

MISSION STATEMENT

“Our City is built on relationships – between citizens and their government, businesses and public institutions, city and region – all interconnected, mutually supportive, and focused on the brightest future we can create together”

REPORT #: C 2/2016	Report Date: 1/8/2016
Author’s Contact: Melissa Osborne Senior Manager of Asset Planning (519) 255-6100 x 6111 mosborne@citywindsor.ca	Date to Council: 1/25/2016
	Clerk’s File #: GP2016
Sergio Grando Manager of Energy Initiatives (519) 255-6100 x 6123 sgrando@citywindsor.ca	

To: Mayor and Members of City Council

**Subject: Application Submission to the Ontario Ministry of Transportation under the Electric Vehicle Chargers Ontario (EVCO) Grant Program
City Wide**

RECOMMENDATION:

To Council for Direction.

EXECUTIVE SUMMARY:

N/A

BACKGROUND:

At 35 per cent, transportation emissions are the single-largest source of greenhouse gas (GHG) emissions in the province. In fact, emissions from passenger car trips alone are greater than the emissions from Ontario’s iron, steel, cement, chemical sectors

combined. Ontario's approach to reducing transportation emissions will recognize the emission reduction potential of different technology and modal shifts.

However, the Province of Ontario recognizes that millions of passenger trips will continue to be made by personal vehicles. For that reason, electric vehicles are identified as a vital component in combating climate change. The adoption of such vehicles is seen as being hindered, in part, by the availability, or lack, of a network of publicly accessible electric vehicle (EV) charging stations. The Province of Ontario has introduced an initiative to encourage implementation of EV charging stations to improve both the Inter-City and In-City availability. The Ministry of Transportation released on December 21, 2015 a \$20M grant program to encourage both public and private entities to purchase and make available additional public EV charging stations. Throughout this Report electric vehicle charging stations are referred to as Electric Vehicle Supply Equipment (EVSE). An EVSE location can have multiple Level 3 and / or Level 2 EVSE units.

This Program is focused on creating a network of EVSEs across the province to allow EV drivers to travel between and within communities and make cleaner vehicle technology a viable option. Through the application process the province will work with public and private sector partners to determine the optimal distribution of EVSEs that will support the uptake of EVs across Ontario.

The Electric Vehicle Chargers Ontario (EVCO) grant program application submissions are due February 12, 2016. All units must be operational by March 31st, 2017.

There are currently ten (10) Level 2 EVSEs in Windsor including the one located at the Windsor International Aquatic and Training Centre (WIATC), which is owned by the City, and an additional fourteen (14) EVSEs are located in Essex County. In addition, there is a Tesla charging station in Comber but it cannot supply other manufacturers' EV vehicles.

The WIATC Level 2 EVSE was funded by EnWin and has been in operation since spring 2015. Maintenance, operations, and customer service are managed through a third party (Greenlots) at a cost of \$600/year. As per Council's direction the unit has been made available free of charge for the first year of operation. To date (10-month period data from Greenlots) there have been 37 charging sessions having consumed 183 kWh or approximately \$24 of electricity cost. The average charge per session was 5 kWh with an average charging time of approximately 2 hours. Recently the unit has incurred some vandalism and is currently not operational as administration in the process of planning for the repairs. While the damage is not extensive final costs are unknown at this time.

After the first year of operation Administration was directed to report back to Council on the activity of the unit and any pro's and con's to be considered prior to determining if City should own and operate any additional units. Given the timing of this report the above statistical information on the WIATC EVSE unit is provided for Council's information.

DISCUSSION:

Overview of EV Charging Stations

Currently there are approximately 5,000 electrical vehicles (plug-in type, not hybrid) in Ontario and 15,000 across Canada. EVs have a range of up to 150 km depending on the make and model. The auto industry is launching EV models with over 300 km range in 2016-2017.

There are two basic EV configurations: battery electric vehicles (BEVs) powered exclusively by batteries, and plug-in hybrid electric vehicles (PHEVs), powered by a combination of batteries and another power source, such as an internal combustion engine.

The charging infrastructure in Ontario to service these vehicles is represented by five (5) Level 3 charging stations exclusively in the GTA and approximately 600 Level 2 charging stations throughout the Province. A Level 3 requires 30 minutes to achieve 80% of full charge at a high DC voltage while a Level 2 charging station, which operates on a lower AC voltage, requires 6-10 hours for a full charge depending on the vehicle model. Level 3 EVSEs have the capacity to charge only one EV at a time, however Level 2 EVSEs have capacity for two.

To date, in general, most Level 2 are free to the public and the majority are owned by the private sector. With the introduction of the Level 3 EVSEs, which have a substantial higher capital and charging costs, charging rates of 5-10 \$/hr are being introduced.

The cost for a Level 2 EVSEs ranges from \$10-15 thousand installed while a Level 3, which has significantly more complex electrical infrastructure requirements, ranges between \$70-100 thousand. These costs are just for the units and installing them at site ready locations. Costs to build infrastructure at sites will also be funded, however those costs will vary greatly depending on the site and location of an EVSE.

Administration has communicated with Plug'n'Drive (an umbrella organization that promotes the use of electrical vehicles) to obtain relevant EV industry information. While there are no clear statistics to demonstrate the level of Municipal ownership of publicly accessible EVs, there is a growing number of pilot installations across the province similar to Windsor's Level 2 EVSE.

The average annual cost that includes network fee and internet / cellular service ranges between \$600-900 for both Level 2 and Level 3 EVSEs. These costs do not include the actual cost of electricity, maintenance costs, and expenses associated with the units once they are out of the warranty.

In order to increase the In-City and Inter-City availability for EVs a network of EVSEs will be needed. The Province of Ontario has embraced the global trend of supporting the electrification of transportation.

Electric Vehicle Chargers Ontario (EVCO) Program Overview

The province is putting its new Climate Change Strategy into action by investing \$20 million this year from the Ontario Green Investment Fund to support the build-out of a network of public EV charging stations across Ontario.

Through the \$20 million Electric Vehicle Chargers Ontario (EVCO) grant program, the province is seeking public and private sector partners to create a network of fast-charging electric vehicle stations in cities, along highways and at workplaces, apartments, condominiums, and public places across Ontario.

One of the key concerns for EV drivers is the distance the vehicles can be driven before having to recharge (also known as 'range anxiety'). In order to extend this distance, public recharging infrastructure (akin to gas stations) is required to enable EV drivers to 're-fuel' by recharging their vehicles.

The objective of the Program is to support the implementation of Level 3 EVSEs, which allow for an 80% charge within 30 minutes. Level 2 EVSEs will also be supported where appropriate (e.g., workplace charging, and installing Level 2 EVSE(s) next to Level 3 EVSEs), however they require locations which are conducive to a longer period of time for charging as they take 6 to 10 hours for a full charge.

It is expected that an immediate and significant implementation of publicly accessible Level 3 EVSEs will accelerate the adoption of EVs in Ontario, which would reduce greenhouse gas emissions from the transportation sector.

The Program is a one-time competitive application-based grant program designed to cover the purchase and installation cost of public EVSEs located along major inter-city transportation corridors and in urban centres (including workplaces, apartments, condominiums, etc.) across the province. The Program is also designed to cover the purchase and installation of Level 2 charging at workplaces.

Through the Program, the Province is seeking to create a network of optimally distributed public EVSEs that enable EV drivers to travel between and within cities and support the implementation of a charging infrastructure. There is no cap on the amount of Program Funding any one Applicant can request under \$20 million. Applicants are welcome to propose projects to support Inter-City and/or In-City EVSEs that can be implemented at select locations or that could create a broader network.

EVCO Program Requirements

Under the program, Level 3 EVSEs intended to support Inter-City travel must be located adjacent to, or within approximately one kilometre from heavily travelled highway interchanges or intersections and/or within 10 kilometres of a provincial/state border. In addition, each Level 3 EVSE location must be approximately 60-80 kilometres from another public Level 3 EVSE either already in existence or approved under the Program. At any one Level 3 EVSE location the EVCO Program allows for the installation of multiple charging units.

Level 2 EVSEs which are intended to support In-City travel must be located close to major trip attractors such as retail, hospitality and recreation locations, workplaces, condominiums, and multi-unit dwellings.

Funding will only be provided to legal entities. Eligible Applicants to the Program include businesses, municipalities, Aboriginal communities or organizations, Local Distribution Companies, non-governmental organizations, Conservation Authorities and other legal entities. Applicants are permitted to pursue partnerships with third parties. Applicants must also commit to owning, operating and reporting on the systems for a minimum of five (5) years.

The EVCO grant program guide is attached as Appendix A. Key technical requirements of the program are as follows:

- Level 3 units must be located within 1km of a highway interchange or intersection and or within 10 km of a provincial or state border with the intent to be expandable to accommodate multiple units in the future. In addition each Level 3 EVSE location must be approximately 60-80 km apart.

- Level 3 units must contain at least one CHAdeMO charge connector one Combo SAE J1772 (CSS) to accommodate the various EV models.
- Level 2 units must be located close to major trip attractors such as retail, hospitality and recreation locations, workplaces, condominiums, and multi-residential buildings.
- Level 2 units must also include a SAE J1772 charge connector that is compliant, and installation work must 'rough-in' an appropriate level of capacity to support future demand and technology.

Evaluation of Potential Municipal Sites

Recognizing that the program favours sites that have expansion capabilities, Administration has identified the following sites that would be the most appropriate for installation of Level 2 and 3 EVSEs.

Level 2

Under the EVCO program Level 2 EVSEs are intended primarily to facilitate in-city commute. The grant has identified that locations such as retail, hospitality and recreation locations, workplaces, condominiums and multi-dwelling sites are best suited to foster in-city commute. These locations generally have high volumes of vehicles and generally have people who stay for longer durations of time. This is important for Level 2 stations as they require 6 to 10 hours to fully charge a vehicle. Based on these guidelines the following municipal sites are identified as being most in line with the program requirements for EVSE Level 2: WIATC (currently one unit in place), WFCU Centre; Forest Glade Arena; two downtown Parking Garages, Parking Lot no. 10 (Goyeau and Park, adjacent to the New City Hall). Of all of the sites the most viable for high volume and extended stay would be the two parking garages downtown. Throughout the week they provide parking for people who are working and therefore will be able to charge their vehicle while at work. They are also closely located to multi-residential sites which may encourage those residents to purchase an electric vehicle as they would have access to a charging site close to their dwelling, should charging stations not be provided in those buildings parking garages. While these sites are ideal it should be noted the electrical systems are older and at or near capacity at these locations. Should Council choose to pursue one or both of these options Administration will need to work quickly internally and with other parties (i.e. Enwin) to provide an accurate cost estimate for site design and preparation, which are part of eligible costs in the grant.

Level 3

Under the EVCO program Level 3 EVSEs are intended primarily to facilitate inter-city commute. Parking Lot no. 10 (close to the tunnel) meets the EVCO program requirements for Level 3 EVSE. The site is within 1 km of heavily travelled highway and / or within 10 km of a provincial or state border. While this site meets the program requirement the opportunity for expandability to include multiple charging units might be a challenge as it relates to the available footprint.

Administrative Comments

The Environmental Master Plan (EMP) outlines the City of Windsor's commitment to being a leader through its daily actions and services to enhance the environment for present and future generations. The use of electric vehicles supports four of the five goals of the EMP. The following is a list of the environmental benefits.

- A shift to plug-in-hybrids and full electric vehicles reduces air pollution. Air pollution was reported as the number one environmental issue of Windsor residents during the 2005 and 2011 environmental attitude surveys.
- Enhancing the network of EV Chargers around the City increases the feasibility for the introduction of electric vehicles to the City's fleet.
- The 2014 greenhouse gas (GHG) inventory estimates that Corporately, 36 % and Community-wide, 27 % of the GHG emissions are attributed to transportation. The City of Windsor is currently developing the Corporate and Community Climate Change Mitigation Plan that will identify actions to reduce GHG emissions. Encouraging the transition to low and zero-emissions vehicles will likely be one action identified through the process.
- The Provincial and Federal governments have clearly identified that reducing GHG emissions will be a priority. As the majority of Ontario's GHG emissions (60%) originate in cities, it is reasonable to expect that senior levels of government, at some point in the future, will look to municipalities to help mitigate GHG emissions.
- As a leader on many environmental initiatives, the City of Windsor is positioned to foster an engaged community and staff that appreciates and protects its local environment.

However there are some concerns and issues with respect to municipal participation in this program that Council should be aware of as identified below:

- In addition to the EVCO Program the Province is reviewing its current rebate program for EVs with the intent to provide greater incentives for consumers to buy new, more fuel-efficient, electric vehicles.
- While this program has limitations for municipal participation with regards to the number of EV chargers, in particular LEVEL 3 EVSEs, Administration recognizes

the importance of energy conservation and reduction of its carbon footprint. To that end, the Corporation has taken a leadership role in a significant number of energy initiatives including solar photovoltaic, combined heat and power, LED conversion, energy efficient technologies, etc.

- An additional charging station option, not funded by the grant, is a 120V wall plug station. These units are generally used at residential locations. They take longer to charge however there are several public locations in Windsor which offer them such as hotels, the casino and hospitals. While these are not funded by a grant Council should be aware that there are already multiple locations in Windsor which helps to provide more coverage for in-city networking.
- The need to address climate change is well noted and electric vehicles are recognized as playing a significant role. The extent to which a municipality becomes involved in facilitating charging stations is unique to each municipality.
- Based on EVCO Program requirements **only one** Level 3 EVSE location per 60-80 km will be selected. Windsor at best would be allowed one EVSE location with possibly one more in the Essex County area. Given that the program funds 100% of capital and installation costs it is anticipated that there will be a high level of interest from the private sector. As such, making an application for a Level 3 EVSE location could be interpreted as competing with the private sector particularly in light of the fact that at best only one Windsor location will be approved for funding. Level 3 EVSEs require a high capacity dedicated electrical line and a transformer to accommodate for the 480 Volt AC supply requirement. Due to the risk associated with the high voltage and the potential maintenance cost (including vandalism) it will require some level of operational supervision.
- Any future expansion of Level 3 EVSEs is likely to cost up to \$100 thousand per unit, plus any costs to improve the site.
- Although Level 3 locations charge within 30 minutes ideal sites are likely to also provide for comfort breaks for commuters while they wait for the charging to be completed. This is not something the City site would provide for.
- Over time these units will grow and essentially become no different than the existing gas stations and accordingly this represents additional operational and maintenance costs.
- While the annual known operating costs range between \$600-900 per unit (Level 3 EVSE maintenance costs are covered by the program funding for the first 2 years) there will be other unknown operating and capital costs including electricity, typical repairs, vandalism, upgrades, expansion and or replacements. These costs could be significant, particularly for a Level 3 unit which can cost up to \$100K.
- Level 2 EVSEs issues will be similar to those of Level 3 EVSEs identified above.
- Consideration would need to be given with respect to establishing a fee structure that goes beyond the recovery cost of the electricity consumed to reduce the taxpayer burden to fund the on-going operational costs.
- The identified proposed sites, in particular recreational sites, are already experiencing parking challenges and adding EV charging stations will further magnify the parking problem. Furthermore there is concern that the EV owners will remain in the parking lots longer in order to charge their vehicles.

- EVSEs' technology is new and evolving and there will be many improvements and upgrades required in the future, which the City may need to fund.
- All operational maintenance, payments, data collection and reporting, including contractual obligations would need to be outsourced to a third party as the City does not have internal skills and resources to manage such a project.

Project Options

The introduction of this program has superseded Administration's timelines on reporting back about the WIATC results and providing specific recommendations to Council regarding future EV charging stations on City property. Notwithstanding this timing issue, contained herein Administration has identified the salient results with respect to usage, etc. If requested by Council, a more detailed report can be provided at the one year anniversary in early April 2016.

It is important for Council to note that this program is open to both public and private sectors and is fully funded by the province.

Administration is presenting the following options for Council consideration. Of course, Council may also consider other alternatives after duly considering Administration's comments above.

Option 1 (Recommended)

The City refrains from submitting an application under the EVCO program but encourages the private sector to participate. Administration has started to reach out to a number of entities like Devonshire Mall, Tecumseh Mall, Windsor Crossing Mall, etc. with information about EVCO Program. Council may also consider facilitation of this program through the applicable City services including planning and policy development.

Supplying electricity for private vehicle transportation (similar to gas station business) is not part of the core business of the Corporation. The intent of developing Level 3 EVSE locations (which facilitates Inter-City travel) is to provide for future expansion opportunities to accommodate demand similar in scope to traditional gas stations, or service centers. Normally government steps in to provide services which are of benefit to the society but which the private sector does not provide because the business motive is not present. If there is private sector interest, participating in this program could be interpreted as competing with the private sector particularly in light of the fact that only one EVSE Level 3 location will likely be approved for funding in the Windsor area. Maintenance and supervision of the EVSEs will have ongoing cost implications

that will need to be budgeted. While less restrictive with respect to location, similar arguments apply for EVSE Level 2 installations.

The City of Windsor supports and encourages private sector entities to apply for this program.

Option 2

The City submits an application for one or more Level 2 EVSE units with the understanding that the annual costs to operate and maintain the devices would require additional funding through the operating budget.

Under the EVCO program Level 2 EVSEs are intended primarily to facilitate In-City commute. Participating in the EVCO program would demonstrate leadership and promote EV transportation which supports the corporate “Greening the City Fleet” plan that identifies the future purchasing of green vehicles including electric.

RISK ANALYSIS:

There are several risks identified for the expansion of EVSEs owned by the City and made publicly available.

1. The timing of this grant application has superseded the report to Council on the first year of operation for the EV station at the WIATC which would have included a more comprehensive recommendation and options on how the City might move forward with EVs.
2. While the annual known operating costs range between \$600-900 per unit there will be other unknown operating costs including electricity, typical repairs, vandalism, staff costs, etc. that need to be funded.
3. Any sites selected by the City would need to be assessed within a few weeks to determine the total cost of infrastructure upgrades which may be required at the suggested sites for EVSE implementation. This presents a risk that the cost to prepare the site is underestimated, and any cost overages for the project would have to be funded by the City.
4. Revenues from establishing a fee structure may not necessarily cover annual operational costs. Unless the cost of owning and operating these devices is a net zero to the City it will create a requirement for taxpayers to subsidize ‘fueling’ of private electric vehicles.

5. If the charging service is to be provided for free there will be unknown electricity as well as operational costs to be funded.
6. City sites where an EVCE unit could be located are not operational / monitored on a 24 hours basis. This creates an opportunity for vandalism of the units, as has been experienced with the unit at the WIATC site.
7. By participating in this program there may be a perception that the City is competing with the private sector.
8. If the charging services were to be provided at no cost it could create a significant issue in that City taxpayers will be subsidizing vehicle 'fueling' of electric vehicles for residents and non residents alike.
9. Installing EVSEs in the identified proposed sites, in particular recreational sites, will add to the existing parking challenges.
10. Operating charging stations is not a core business of the Corporation and Administration has limited experience in this type of operation. This has already created some frustration with users at the WIATC in that there is no one on site who can provide assistance if the system is not operational. That service, noted clearly on the charging station, is provided by a third party (Greenlots).
11. Any future expansion, upgrade, or rehabilitation of the units will be at City's expense.
12. It is impossible to predict the volume of use which could be expected at any City site. Current activity at WIATC charging station indicates 37 charging uses in 10 months, with an average charge time of approximately 2 hours. City sites are not likely to have high volume for several reasons. First, the site needs to be one in which a person with an electric vehicle is likely to attend. Secondly, the individual would be at the site for extended periods of time since it takes 6 to 8 hours for a full charge. There is a risk that units at City sites will be seldom used.

FINANCIAL MATTERS:

Should the City be successful in its application under the EVCO Program the cost of purchasing the EVSEs, including installation, is fully funded. In addition to the \$600-900 annual cost for networking fee and internet / cellular connection, there will be other annual operational undetermined costs. These operational costs can be recovered through a charging fee structure to be determined, however the cost may be such that electric vehicle users find cost prohibitive to use. Volume of users will be a significant

factor in determining a rate to charge which includes fixed overhead costs as well as variable use for electricity. Given the current statistics at WIATC show 37 charges in ten months, if we based the annual average on this data we would presume 44 charges per year. Just allocating the cost for the annual \$600 fee to those 44 users would mean a base cost of approximately \$14 per charge plus electricity.

If the Council decides to proceed with the application, and is awarded the grant, a tender has to be issued for the purpose of procuring and installing the EVSEs. The awarding of the tender will be subject to Council approval with the installation to be complete before March 31st, 2017.

CONSULTATIONS:

Karina Richters – Supervisor of Environmental Sustainability & Climate Change
Angela Marazita – Fleet Manager
Jan Wilson – Executive Director of Recreation & Culture
Tom Graziano – Senior Manager of Facilities
France Isabelle Tunks – Senior Manager Development, Projects & ROW
Mark Winterton – City Engineer
Jim Brown – Director of Infrastructure, EnWin Utilities

CONCLUSION:

The City of Windsor supports and encourages the private sector to apply for a grant under the EVCO Program. While administration believes that the City has a role, this project maybe better suited for private sector participation, in particular with regards to LEVEL 3 units.

As Administration has not yet finalized the report to Council for the pilot project at WIATC and recognizing the anticipated operative costs are not contained in the 2016 operating budget, Administration is recommending that Council provide direction on this initiative.

Administration is recommending for Council consideration that the City not apply for a grant under the EVCO Program. In addition, Administration is also suggesting that Council may in the future want to consider a fee structure for any electrical vehicle charging station owned and operated by the City.

Other options, as described in the report, are also available to Council.

APPENDICES:

1. Appendix 1 - EV Chargers Ontario Program 2015 - Program Guide

Electric Vehicle Chargers Ontario Program (EVCO)

Program Guide

December 21, 2015

Electric Vehicle Chargers Ontario Program

Table of Contents

Introduction.....	4
Key Dates	4
How to Reach Us	4
Context.....	4
1.0 Program Overview.....	5
1.1 What is the Electric Vehicle Chargers Ontario Program (EVCO)?	5
1.2 What are the expected outcomes of the Program?.....	6
1.3 How many EVSEs will be built through this grant program?	6
2.0 Program Criteria.....	7
2.1 Who is eligible to apply?	7
2.2 Can Applicants have partners?	7
2.3 Who is not eligible to apply?	7
2.4 How much can each Applicant apply for?.....	7
2.5 Who would own and operate the EVSE(s) and for how long?	7
2.6 Is funding available to operate the EVSE?	8
2.7 How much will it cost someone to use the EVSE?.....	8
2.8 What are the operational requirements of the EVSE?.....	8
2.9 What are the location requirements for the EVSE?	8
2.10 Does the Applicant have to own the land on which the EVSE is installed?	9
2.11 When will construction to build the new EVSEs begin?	9
2.12 How many Applications can an Applicant submit? Can an Application include multiple components?.....	9
2.13 What type of charging infrastructure is a priority?	9
2.14 Are Applicants required to install provincial signage?	9
2.15 How many public Level 3 EVSEs exist now and where are they located?	9
2.16 How will the successful candidates be selected?	10
2.17 What geographic information is needed?	10
3.0 EVSE Technical Requirements	10
4.0 Eligible Project Costs	11
4.1 What project costs are eligible for EVCO Funds?	11

Electric Vehicle Chargers Ontario Program

4.2 What project costs are ineligible for EVCO Funds?	11
5.0 Financial and Reporting Matters	12
5.1 What proportion of Eligible Project Costs can be requested from the Province?	12
5.2 Is there a cap for Program Funds for a project?	12
5.3 What financial due diligence is required upon receipt of EVCO Funds?	12
5.4 What happens if a Recipient incurs higher Eligible Project Costs during the design and construction of a Project than were estimated in the Application?	12
5.5 When do Projects need to be completed?	12
5.6 What are the reporting requirements?	12
6.0 Assessment of Applications	13
6.1 How will Applications be assessed?	13
7.0 Project Evaluation Considerations	13
7.1 Optimal connectivity	13
7.2 Site or corridor selection	14
7.3 Cost efficiency and effectiveness	14
7.4 Innovativeness	14
7.5 Reasonableness	14
8.0 Submitting the Application	15
8.1 Who can submit an Application?	15
8.2 How do I submit an Application?	15
8.3 What is the deadline for submitting an Application?	15
8.4 Will the Ministry notify Recipients?	16
8.5 Where can I get more information?	16
Appendix 1: Frequently Asked Questions	17
What is the Green Investment Fund?	17
What are the different types of EVSEs?	17
How many individual ports would be part of an EVSE?	17
Where are EVSEs currently located in Ontario?	17
Appendix 2: Definitions	18

Electric Vehicle Chargers Ontario Program

Introduction

The province is putting its new Climate Change Strategy into action by investing \$20 million this year from the Ontario Green Investment Fund to support the build-out of a network of public electric vehicle (EV) charging stations across Ontario.

Through the \$20 million Electric Vehicle Chargers Ontario grant program, the province is seeking public and private sector partners to create a network of fast-charging electric vehicle stations in cities, along highways and at workplaces, apartments, condominiums, and public places across Ontario.

The program guidelines are intended to define the requirements, eligibility, and details of the Electric Vehicle Chargers Ontario program (the Program).

Throughout this Guide electric vehicle charging stations are referred as Electric Vehicle Supply Equipment (EVSE).

Key Dates

Activity	Deadline
Application Deadline	February 12, 2016
Recipients announced	February/March 2016 (Estimated)
Agreements finalized	March 2016 (Estimated)

How to Reach Us

By Mail: Electric Vehicle Chargers Ontario Program
Sustainable & Innovative Transportation Office
Ontario Ministry of Transportation
777 Bay St., 30th Floor
Toronto, ON M7A 2J8

By Email: evco@ontario.ca

By Phone: 416 585-7182

Context

One of the key concerns for EV drivers is the distance the vehicles can be driven before having to recharge (also known as 'range anxiety'). In order to extend this distance, public recharging infrastructure (akin to gas stations) is required to enable EV drivers to 're-fuel' by recharging their vehicles.

Electric Vehicle Chargers Ontario Program

A fast-charging station allows an electric vehicle to charge to 80% in about 20 to 30 minutes. These are known as “Level 3” EVSEs or Direct Current Fast Chargers (DCFC). This differs from “Level 2” EVSEs, which operate on a lower voltage and can take up to 8 to 10 hours to fully recharge a vehicle.

The objective of the Program is to support the implementation of Level 3 EVSEs. Level 2 EVSEs will also be supported where appropriate (e.g., workplace charging, and installing Level 2 EVSE(s) beside Level 3 EVSEs).

An EVSE can have multiple ports to charge multiple vehicles concurrently. The number of ports on an EVSE is dependent upon the manufacturer specifications.

It is expected that an immediate and significant implementation of public Level 3 EVSEs will accelerate the adoption of EVs in Ontario, which would reduce greenhouse gas emissions from the transportation sector.

1.0 Program Overview

1.1 What is the Electric Vehicle Chargers Ontario Program (EVCO)?

The Program is a one-time competitive application-based grant program designed to cover the purchase and installation cost of public EVSEs along major inter-city transportation corridors and in urban centres (including workplaces, apartments, condominiums, etc.) across the province. The Program is also designed to cover the purchase and installation of Level 2 charging at workplaces.

Through the Program, the Province is seeking to create a network of optimally distributed public EVSEs that enable EV drivers to travel between and within cities and support the implementation of charging infrastructure to enable city and apartment dwellers to access much needed charging infrastructure. To encourage innovative and comprehensive proposals, there is no cap on the amount of Program Funding any one Applicant can request under \$20 million. Applicants are welcome to propose projects to support Inter-City and/or In-City EVSEs that can be implemented at select locations or that could create a broader network. For example, an Applicant could propose to install EVSEs across a network of retail stores and partner with organizations to provide maintenance and operational support.

The Program application process will be iterative in that the Ministry will work with Applicants in the process of assessing Applications for their potential to support Inter-City and In-City travel across the province. In the context of all proposals received, this iterative process will allow the Ministry to work with Applicants to explore and identify opportunities to achieve an optimal Inter-City and In-City network of EVSEs across the province.

Electric Vehicle Chargers Ontario Program

EVSEs intended to support **Inter-City** travel must be located adjacent to, or within approximately one kilometre from heavily travelled highway interchanges or intersections and/or within 10 kilometres of a provincial/state border. In addition, each EVSE Location must be approximately 60-80 kilometres from another public Level 3 EVSE either already in existence or approved under the Program. The Ministry will look to achieve this in its review of Applications.

EVSEs intended to support **In-City** travel must be located close to major trip attractors such as retail, hospitality and recreation locations, workplaces, condominiums, and multi-unit dwellings.

Once funds are awarded to an Applicant, a transfer payment Agreement will be finalized by end of March 2016.

Projects that receive Program Funds are expected to be operational for at least five years from the installation date.

1.2 What are the expected outcomes of the Program?

- The installation of Level 3 EVSEs along major inter-city transportation corridors in the province (e.g., 400 series highways, Highway 11, Highway 69) and/or within 10 kilometres of a provincial/state border.
- A large number of EVSEs installed in urban areas across the province (e.g., GTHA, Ottawa, Waterloo Region, Barrie, North Bay, etc.).
- Implementation of wide-spread public charging infrastructure that would have a positive impact on the adoption of EVs in the province by making it more practical and convenient for consumers to use EVs.
- Increased public awareness of available EV technology, leading to increased EV ownership. For example, public EVSEs may enable drivers that do not have access to home charging stations (e.g., those that live in condominiums and other multi-unit dwellings) to own an electric vehicle.

1.3 How many EVSEs will be built through this grant program?

This Program is about creating a network of EVSEs across the province to allow EV drivers to travel between and within communities and make cleaner vehicle technology a viable option. Through the application process the province will work with public and private sector partners to determine the optimal distribution of EVSEs that will support the uptake of EVs across Ontario.

Electric Vehicle Chargers Ontario Program

2.0 Program Criteria

2.1 Who is eligible to apply?

Funding will only be provided to legal entities. Eligible Applicants to the Program include businesses, municipalities, Aboriginal communities or organizations, Local Distribution Companies, non-governmental organizations, Conservation Authorities and other legal entities. Applicants are permitted to pursue partnerships with third parties.

2.2 Can Applicants have partners?

Applicants are encouraged to seek and leverage partnerships with other organizations to develop projects with greater charging network potential (e.g., retail organization partnering with organizations that provide EV maintenance and operational support). Applicants are welcome to partner with organizations such as municipalities, provincial and federal government organizations, businesses, pension funds, and non-governmental organizations. Applicants are encouraged to leverage partner funding from other governments and organizations (e.g., federal and non-governmental organizations).

Where it is proposed that multiple organizations undertake the proposed project, the Application must be made by only one lead eligible organization, which will be responsible for completing the application process and, if approved, will be responsible for fulfilling the terms and conditions of the funding outlined in the Agreement.

2.3 Who is not eligible to apply?

With the exception of municipal organizations and Aboriginal communities, government organizations (including their ministries, departments and agencies) are not eligible to apply. Individuals are also not eligible to apply.

2.4 How much can each Applicant apply for?

Each Applicant is eligible to apply for Program Funds for up to 100% of the total costs to purchase and install an EVSE. There is no limit on the number of EVSE Locations or number of EVSEs proposed to be installed at each EVSE Location that an Applicant can apply for; however, projects will be assessed for their reasonableness. The Applicant must commit to operating the EVSE(s) for a period of five years from the EVSE installation date.

2.5 Who would own and operate the EVSE(s) and for how long?

The Applicant would own and be required to operate and maintain each EVSE for a minimum period of five years from the installation date.

Electric Vehicle Chargers Ontario Program

2.6 Is funding available to operate the EVSE?

Up to 2% of Program Funding for Inter-City Projects may be used to support direct operating costs of the EVSEs, for up to two years. Eligible Project Costs would, for example, include maintenance and telephone support and would be subject to approval by the province. The amount of Eligible Project Costs for operation would be negotiated between the Applicant(s) and the province prior to signing a funding Agreement by March 2016.

There are no operating funds available for In-City Projects.

2.7 How much will it cost someone to use the EVSE?

It is the Ministry's intent to ensure that EVSEs will be affordable for EV drivers within Ontario.

The charging fee will be determined by the Recipients. Fees would typically be associated with the convenience of utilizing the EVSE and/or parking spot. Ontario's support for the implementation of EVSEs will help ensure the cost remains as low as possible. The Recipient may not recover any capital and installation costs of the EVSE through a charging user fee.

EVSE access fees in other jurisdictions range from \$5-\$10.

2.8 What are the operational requirements of the EVSE?

The EVSE must be publicly accessible and be available for use year-round.

For Inter-City EVSEs, a toll-free customer assistance number must be provided at each EVSE so that EV drivers can call to report equipment outages, malfunctions or other damage, and to obtain assistance with point-of-sale and customer authentication systems, or to request assistance operating the EVSE.

2.9 What are the location requirements for the EVSE?

EVSE Locations must be highly visible and easily accessible.

EVSEs intended to support Inter-City travel must be located adjacent to, or within approximately one kilometre from heavily travelled highway interchanges and intersections (e.g., 400 series highways, Highway 11, Highway 69) and/or within 10 kilometres of a provincial/state border.

Each EVSE Location must be approximately 60-80 kilometres from another public Level 3 EVSE either already in existence or approved under the EVCO. The Ministry will look to achieve this in its review of Applications.

Electric Vehicle Chargers Ontario Program

EVSEs intended to support In-City travel must be located close to major trip attractors such as retail, hospitality and recreation locations, workplaces, condominiums and multi-residential buildings.

2.10 Does the Applicant have to own the land on which the EVSE is installed?

An Applicant must either own the land where the project is to be located, or have a legally binding agreement with the land owner that sets out the terms and conditions under which the land owner agrees to allow the Applicant to use the land for the location of such project for a period of at least five years. This will be confirmed through the transfer payment Agreement.

2.11 When will construction to build the new EVSEs begin?

The goal is to get a network of EVSEs installed as soon as possible following the award of Program Funds by March 2016.

2.12 How many Applications can an Applicant submit? Can an Application include multiple components?

The Applicant can only submit one Application; however, projects can be broad and could focus on EV charging for Inter-City, In-City, workplace or all three. For example, a project focused on developing an Inter-City charging network can include the installation of multiple EVSEs at multiple locations within and along the network.

The project focus (e.g., Inter-City, In-City or both) must be identified in the Application. Applicants can describe in the Application how each component of the project would meet Program goals and eligibility requirements.

2.13 What type of charging infrastructure is a priority?

Priority will be given to projects that support the implementation of Level 3 EVSEs and that include an appropriate number of Level 3 EVSEs for the location/expected demand (e.g., based on traffic volume of nearby highway, nearby trip attractors, etc.). Program Funding would also be provided for Level 2 EVSEs where appropriate (e.g., where vehicles are parked for an extended period of time).

2.14 Are Applicants required to install provincial signage?

Yes, Applicants would need to agree to install provincial signage in a highly visible location at each EVSE Location. Provincial signage could be in addition to Applicant signage.

2.15 How many public Level 3 EVSEs exist now and where are they located?

Currently, the Ministry is aware of a few locations with Level 3 EVSEs in Ontario that can be used by all EV drivers. These are all located in the Greater Toronto Area. The goal of

Electric Vehicle Chargers Ontario Program

this Program is to deploy a comprehensive network of EVSEs across Ontario, along all major inter-city transportation corridors and in urban areas across the province for use by all EV drivers.

2.16 How will the successful candidates be selected?

Successful Applicants will be selected based on the project's potential to achieve Program goals, meet eligibility requirements and its strength compared to other projects. Evaluation criteria will include:

- **Optimal connectivity** - distribution of EVSEs across the province, connectivity between cities, distance from an existing or proposed public EVSE.
- **Site or corridor selection** - proximity to interchanges and intersections on heavily travelled highways and proximity to popular destinations In-City such as commuter parking).
- **Innovativeness** - overall potential to meet Program objectives (e.g., leveraging an existing network of private locations that could be used for public charging) or innovative components to support Inter-City and In-City EV travel (e.g., innovative use of existing infrastructure; innovative operational practices, partnerships or technology; innovation related to the location of the EVSE).
- **Cost efficiency and effectiveness** - cost containment measures to be considered for the execution plan (e.g., purchase and installation of multiple EVSEs) and the ability to leverage partnerships and existing infrastructure to reduce amount of Program Funding requested.
- **Reasonableness** – number of EVSEs proposed per EVSE Location.

2.17 What geographic information is needed?

Prior to the award of Program Funds, Applicants will be required to submit to the Ministry geographic information (e.g., latitude and longitude) on potential EVSE Locations. This will enable the Ministry to determine whether the Applicants' proposals will create an optimized network of EVSEs.

3.0 EVSE Technical Requirements

A guideline of minimum technical requirements that each EVSE supported under the Program would need to meet:

- The EVSE must have the ability for remote data acquisition, monitoring and control of the EVSE.

Electric Vehicle Chargers Ontario Program

- Collected data at a minimum must include the number of unique charge events, the duration of each charge event, and the amount of electricity used.
- Data from the unit must be collected and reported in a non-proprietary format.
- The EVSE must provide open source communications and networking to enable the general public to remotely identify if the EVSE is in use, or available for use, including on a smart phone. Capability to calculate and charge user fees using a variety of methods including flat rate, time based and by electricity consumption.
- The EVSE must use an open payment method (credit card, debit card, etc.) with flexibility to accommodate billing users by time, energy consumed and flat rate.
- Must be rated for outdoor operation by a nationally recognized testing laboratory CSA, ULC or other certification marks approved by the Technical Standards and Safety Authority.

In addition, Level 3 EVSEs must:

- Use a four-hundred eighty (480) volt, three (3) phase power input
- Contain at least 1 charge connector that is CHAdeMO compliant and 1 charge connector that is SAE J1772 Combo compliant.

Level 2 EVSEs Must:

- Use AC Input (208 to 240VAC) at 40 Amps minimum.
- Include a charge connector that is SAE J1772 compliant.
- The EVSE installation work at each EVSE Location must 'rough in' an appropriate level of capacity to support future demand and technology.

4.0 Eligible Project Costs

4.1 What project costs are eligible for EVCO Funds?

Eligible Project Costs include site design, site preparation, purchase and installation of EVSE, and all necessary permits to install the equipment.

4.2 What project costs are ineligible for EVCO Funds?

For Inter-City projects, Ineligible Project Costs are operating costs in excess of 2% of total Program Funds requested, or are to be incurred beyond the second year of project operation. Marketing costs are also ineligible.

Electric Vehicle Chargers Ontario Program

For In-City projects, Ineligible Project Costs are operating and marketing costs.

In addition, the following are ineligible purchase and installation costs:

- Private use EVSEs;
- Level 1 EVSEs; and
- EVSEs that do not meet the requirements set out in this Guide.

5.0 Financial and Reporting Matters

5.1 What proportion of Eligible Project Costs can be requested from the Province?

The ministry will provide up to 100% of the capital costs for the purchase and installation of eligible EVSE(s).

5.2 Is there a cap for Program Funds for a project?

There is no cap on the amount of Program Funds that may be awarded for a project. Program Funds will be awarded based on the project's potential to meet Program objectives.

5.3 What financial due diligence is required upon receipt of EVCO Funds?

Following the award of grants, transfer payment Agreements will be developed between the Ministry and Recipients. A Recipient will be responsible for ensuring the Project for which Program Funds are provided are carried out in accordance with the terms and conditions set out in the Guide and Agreement. Failure to do so could result in the Ministry invoking its remedies under the Agreement, including recovery of Program Funds.

5.4 What happens if a Recipient incurs higher Eligible Project Costs during the design and construction of a Project than were estimated in the Application?

Recipients are responsible for any overruns related to the Project budget.

5.5 When do Projects need to be completed?

Ministry is seeking to have Projects operational by March 31st, 2017.

5.6 What are the reporting requirements?

Reporting requirements will be specified in the transfer payment Agreement. Generally, there are two components:

- A financial report, to be submitted following the completion of the Project; and

Electric Vehicle Chargers Ontario Program

- The collection and reporting of usage data, which is to be forwarded to the Ministry every six months for five years after the Project's in-service date and must include:
 - Cumulative number of vehicles charged during the previous 6 month period
 - Date and time of each usage
 - Total kWh draw for each usage
 - Total kWh draw during the previous 6 month period
 - Total cost of each charge event in \$CAD
 - Total revenue during the previous 6 month period.

6.0 Assessment of Applications

6.1 How will Applications be assessed?

The Ministry will consider the criteria described in the **Project Evaluation Considerations** section below when evaluating Applications.

7.0 Project Evaluation Considerations

While many factors will be considered during the evaluation of Applications, the key considerations will be the degree to which an Application improves EVSE access and connectivity to support Inter-City and In-City travel across the province. The more information that can be provided by Applicants the more likely the Application is to be successful.

7.1 Optimal connectivity

Optimal connectivity refers to the distribution of EVSEs across the province, connectivity between cities, and distance from an existing or proposed public EVSE.

Effective projects serve to contribute to a network of EVSE infrastructure that supports EV travel between and within communities across the province and to neighbouring jurisdictions such as New York State, Quebec, Manitoba and the State of Michigan.

In addition, effective projects must be approximately 60-80 kilometres from another public Level 3 EVSE either already in existence or approved under the EVCO. The Ministry will look to achieve this in its review of Applications.

Electric Vehicle Chargers Ontario Program

7.2 Site or corridor selection

Site or corridor selection refers to the proximity to interchanges and intersections on heavily travelled highways to support Inter-City EV travel and proximity to major trip attractors, such as downtowns or main streets, public institutions, sport/recreation/leisure areas, retail and tourism destinations, commuter parking lots, and major employment centres, to support In-City EV travel.

7.3 Cost efficiency and effectiveness

Cost efficiency and effectiveness refers to cost containment measures to be considered for the execution plan (e.g., purchase and installation of multiple EVSEs) and the ability to leverage partnerships and existing infrastructure to reduce the amount of Program Funding requested.

The Eligible Project Costs proposed in all Applications should be related to the project and appropriate for the proposed EVSE Location(s) (e.g., based on expected demand).

Eligible Project Costs should be consistent with industry standards, or similar types of projects in comparable jurisdictions.

Synergies may be achieved if a network of EVSEs is installed (e.g., fixed costs would be split over a number of EVSE Locations). Such benefits are valued.

7.4 Innovativeness

Innovativeness refers to the project's overall potential to meet Program objectives, (e.g., leveraging an existing network of private locations that could be used for public charging).

Innovation could also be demonstrated through a project's components such as use of existing infrastructure, innovative operational practices such as energy storage installations, partnerships, technology, or innovation related to the location of the EVSE for optimal connectivity across the province to support Inter-City and/or In-City EV travel.

7.5 Reasonableness

Reasonableness refers to the appropriateness of the proposed infrastructure for the EVSE Location (e.g., the ability of the proposed number and location of EVSEs to match the anticipated demand for EV charging).

Electric Vehicle Chargers Ontario Program

8.0 Submitting the Application

8.1 Who can submit an Application?

All eligible Applicants may submit an Application.

8.2 How do I submit an Application?

Applicants are required to submit **both** an electronic copy and a signed hard copy of the Application form.

To submit a full Application, please complete the following steps:

1. Complete this Application form;
2. Save the completed form; and
 - a. If you are using Microsoft Outlook, click the “Submit” button on the form; or
 - b. If you are using a different email program, please attach the form to an email addressed to evco@ontario.ca.

A signature is not required on the electronic copy of the Application form.

3. Send the email to evco@ontario.ca.
4. After emailing the electronic copy of the form, print and sign the completed Application form and send the signed hard copy to:

Electric Vehicle Chargers Ontario Program
Sustainable & Innovative Transportation Office
Transportation Policy Branch
Ministry of Transportation
777 Bay St., Suite 3000
Toronto ON M7A 2J8

Hard copies can be submitted to the Ministry by postage, courier or personal delivery. If sending the signed hard copy by courier, please direct the courier to the security desk on the main floor lobby.

The deadline to submit electronic copies of the Application is **February 12, 2016 at 5 p.m. EST**. Hard copies of the Application must be postmarked no later than **February 12, 2016**.

8.3 What is the deadline for submitting an Application?

The Application Deadline is **February 12, 2016 at 5 p.m. EST**. Hard copies of Applications must be postmarked by this date.

Electric Vehicle Chargers Ontario Program

8.4 Will the Ministry notify Recipients?

Yes, Recipients and unsuccessful Applicants will be notified. Provincial staff will be available to provide feedback to unsuccessful Applicants, if requested.

8.5 Where can I get more information?

Email: evco@ontario.ca

Website: [Electric Vehicle Chargers Ontario Program website](#)

Telephone: 416 585-7182

Regular mail: Electric Vehicle Chargers Ontario Program
 Sustainable & Innovative Transportation Office
 Transportation Policy Branch
 Ministry of Transportation
 777 Bay Street, Suite 3000
 Toronto ON M7A 2J8

Electric Vehicle Chargers Ontario Program

Appendix 1: Frequently Asked Questions

What is the Green Investment Fund?

Ontario's \$325 million Green Investment Fund commits money for projects that reduce greenhouse gas pollution. These investments are part of the government's plan for securing a healthy, clean and prosperous low-carbon future by transforming the way we live, move, work and adapt to our environment while ensuring strong, sustainable communities. The fund will also support energy retrofits in homes, including affordable housing; energy-efficiency investments in small and medium-sized businesses and industry and remote electrification in Aboriginal communities.

What are the different types of EVSEs?

There are three types of EVSE depending on their power output:

- "Level 1 EVSE" means a 120 volt alternating current (AC) EVSE
- "Level 2 EVSE" means a 208 – 240 volt alternating current (AC) EVSE
- "Level 3 EVSE" means a direct current (DC) vehicle charger with high voltage - up to 480 volts.

How many individual ports would be part of an EVSE?

The number of ports an EVSE has is dependent upon the manufacturer specifications of each EVSE model.

Where are EVSEs currently located in Ontario?

The location of current EVSEs can be found on third party websites such as:

[CAA Electric Vehicle Charging Station Locator](#)

[PlugShare EV Charging Station Map](#)

Electric Vehicle Chargers Ontario Program

Appendix 2: Definitions

When used in this Guide, the words set out below that import the singular include the plural and vice versa:

“Agreement” means an agreement entered into between the Ministry and a Recipient that sets out the terms and conditions under which the Ministry agrees to provide EVCO Funds to the Recipient, and includes any amending agreement entered into pursuant to the agreement.

“Applicant” means an organization that submits an Application.

“Application” means an application submitted by an Applicant in accordance with the terms and conditions set out in this Guide.

“Application Deadline” means February 12, 2016 at 5 p.m. EST.

“Electric Vehicle” or “EV” means a vehicle propelled by an electric motor with a battery as the motor’s energy storage device, and using an external electricity source to recharge the battery. There are presently two forms of EV:

- **“Battery Electric Vehicle or BEV”** uses an electric motor to propel the vehicle forward, powered by a battery that is recharged directly from a source of electricity.
- **“Plug-In Hybrid Electric Vehicle or PHEV”** can be driven either by an electric motor or an internal combustion engine or can be driven only by its electric motor with an internal combustion engine assist and generator to recharge the battery. The battery may also be recharged directly from a source of electricity.

“Eligible Project Cost” means an eligible expenditure as described in this Guide.

“EVCO” means the Electric Vehicle Chargers Ontario Program the Ministry has established to provide organizations with EVCO Funds.

“EVSE” or “Electric Vehicle Supply Equipment” refers to an EV charging station; a device used to provide electricity to an EV for the purpose of charging the vehicle’s onboard battery.

The EVSE is designed to provide a safe connection between the source of electricity and the vehicle and communicates with the vehicle’s control system to ensure electricity flows at the proper voltage and current.

There are three types of EVSE depending on their power output:

Electric Vehicle Chargers Ontario Program

- “Level 1 EVSE” means a 120 volt alternating current (AC) EVSE.
- “Level 2 EVSE” means a 208 – 240 volt alternating current (AC) EVSE.
- “Level 3 EVSE” means a direct current (DC) vehicle charger with a high voltage - up to 480 volts.

“**EVSE Location**” refers to a geographic location where one or more EVSE is proposed to be installed.

“**Guide**” means this program guide entitled “Electric Vehicle Chargers Ontario Program Guide”.

“**Ineligible Project Cost**” means an ineligible expenditure as described in this Guide.

“**Inter-City**” EVSEs must be located adjacent to, or within approximately one kilometre from heavily travelled highway interchanges and intersections and/or within 10 kilometres of a provincial/state border, in order to support intercity travel by EV. In addition, each location must be approximately 60-80 kilometres from another public Level 3 EVSE proposed or already in existence.

“**In-City**” EVSEs must be located close to major trip attractors such as retail, hospitality and recreation locations, workplaces, condominiums, and multi-unit dwellings.

“**Ministry**” and “**Minister**”, respectively, means the Ministry of Transportation which is responsible for the administration of the EVCO and the Minister responsible for the Ministry.

“**Program**” means the Electric Vehicle Chargers Ontario Program the Ministry has established to provide organizations with EVCO Funds.

“**Program Funds**”, “**Program Funding**” means the money the Ministry provides to a Recipient pursuant to an Agreement to be used strictly towards Eligible Project Costs for an EVCO Project and in accordance with and as set out in the Agreement; “EVCO Funds” and “EVCO Funding” has the same meaning.

“**Project**” means a project described in the Application for Program Funding, including any modification to the project which has received the prior written approval of the Ministry, and that has been selected to be a Recipient.

“**Recipient**” means an Applicant whose project the Ministry has selected for EVCO Funds.