

## **Purpose**

The purpose of this report is to provide Council with information regarding the interim steps that are being taken by staff in 2021 towards electrification of the City's vehicle and equipment fleet.

## **Background**

Action on Climate change forms an integral part of the City's strategic planning process. The City of Greater Sudbury is committed to reducing greenhouse gas (GHG) emissions from municipal operations and throughout the entire community. City Council has declared a Climate Emergency via Council resolution (CC2019-151) and directed a target of net zero greenhouse gas emissions (GHG) by 2050. The CEEP calls for further planning and actions across many of the City's operations. Both the Community Energy and Emissions Plan (CEEP) and the Ontario Climate Action Plan identify the electrification of transportation as one of the most significant opportunities to reduce GHG emissions and in turn have a significant impact on climate change.

## **Electric Vehicles**

An electric vehicle (EV) is powered partially or entirely by a rechargeable battery which powers an electric motor. EVs can be charged by plugging into the electricity grid. As they use no or less fossil fuel, EVs have low to zero direct vehicle emissions. There are two types of EVs:

1. Battery Electric Vehicles that are powered exclusively by an electric battery that must be plugged into the electricity grid to recharge.
2. Hybrid Electric Vehicles which use an electric battery which are recharged by plugging into the electricity grid, but also have the support of a small internal combustion engine when the battery is running low.

In order to recharge the EV battery, a charging station needs to be installed or a retrofit of existing electrical infrastructure is required. There are three types of charging alternatives:

1. Level 1 (120 volts) which uses a standard 120 volt outlet and requires 8-10 hours to recharge a depleted battery. A retrofit would cost approximately \$1,000.
2. Level 2 (240 volts) requires a specialized station on a dedicated circuit and requires 4-6 hours to recharge a depleted battery. Installation cost ranges from \$5,000-\$15,000.

3. Level 3 (480 volts) requires a specialized station and utility connection and requires 30 minutes or less to recharge a depleted battery. Installation cost is approximately \$75,000.

### **Strategic Alignment of Electric Vehicles in the Municipal Fleet**

The adoption of EVs in the municipal fleet aligns with a number of Council strategic pillars:

1. **Creating a Healthier Community**- The adoption of EVs will have a direct and positive effect on air quality in the City. Battery EVs produce zero direct emissions and Hybrid EVs produce considerably less than a conventional internal combustion engine.
2. **Asset Management and Service Excellence**- EVs typically require less maintenance than the conventional internal combustion engine and the higher capital cost of EVs can often be defrayed by Federal and/or Provincial incentives that can be applied to the purchase of EVs.
3. **Climate Change**- In addition to a direct reduction in emissions from the municipal fleet, the adoption of EVs in the municipal fleet will assist in promoting and creating enthusiasm in the community for the adoption of EVs in other sectors of the local economy. By adopting this technology the City can take a leadership role in GHG reduction and promotion.

### **Electric Vehicle Actions to be Taken in 2021**

The City fleet actions present an opportunity to reduce greenhouse gas emissions, advance the CEEP and create a healthier community in line with Council's strategic priorities. There are many tasks performed by City fleet that could be accomplished by an electric alternative. As City vehicles are due for retirement and replacement, an electric version will be considered first. As an interim step, City staff have included the replacement of two light fleet vehicles with EVs in the proposed 2021 Capital Budget.

Opportunities for EV adoption in the medium and heavy duty fleet category have been limited in the past. However, as more models and technology are made available, staff will continue to monitor and identify opportunities where an electric alternative would be viable. Transit staff have been investigating the viability of electrifying the transit bus fleet and are preparing a business case for Council's consideration during 2021 budget deliberations.

Table 1 below outlines the planned actions that City staff will take to initiate the electrification of the Fleet.

<b>Table 1 - Actions for EV Adoption</b>		
<b>Action</b>	<b>Timeframe</b>	<b>Responsibility</b>
<b>Procure Charging Infrastructure:</b> Staff to procure charging infrastructure at municipal facilities to support electrification of the municipal fleet.	2021 and beyond	Fleet Operations / Energy Office
<b>Replace Light Fleet with EVs:</b> Prioritize the procurement of electric vehicles and equipment given economic feasibility, vehicle availability and suitability to perform the required function and alignment with asset management policy. The 2021 Fleet Capital budget proposes the replacement of 2 internal combustion engine light fleet vehicles with 2 electric vehicles.	2021 and beyond	Fleet Operations
<b>Take advantage of Incentives:</b> The Government of Canada has been providing an incentive for purchase of zero-emission vehicles. Staff will continue to monitor and take advantage of any incentives that arise.	2021 and beyond	Fleet Operations
<b>Staff Training:</b> Provide training opportunities for fleet technicians and EV end users.	2021 and beyond	Fleet Operations
<b>Transit Buses:</b> Staff will be bringing a business case for Council's consideration in the 2021 budget to develop a plan for electrification of the bus fleet.	2021 and beyond	Transit
<b>Medium and Heavy Duty Vehicles:</b> Continue to monitor the marketplace for opportunities to replace fossil-fueled medium and heavy duty with EV alternatives and determine any upgrades required for such adoption.	2021 and beyond	Fleet Operations

## Conclusion

The electrification of the municipal fleet provides an opportunity to take action on the climate emergency declared by City Council. This initiative will reduce direct vehicle GHG emissions by up to 100%, thereby reducing the local carbon footprint, improving air quality and promoting the use of electric vehicles across the municipality. The interim steps described in this report are meant to trial the City's anticipated move to electrification of the vehicle and equipment fleet. Staff will be working towards returning to Council with a green fleet strategy that has electrification as a focal point and incorporates other municipal experiences and local needs and circumstances.