Executive Summary

Team 4 from the course APS 1049: Management Consulting for Engineers, worked with Deloitte to develop a transportation electrification strategy to accelerate the adoption of Electric Vehicles (EVs) in Ontario (ON), Canada. Deloitte aims to use these strategies to conduct a deeper level analysis and provide a detailed report that helps the Government in achieving its climate change objectives.

After a detailed literature review, the team identified 3 major factors that drive mass EV adoption which includes Charging infrastructure, Techno-Economics and Utilities. The team then assessed the state of the current charging infrastructure in ON and further conducted an analysis to determine the number and associated capital cost of charging stations required to be constructed to support mass EV adoption in ON between 2021 to 2025. In addition to this, the team devised a strategic utility response plan for the increased adoption of EVs.

The result of our analysis showed that there would be approximately 4000 charging stations in ON by 2025 based on the projected number of EVs and a total investment of $762 million will be needed to install 20,000 EVSE ports to support mass EV adoption in ON. The potential revenue of utilities was projected to be $ 11.83 billion, and the response options that can be taken by the utilities were identified. Finally, an assessment was done on how well the identified response options have been executed across the different provinces of Canada.

From the analysis, the team concluded that more charging stations will be needed beyond the projected number in 2025 and the capital cost of constructing them would decrease annually. In addition to this, the team also found that the revenue of utilities will also be quadrupled by 2025 due to increased electricity demand being generated from the purchase of EVs.

It can be recommended that a synergy between the public and private sector should exist in constructing the new charging stations to meet the growing EV adoption. More EVSE ports should be installed per station location to reduce capital cost. Utilities should develop short- and long-term strategies with timelines and constitute a transportation electrification team to implement these strategies.