TransformTO

City of Toronto Electric Mobility Strategy Framework

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City of Toronto Electric Mobility Strategy Framework

Framework purpose

The following Electric Mobility Strategy Framework can be understood as a roadmap toward the specific actions that Toronto will take to capture emissions reductions potential through the electrification of mobility. This framework serves as a guideline for the development of the forthcoming Electric Mobility Strategy, which will describe specific actions that the City can take to enable e-mobility and maximize the co-benefits identified by TransformTO.

TransformTO Guiding Principles

Based on the results of public engagement and a review of best practices, TransformTO identified the following principles to guide the development of its Short-term Strategies. Adhering to these principles helps to tie climate change mitigation efforts to other social benefits such as poverty reduction, and ensures that emission reduction efforts do not create unanticipated negative or disproportionate impacts for any of Toronto's residents or sectors. While presented here as a list, all of the Guiding Principles overlap and intersect to create the "big picture" of a transformed and resilient Toronto.

- Advance social equity
 - o Improve affordability, particularly for vulnerable populations
 - Protect low-income residents
 - Contribute to poverty reduction
- Enhance and strengthen the local economy
- Maintain and create good quality local jobs
- Improve public health
- Create resilient communities and infrastructure

Electric Mobility Vision:

By 2050, GHG (greenhouse gas) emissions from the transportation sector will be reduced by 3,000 kt. The City of Toronto's Electric Mobility Strategy will guide this transformation by facilitating electric mobility alongside transit and active transportation transitions and establish Toronto as a global leader in clean transportation.

Electric Mobility Strategy Goals:

- To enable the city to achieve its GHG reduction potential through the electrification of transportation, as identified in Transform TO's Low-Carbon Scenario Model.
- To convert passenger, freight and transit vehicles from gasoline to electric or low-carbon renewable fuels, which would amount to near elimination of diesel and gasoline by 2050.
- In partnership with our local utilities, City divisions, and external stakeholders, ensure the City is well prepared and positioned to realize the benefits and address the challenges and risks associated with the electrification of transportation.

- To maximize the co-benefits associated with the electrification of transportation, including, the reduction of air pollutants that affect Toronto residents, as well as the strengthening of the local economy.
- To support and foster mutually beneficial collaborations between the City of Toronto and local innovators and entrepreneurs to catalyze equitable, low-carbon mobility.

Objectives:

City organization facing objectives:

- To understand and **address the barriers** for the anticipated adoption of EVs in the City of Toronto, with the aim of supporting the conversion of the city's vehicle stock.
- To establish a robust network of **EV charging infrastructure** that supports the City of Toronto's targets for the conversion of the City's vehicle stock and advances Transform TO's guiding principles.

Public Facing Objectives:

- To identify the right mix of **policy and regulatory** signals to support the anticipated adoption of EVs for the city's transition to a low-carbon transportation system.
- To improve **access** to, and **affordability** of electric transportation options, including public transit, cycling and shared-use vehicle options, with a particular emphasis on the needs of vulnerable and underserved communities.
- To ensure that the implementation of the City of Toronto's EV Strategy results in an enhanced and stronger local economy.
- To ensure **alignment** with complementary City of Toronto low-carbon transportation system strategies and priorities for people and goods movement.
- To catalyze and support **local innovation** on electric mobility and other green transportation options, creating clean economic opportunities for Toronto.
- To create a **flexible and adaptive** Strategy that can be molded to align with future technologies, such as autonomous vehicles.
- To take a **multi-stakeholder** approach, identifying opportunities for collaboration and co-creation with stakeholders and the public.

TTO's Low-Carbon Scenario Model

As part of TransformTO, the City modelled one potential pathway to a low carbon future. In that model we found that the electrification of transportation could achieve 3,000 kt in annual GHG emissions by 2050. The potential reductions by vehicle category was:

All electric buses by 2040 (239 kt - 8%)
All new personal and light duty vehicles are electric by 2030 (1,945 kt - 65.4%)

All city-owned vehicles are electric by 2042 (12 kt – 0.4%)

Zero emission vehicles for freight (780 kt – **26.2%**)

Transit and active transportation infrastructure expansion has an annual GHG potential reduction of 150 kt in 2050, described as follow:

- Build 25 lines of rapid transit across Toronto by 2050, including the Relief Line, Regional Express Rail including stops at Richmond Hill and Milton (CP freight line), and the development of a express bus network across the city.
- Reach 800,000 residents with personal transportation planning efforts
- Support active transportation for 75% trips less than 5 km through significant active transportation infrastructure investment.



Reductions by category



A Foundation to Build Upon

City divisions, agencies and corporations are already working towards electrification of transportation in a number of ways. The EV Strategy will build upon and coordinate with these initiatives, which include:

- Downtown On-street EV Charge Station Pilot (Transportation Services & Toronto Hydro)
 - Includes the deployment of up to five Electric Vehicle Charge Stations at three public on-street downtown locations.
- Residential On-street EV Charge Station Pilot (Transportation Services & Toronto Hydro)
 - Installation of Electric Vehicle Charge Stations in two locations in each of Wards 19, 30 and 32, for up to 12 EVs, and at one location opposite Toronto Hydro's facilities at 500 Commissioners St (Ward 30) to serve 2 EVs.
- Potential installation of EVSE in several Toronto Parking Authority garages (Toronto Parking Authority TPA & Toronto Hydro).
- Green Fleet Plan (Fleet Services)
 - Focuses on reducing emissions from nearly 10,000 on-and off- road vehicles and equipment owned and operated by the City. Initiatives undertaken in 2016 are expected to reduce over 5,650 cumulative tonnes of greenhouse gas emissions. The City recently received funding through the Provincial Municipal Challenge Fund that will support the transition of up to 220 vehicles to electric or plug-in electric systems.
- Green Bus Technology Plan (TTC)
 - TTC has endorsed the electrification of buses through procurement of only zeroemissions buses, starting in 2025 in line with the C40 Fossil Fuel Free Streets
 Declaration and a zero-emissions fleet by 2040. In 2019, with support of Federal and Provincial funding, the TTC will put 30 electric buses on the road and potentially 30 more by 2020.
- Toronto Hydro is in the process of finalizing their Electric Vehicle Strategy.

Areas of Alignment

The following are initiatives currently underway and addressed through other City strategies. The Electric Vehicle Strategy process will explore areas of intersection between the strategy and these initiatives, identify areas of improvement, and align with the goals that have already been developed by these initiatives.

Issue	Lead
Electrification and expansion of public transit	Toronto Transit Commission (TTC) – Green
	Bus Technology Plan; Ridership Growth
	Strategy
Expansion of active transportation infrastructure	City Planning – Official Plan
	Transportation Services – Cycling and
	Pedestrian Plans; Vision Zero strategy
Electrification of the City's fleet	Fleet Services – Green Fleet Plan
Electrification of goods and freight movement	Transportation Services – Goods Movement
vehicles	Strategy
Fuel standards	Federal Government
	City of Toronto already advocating for
	improvements
Fossil fuel pricing	Provincial Government
	City of Toronto already advocating for
	improvements
Hydrogen vehicles	Not captured in the Electric Mobility Strategy,
	but could be explored in TransformTO more
	broadly

Areas of Opportunity

In addition to the independent exploration of these opportunities, consideration of their interaction should be central to the evaluation of their potential effectiveness and impact.

1. Availability of Charging Infrastructure

A proven enabler of EV adoption rates on a local scale. Increasing the availability of charging infrastructure is a key piece to be addressed by the strategy. Concerted action with Toronto Hydro, Ontario Power Generation (OPG), other levels of government and the private sector are crucial to increase charging capabilities in MURBs, residential areas that rely on on-street parking permits, in the workplaces, along major corridors on outskirts, underserved and vulnerable communities, parking facilities and public places. Potential actions to explore include new and enhanced EV-ready requirements for new construction, the development of policies and procedures that enable publically accessible EV charging infrastructure and ensure that charging infrastructure is made available strategically to address the mobility needs of all segments of the population, with a particular emphasis on vulnerable and underserved communities.

2. Policies and Regulations

Identification and assessment of barriers and policy priorities, to ensure an appropriate mix of policy and regulatory signals that offer long-term certainty for the electrification of transportation.

In addition to national and international best practices, consideration of lessons learned from existing City of Toronto initiatives will inform decision making in this area of opportunity.

3. Financial & Non-Financial Incentives

Explore adoption of upstream and downstream and financial and non-financial incentives. Understand the potential impact of these mechanism in combination with other tools being explored, to offer a more integral approach. E.g. downstream financial incentives and policy directed at vehicles need to be considered and assessed in the context of those focused on charging infrastructure.

4. <u>Research, Community Awareness & Behaviour change</u>

The strategy will consider and integrate the support of innovation and large scale EV adoption through community engagement, leveraging action from other levels of government & key stakeholders.

Action will be supported by a clear understanding of the socio-economic factors that play a role in successful EV uptake, in order to guarantee that the City of Toronto's EV solutions will meet the mobility needs of the community, with a particular emphasis on underserved and vulnerable populations.

5. Understanding and Developing the EV Industry, Workforce and Training

Creating an economic sector conducive to the transition from gasoline- and diesel-powered vehicles towards EV requires the development of the EV industry, with particular emphasis on job creation, workforce transition and local business development.



Acknowledgments

The City of Toronto Electric Mobility Strategy Framework is the result of a collaboration between the Environment and Energy Division (EED), the Electric Vehicle Work Group (EVWG) and feedback from an external stakeholder group. The City of Toronto thanks all of those who provided their time and expertise to develop the Strategy Framework which will be used as a guide for the development of the City of Toronto Electric Mobility Strategy.

Electric Vehicle Work Group (EVWG)

City Planning **Economic Development & Culture Environment and Energy Division Exhibition Place Facilities Management Division** Fleet Services Ministry of Economic Development and Trade Ministry of Transportation Parks, Forestry and Recreation The Atmospheric Fund (TAF) Toronto District School Board (TDSB) Toronto Hydro Toronto Parking Authority (TPA) Toronto Transit Commission (TTC) Toronto Zoo Transportation Services (TS) Waterfront Toronto

External Stakeholders Group

Electric Vehicle owners Non-profit organizations Academic experts