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News Release

Pollution Probe and London Hydro release new report on Electric Mobility Adoption and Prediction (EMAP)

TORONTO, June 30, 2015 – Pollution Probe and London Hydro are pleased to announce the release of a major new report on the use of electric vehicle (EV) technology in the city of London. The report is one of a series of publications from Pollution Probe's Electric Mobility Adoption and Prediction (EMAP) initiative. With over $1 million in funding from Natural Resources Canada under the Government of Canada's ecoENERGY Innovation Initiative, EMAP combines sophisticated market research methodologies with 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 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," said the Honourable Greg Rickford, Canada's Minister of Natural Resources. "The research and development generated by this project will help drive energy innovation and economic growth in the city of London."

"London Hydro is pleased to have participated in this study as it allows us to have a better understanding of the requirements as the popularity of electric vehicles increases," says Vinay Sharma, CEO of London Hydro. "The information gained through this study will help London Hydro to plan its infrastructure updates to be able to accommodate these types of energy consumption in the future."

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

In 2015, with ongoing support from the ecoENERGY Innovation Initiative at Natural Resources Canada, Pollution Probe will be releasing EMAP studies for a further four municipalities across Canada in partnership with local utility companies.

The full EMAP London Hydro report is available free of charge at http://www.pollutionprobe.org/publications/electric-mobility-adoption-and-prediction-emap-london-2/

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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 London Hydro
London Hydro is a local distribution company that services the city of London, Ontario. With a peak load of 719 megawatts, London Hydro delivers a safe and reliable supply of electricity to over 152,000 customers from the residential, institutional, commercial and industrial sectors, through 2,820 kilometres of overhead and underground cables, spanning 420 square kilometres of service territory. The City of London is the sole shareholder of London Hydro.

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London Hydro EMAP Report Summary

- Pollution Probe's EMAP research and development methodology was applied to the city of London in collaboration with London Hydro, Environics Research and Electric Mobility Canada. An advisory group of representatives from the City of London and the Western University Department of Electrical and Computer Engineering provided guidance in the design and execution of the project.
- **Primary findings:**
    - Current patterns of EV charging in the London Hydro service area do not represent a risk to the utility's capacity to maintain a safe and reliable supply of power to all its customers. Nor is the demand for power to charge EVs at home expected, in the short term, to exceed the rated capacities of London Hydro's current infrastructure assets at the neighbourhood level. However, the prevailing trend in new EV technology is towards larger batteries and faster charging, as automakers respond to market demand for greater driving range, convenience and overall performance. The compounding effect of these factors means that London Hydro will have to continue to monitor the potential effects of EV charging on the electricity distribution system.
    - Encouraging charging when demand for power is otherwise at its lowest would allow greater numbers of EVs to charge without necessitating changes to the existing electricity distribution assets. Additional transformer and secondary distribution system capacity may eventually be necessary to accommodate greater numbers of EVs charging; taking EV use into consideration in the process of scheduled upgrades will help to mitigate risks.

***Profile of the potential early adopter of EV technology in London*:**

- Potential early adopters are older, better educated and more affluent than the general population. The majority live in detached single-family homes.
- Personal experience with an EV is linked to greater interest in owning one.
- Reliability and a positive past experience are the main considerations for potential early adopters when they are purchasing a vehicle.
- Few potential early adopters reported an EV being suggested as a purchase option during their most recent visit to a dealership.
- About half of all potential early adopters use their vehicles every day.
- Half of potential early adopters are considered vehicle commuters.
- The majority of vehicle commuters leave home between 7 a.m. and 9 a.m. and return home between 2 p.m. and 7 p.m.
- The majority of vehicle commuters park in employer-provided lots.

***Barriers to, and opportunities for, EV adoption*:**

- Among potential early adopters, environmental benefits are the most mentioned advantage of EVs. Purchase price and limited range are the most mentioned barriers.
- Charging concerns are the most important consideration in deciding whether to purchase an EV.

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- An EV would have to have a range of at least 200 kilometres on a single charge for most potential early adopters to feel comfortable.
- The majority of those who would consider purchasing an EV think that it should take less than four hours to fully charge.
- Access to faster home charging is considered very important.
- Three in ten potential early adopters would prefer the local distribution company to install and maintain a home charging station.
- More than half of potential early adopters would be willing to pay two dollars more per hour to charge an EV at a public parking space.
- The majority of potential early adopters wait to use high electricity consumption devices during off-peak hours.

Electricity system assessment:

- The results of the electricity distribution system assessment demonstrate that, while there are no immediate issues related to the capacity of the distribution system to accommodate EV charging by early adopters, there are conditions under which overloading could occur. These risks can be mitigated through continued monitoring, using information systems already in place at London Hydro (e.g., geographic information systems, smart meters) to avoid ineffective investments in new neighbourhood-level infrastructure, including transformers and secondary cables.
- Depending on the level at which new EVs charge, the current electricity system in London is expected to support an EV population representing up to 30%, on average, of the current automobile stock.

- **Key project output**:

  A three-point strategy for London Hydro to mitigate the risks and optimize the benefits of EV use in London

  1. Enhance utility 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. Educate customers about EV technology