project Profiles: www.vaughanbusiness.ca/demozone/projects