
News Release

Pollution Probe and PowerStream release new report on Electric Mobility Adoption and Prediction (EMAP) in Markham, Richmond Hill and Vaughan

TORONTO, June 30, 2015 – Pollution Probe and PowerStream are pleased to announce the release of a major new report on the use of electric vehicle technology in Markham, Richmond Hill and Vaughan.

The report is one of a series of products from Pollution Probe's Electric Mobility Adoption and Prediction (EMAP) initiative. With over \$1 million in funding from the Government of Canada's ecoENERGY Innovation Initiative, EMAP combines sophisticated market research methodologies with detailed grid integration and impact analyses to develop the detailed information that electricity distribution companies need to confidently support and plan for the consumer adoption of electric vehicle (EV) technology in the urban markets they serve.

"Our Government is investing in clean energy projects that create high-quality jobs for Canadians while helping protect the environment," says the Honourable Greg Rickford, Canada's Minister of Natural Resources. "The knowledge generated by this project will help drive energy innovation and economic growth in the cities of Markham, Richmond Hill and Vaughan."

"This innovative and in-depth report will be increasingly valuable as the popularity of electric vehicles continues to grow," says Brian Bentz, President and Chief Executive officer, PowerStream. "From our perspective as a utility, it lays out a proactive strategy to ensure that we are capable of handling the increasing adoption rates of electric vehicles among Ontario automobile owners."

"EMAP is a model of collaborative research and development in Canada," says Bob Oliver, Chief Executive Officer of Pollution Probe. "With support from project partners Electric Mobility Canada and Georgian College, and with the engagement of a volunteer team of experts and community stakeholders, Pollution Probe and PowerStream produced a comprehensive, evidence-based strategy that ensures PowerStream is ready to serve the evolving EV charging demands of its customers, the public and the business community."

Pollution Probe's EMAP initiative is supported by funding from the ecoENERGY Innovation Initiative at Natural Resources Canada. In 2015, Pollution Probe will be releasing EMAP studies for a further four municipalities across Canada in partnership with local utility companies.

The full EMAP PowerStream report is available free-of-charge at <http://pollutionprobe.org/publications/electric-mobility-adoption-and-prediction-emap-markham-richmond-hill-vaughan/>

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About Pollution Probe

Established in 1969, Pollution Probe is a national, non-profit organization that exists to improve the health and well-being of Canadians by advancing policy that achieves positive, tangible environmental change. Pollution Probe has a proven track record of working in partnership with industry and government to develop practical solutions to environmental challenges. Visit www.pollutionprobe.org for details.

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About PowerStream

PowerStream is a municipally-owned energy company that provides power and related services to more than 375,000 customers residing or owning businesses in communities located immediately north of Toronto and in Central Ontario. It is jointly owned by the cities of Barrie, Markham and Vaughan.

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PowerStream EMAP Report Summary – Markham, Richmond Hill and Vaughan

- Pollution Probe’s EMAP methodology was applied to the PowerStream service area (with reference to Markham, Richmond Hill and Vaughan) with the following objectives in mind:
 1. Identify locations where EV adoption is most likely to occur and determine the impact of the technology on PowerStream’s distribution assets in these areas
 2. Investigate the impact of the incremental load from EV charging on power quality
 3. Gain a better understanding of customer preferences regarding home energy management, including EV-related services
- The research and development work was conducted in collaboration with PowerStream, the Georgian College Centre for Applied Research and Innovation, Environics Research and Electric Mobility Canada. An advisory group of representatives from the Cities of Markham and Vaughan and from Nissan Canada provided guidance in the design and execution of the initiative.

- **Primary findings:**

- ***Market research:***

- Potential early adopters of EV technology are more affluent, better educated and older (i.e., likely to be over the age of 45) than the general population and are likely to be daily vehicle commuters.
 - Most park in employer-provided lots, many for at least eight hours a day.
 - Early adopters typically travel more than 25 kilometres in a day, leaving home between 7 a.m. and 9 a.m. and returning between 5 p.m. and 7 p.m., suggesting that they would likely return home and begin charging their EVs during periods of peak energy demand.
 - Only a quarter of early adopters reported that an EV was suggested as a potential purchase option during their most recent visit to a dealership or that an EV was available for purchase at the time, pointing to opportunities to explore further engagement with customers regarding EV technology, including providing information at dealerships to help those interested in driving electric to make informed decisions about it.

- ***Electricity system assessment:***

- The system is currently able to support a substantial level of EV charging. However, because variables such as the capacity of the vehicle on-board charger and the time of charge have the potential to stress the system under certain, rare conditions, planning and asset management is advised.

- Factors influencing the capacity of the system to meet the demand for EV charging include the capacity of the vehicle on-board charger and ambient temperatures (i.e., multiple EVs, each drawing power at 6.6 kW or above, on hot summer days can stress the limits of the 50 kVA transformers that serve residential streets and homes).
- Off-peak charging (i.e., between 12:00 a.m. and 6:00 a.m.) can vastly increase the EV charging loads that can be supported by the current system infrastructure.

▪ **Key project output:**

A three-point strategy for PowerStream and its partners to mitigate the risks and optimize the benefits of EV use in Markham, Richmond Hill and Vaughan:

1. Enhance responsiveness to evolving patterns of EV charging
2. Build partnerships to address barriers and leverage opportunities for EV deployment, consistent with the needs of early adopters
3. Establish an active engagement with customers on EV technology