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Town of Aurora

Memorandum

Planning and Development Services

Re: Electric Vehicle Charging Station Policy and Process

To: Environmental Advisory Committee

From: Natalie Kehle, Energy and Climate Change Analyst

Date: February 24, 2021

Recommendation

1. That the memorandum regarding Electric Vehicle Charging Station Policy and Process be received; and
2. That the Environmental Advisory Committee comments regarding the Electric Vehicle Charging Station Policy and Process documents be received and referred to staff for consideration and further action as appropriate.

Background

The Electric Vehicle Charging Station Policy and Process documents for Town Properties allows for strategic, guided future expansion of the Town's electric vehicle charging station program. The Policy and Process are best practices documents for the Town to follow in the event it decides to purchase additional chargers. The Policy and Process documents defines Town Division's roles and responsibilities, installation requirements, revenue and pricing, charging features, accessibility considerations and operating requirements.

Public and Private Sectors are Investing in Electric Vehicles and Infrastructure

The International Energy Agency predicts an 800 percent increase in the number of electric vehicles (EV)s over the next decade. The Federal and Provincial governments are investing more than \$500 in electric vehicle technology and production in Ontario. Through government support, Ford Canada's Oakville Assembly Complex is being retooled to manufacture EVs. Ford also announced plans to present a lineup of 40 new electrified vehicles by 2022. Similarly, investment in the Windsor Assembly Plant will facilitate the production of at least one (1) new electric vehicle (EV) model by 2025.

The Federal government, through Natural Resources Canada (NRCAN) has provided over \$300 million to support the establishment of a coast-to-coast network of EV chargers. The infrastructure resulting from these investments will ensure that the population can drive and charge their vehicles across Canada.

In the Fall of 2020, York Region announced that 70 EV chargers will be installed across the region at Region-owned facilities as part of the government's commitment to a low-carbon future, with \$350,000 funding from the NRCAN program. Two of the chargers are planned for the York Regional Police HQ in Aurora, while the remaining are in Vaughan (8 chargers), Richmond Hill (10 chargers), East Gwillimbury (10 chargers) and Newmarket (39 chargers).

The private sector is also investing in the EV market. Auto parts manufacturer Magna International Inc. recently announced a deal with LG Electronics for a joint venture to build components for EVs. The new venture will manufacture electric motors, inverters and on-board chargers. This is in addition to the company announcing two joint ventures with Chinese companies to engineer and build EVs in 2018.

Other large automakers such as General Motors, Linamar Corp., Martinrea International Inc. and Fiat have invested in EV technology, such as artificial intelligence and next-generation transmission systems. Martinrea International Inc., recently projected that in five years, nearly 25% of the automobile market will be made up of EVs or hybrids.

Environmental Benefits of Electric Vehicles

There are a number of environmental benefits of EV ownership when compared to Internal Combustion Engine Vehicles (ICEV):

- Greenhouse gas emissions from vehicle use account for 37% of Aurora's total emissions in 2018. Personal vehicle use is responsible for 99% of all transportation energy and emissions in the Town. Electric vehicles allow drivers to maintain the convenience of a personal vehicle while significantly reducing emissions.
- Electric vehicles release zero emissions at the source, but instead use a battery, charged by electricity that is generated in other locations of the province. The environmental benefits of EVs in Ontario are in large part due to Ontario's clean electricity grid.
- Based on a recent analysis provided by the Ontario Power Generation, internal combustion engine vehicles in Ontario emit 26 times more greenhouse gas emissions to operate per year compared to a battery electric vehicle (BEV)

(based on 2020 values). Over the lifetime of a BEV, it saves 29,000 tonnes of carbon dioxide equivalent (assuming the lifetime of the vehicle being 2020-2028).

Economic Benefits of Electric Vehicles

There are several socio-economic benefits to EV ownership when compared to ICEV:

- EVs are cheaper cars to own over a 10-year period when compared to conventional gas car equivalents. In a 2018 analysis by the 2 Degree Institute comparing a Kia Soul ICEV and a Kia Soul BEV, the fuel savings for an Ontario owner over a 10-year period was \$26,110 and the maintenance costs savings was \$6,933, saving \$30,563 in total. This is a 65% reduction in costs over 10 years. The EV model cost \$12,850 more upfront in 2018 without any rebates, providing the owner with a net savings of \$17,713, or \$1,771 annually.
- A 2015 analysis by Plug'n Drive estimated fuel savings in Ontario to be 70% compared to ICEV.
- There is inequality within the emerging EV market in who may obtain these cost savings. Higher-income owners are more likely to afford the higher upfront costs of an EV, while also more likely to have access to off street parking with charging infrastructure. Municipalities play a key role in increasing access of EV infrastructure to the whole community to those otherwise might not have access to it by: installing charging infrastructure in public places and mandating EV ready design for new developments in the community.
- Shifting to BEV from ICE vehicles means a shift in domestic energy use. Using locally generated electricity supports infrastructure and jobs in Ontario compared to imported gasoline use.

Analysis

Aurora's policy is based on the York Region's Electric Vehicle Charging Station Policy and Municipal Best Practices

The Policy and Process for Aurora follows Canadian best practices for EV charging station management as identified by the Clean Air Partnership, NRCAN and other Ontario Municipalities. Aurora's policy is based on the York Region's Electric Vehicle Charging Station Policy, which was approved in March 2019, and was revised to fit Aurora's context. The development of the Policy was the subject of consultation with Town staff from Engineering, Operations, Facilities, Finance and Accessibility Services. Ontario Power Generation was also consulted for technical expertise and for the latest

energy data for Ontario. The Policy sets out requirements and recommendations for electric vehicle charging stations at Town facilities

The objective of the Policy is to guide the Town in the use, management and expansion of electric vehicle charging stations at Town facilities. Based on municipal best practices, some provisions under the Policy are listed as requirements while others as recommendations (see Attachments 1 and 2) as follows:

- New charging stations installed will be a minimum of Level 2 (Fast Charge), being the most economical charging type, while still providing effective charging capabilities;
- All charging stations installed in publicly accessible locations will have a usage fee system, aligned with York Region fees (currently \$2-3 per hour);
- Vehicles found at an EV charging station that are not actively charging are subject to penalties found under the Town's Parking By-law;
- All parking lot surfacing projects located at Town facilities will include a needs assessment of EV infrastructure within the project scope and consider the installation of EV chargers at a rate based on the latest LEED (requirement SSc4.3) for alternative fuel refueling stations. An additional 10% of parking spaces should be made EV Capable to allow for future installation of EV infrastructure;
- All new Town facilities and major facility renovations will consider installing the minimum number of EV chargers as required under the latest version of LEED (requirement SSc4.3) for alternative fuel refueling stations. An additional 10% of parking spaces should be made EV Ready to allow for future installation of EV infrastructure;
- Any new Town parking lot projects will include a needs and feasibility assessment of EV infrastructure within the project scope and consider the installation of partial EV infrastructure as a minimum;
- Capital planning will consider electrical capacity increases for future EV charging stations at the time of asset replacement or upgrading;
- Existing stations installed prior to this Policy will be networked to the same network as any expansion program, if applicable. Any chargers that cannot be networked will be removed and repurposed when possible to avoid complications associated with free service (i.e. deemed taxable benefit). Un-networkable infrastructure will be removed.

Attachments

Attachment 1 – Draft Electric Vehicle Charging Station Policy for Town Properties

Attachment 2 – Draft Electric Vehicle Charging Station Process for Town Properties