Electric Vehicles and
Ottawa's Climate Change Management Plan

The City of Ottawa's 2014 *Air Quality and Climate Change Management Plan* proposes not only an increased presence of electric vehicles in the City's own fleet, but to accelerate the transition to plug-in hybrids and electric vehicles in the community by supporting the installation of a network of electric car charging stations. This report details how moves toward promoting electric vehicle use directly support the City's goal of reduced greenhouse gas emissions as well as other municipal objectives.

EXECUTIVE SUMMARY:

The *Air Quality and Climate Change Management Plan* sets new greenhouse gas reduction targets of 20% per capita of 2012 emissions levels by the year 2024, and outlines a shortlist of recommended actions to achieve these emission reduction goals. Emissions from transportation have shown the highest growth over the last 8 years, and the *Air Quality and Climate Change Management Plan* proposes a number of actions to support the City's existing *Transportation Master Plan.* For example, the *Air Quality and Climate Change Management Plan* identifies a significant opportunity to encourage the public's adoption of electric vehicles (EV) in Ottawa through the increased the availability of EV charging stations.

Ecology Ottawa sees a benefit to the increased use of EVs in the city, primarily to meet the city's stated greenhouse gas reduction targets while promoting local economic benefits. While increased use of public transit, cycling and walking as modes of transportation are highly desirable in tackling the climate change challenge it is clear that private vehicles will continue to hold a considerable share of people's transportation choices. To the extent that this share can increase its proportion of EVs numerous benefits can result.

Ecology Ottawa proposes the following actions to complement the commitments made in the *Air Quality And Climate Change Management Plan*:

- Continue partnerships with local stakeholders
- Ensure charging stations are conveniently and strategically located
- Promote education and outreach activities to the public on the benefits of EVs
- Provide incentives to City staff for EV ownership

BACKGROUND:

Transportation Emissions

Transportation emissions represent the largest increase in greenhouse gas emissions in the city between 2004 and 2012, with an increase of 8% over that time period.[1] This increase may be explained by growing private vehicle ownership, which has increased by 14% between 2005 and 2011,[2] and by a high rate of commutes by private vehicles (approximately 57% of workers).[3] The current increase in private vehicle use and associated emissions may be further compounded by projections of future population growth in the City's outer limits. [4]

The City has recently adopted the *Transportation Master Plan,* which encourages walking, cycling and transit use. The goals set out in the *Transportation Master Plan* are included in the *Air Quality and Climate Change Management Plan* shortlist of recommended actions.

Benefits of EV Use

EVs can be a useful addition to transportation and greenhouse gas reduction planning because they limit tailpipe emissions. Given Ontario's current electricity generation patterns, an EV can emit between 50% and 96% less carbon dioxide than a conventionally-fueled car.[5] Greater use of EVs in the Ottawa region will contribute directly to the City's emission reduction goals. For example, if just 1% of automobile trips were made by an EV in 2020, this represents reduced carbon dioxide emissions of about 31,055 tonnes. Already, the 109 EVs in Ottawa will help reduce emissions by about 650 Tonnes in 2014.[6]

The use of EVs can also contribute to local economic benefits through savings in fuel costs. In Ontario, the price of gas is 6 times more than the price of off-peak electricity[7], meaning an EV owner could save more than $2,500 in a year's worth of driving.[8] These savings can be realized directly at the municipal level by replacing the existing municipal fleet with EVs, or indirectly at the citizen level, where some of the savings will be redistributed through the local economy through the purchase of other goods. Local energy providers such as Hydro Ottawa will also benefit from the connection of EV charging systems to the local energy system. Further, recharging vehicles during the night can take advantage of Ontario's low off-peak electricity pricing,[9] which provide maximized municipal and citizen savings.

[1] Air Quality and Climate Change Management Plan, Appendix A – GHG Inventory Summary
[2] Ottawa Road Safety Reports
[3] City of Ottawa. Ottawa On the Move, Vol. 1 2013.
[4] http://metronews.ca/news/ottawa/718457/ottawa-braces-for-population-boom-outside-the-greenbelt/
[5] According to the non-profit Plug'n Drive www.plugndrive.ca
[6] Plug'n Drive Research
[7] http://www.plugndrive.ca/cost-benefits
[8] Plug'n Drive Research based on 16,000 Kilometers per year
[9] http://www.plugndrive.ca/cost-benefits

DISCUSSION:

The *Air Quality and Climate Change Management Plan* already outlines two specific actions the City could take to encourage the use of EVs: EVs for the municipal fleet; and a network of public EV charging stations.

Ecology Ottawa recommends the following additions to the City's EV commitments:

- Seek partnerships with local stakeholders
    - There are many opportunities for new or expanded partnerships with local organizations already involved in EV promotion, including automobile dealerships, the Electric Vehicle Council of Ottawa, Ottawa Centre EcoDistrict, Plug'n Drive, Hydro Ottawa, and the Ontario Ministry of Transportation.
    - Explore partnerships with property developers. The installation of EV charging stations or pre-wiring for these in new condominium developments would further encourage the use of EVs in Ottawa. Building bylaw or other municipal mechanism may be required.
- Ensure charging stations are conveniently and strategically located
    - The Ottawa Centre EcoDistrict has an excellent proposal for an "Electric Vehicle (EV) Corner" as a street level showcase promoting EV use that will give maximum exposure and raise awareness of the benefits of using EVs.
    - Workplace charging is an important incentive for people to purchase electric vehicles; charging while shopping or during hotel stays may also be considerations. Conveniently located charging stations will be important to complement existing and future traffic patterns. Partnering with entities such as Hydro Ottawa, FleetCarma and Ottawa Centre EcoDistrict to determine driving patterns of existing and potential EV users would be helpful for determining an effective charging station location strategy for the City.
- Support community education and outreach activities on the benefits of EVs
    - Supporting public engagement in EV use would be a worthwhile investment for the City to encourage accelerated investment in EVs, thus reducing Ottawa's transportation emissions. Such education should occur in partnership with community and electric mobility organizations, for example through the sponsorship of an "EV Day" for the public.[10]
- Provide incentives to city staff for EV ownership
    - Options to encourage EV use by city employees could involve internal brown-bag seminars or partnerships with local EV dealers to offer employee purchasing discounts. Employee incentive programs could complement existing programs offered by the Ontario Ministry of Transportation. [11]

[10] Such an event is scheduled for September 19, 2014 in Ottawa, and hosted by Ottawa Centre EcoDistrict with the help of Plug'n Drive : https://driveelectricweek.org/event.php?eventid=195
[11] http://www.mto.gov.on.ca/english/dandv/vehicle/electric/

CONCLUSION:

Ecology Ottawa sees an opportunity for the City of Ottawa to encourage greater EV use as a means to reduce greenhouse gases and meet the emission targets set out in the *Air Quality And Climate Change Management Plan*. Greater EV use in the Ottawa region would likely also bring economic benefits to the community, while continuing to support the shift away from conventional fuel vehicles. Ecology Ottawa hopes to continue to work alongside city counsellors and staff to realize these local environmental and economic benefits.