

# Electric Vehicle in Public Transportation - Project Charter

APS1012 - Management of Innovation in Engineering

## Team Members

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## **Executive Summary**

Public transportation system, being the blood vessel of any urban area, has been part of our lives for quite some time. The public transport sector has provided convenience to travelers, but at the same time it has been contributing to a large portion of greenhouse gas emissions. As countries are ramping up on various “green” initiatives, different means to reduce GHG emission have been top priority and have drawn a significant amount of attention. Vehicle electrification has been widely adopted in the personal transportation sector, companies like Tesla and Lucid have been accepted by a large population with a positive attitude. Similar trends are happening simultaneously in the public transportation sector quietly in countries that are considering environmental issues as top priorities. Hence the demand for electrification of public transportation vehicles has skyrocketed and countries are trying to do what they can to adopt the deployment as much and as soon as possible.

After thorough discussions and research, the project team was intrigued by how developments have progressed and what countries are doing to adopt this new trend and decided to look into electric vehicles for public transportation and their application as technological and social innovations within Canada and explore global impact in other countries as a comparison. The objective for this project is to provide the audience an overview of where countries stand currently against the new revolution and bring awareness of the different trends and pace that major countries are going at as well as barriers and challenges the industry and policy makers are facing to be able to fully manage the conversion to electrification. As it seems natural for this revolution to happen, the demand for electric vehicles is driven by significant environmental impact and the care for future generations.

This project follows the idea of public transit electrification in Canada. Additionally, it focuses on the three major provinces in Canada - British Columbia, Ontario and Quebec, illustrating the various strategies and plans the provinces have put in, as well as their challenges. The team members have done deep dives into each province in all aspects including climate change mitigation plans, major action plans on public transportation electrification, challenges and opportunities. Although each province is moving forward with a different pace, it has shown that Canada is on track with the “green” initiatives. The paper then transitions into a review of other countries in the world, especially mega countries such as China, European Union countries and major South American countries. Starting from the Canadian side, cities such as Montreal have the goal of electrification of vehicles by 2050. Additionally, Toronto has pledged to move towards the electrification of their public vehicles by 2050 as well. In addition to analyzing what cities were doing to implement electric vehicle technology, policy initiatives were also analyzed to further emphasize on the urgency and how Canada manages control and manage the new future. Additionally applications and adoptions for electrification elsewhere in the world including developed and developing countries, putting an emphasis on countries that are well-advanced in the sector and other countries that are catching up to this new trend. On top of analyzing the usage and adoption of e-buses, future uses of the electrification of vehicles was also analyzed such as the use of electric vehicles for ride share applications along with electric taxis.