

Driving the Future: The Role of Electromobility towards A Net Zero Transportation

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Abstract

The transportation and electricity sectors are in the midst of leading changes in an endeavor to mitigate climate change and air pollution issues. In future years, the traditional fossil-fuelled vehicles are estimated to be substituted with electric vehicles (EV), resulting in higher electricity demand by the transportation sector. Meanwhile, the electricity sector is in alteration due to future policies of adopting renewable energy resources such as solar, wind, and hydro. However, there are concerns in society regarding the environmental benefits of electric vehicles and how new energy options will benefit in the future. To address these concerns, this research aims to analyze the environmental burdens of current and future vehicles. For this purpose, the Life Cycle Assessment (LCA) is used to evaluate the environmental impact of electric vehicles. Hong Kong was selected as a case study to comprehensively evaluate the environmental burdens of current and future vehicles. The LCA was performed for internal combustion vehicles (ICEV) fueled with diesel and petrol, Plug-in hybrid vehicles (PHEV) and BEV with future electricity energy mix scenarios. The results revealed that electric vehicle with the future electricity mix is an optimal choice and has the least environmental impact in most of the selected impact categories. Plug-in hybrid vehicle was the second optimal choice to reduce the environmental impacts in the current scenario. Besides, this study outcome indicated that the transformation of electricity production through renewable sources could help to decrease the environmental impact and mitigate climate change around the globe.

This talk will focus on the environmental impact and policy implications of EV adoption, offering a visionary outlook on the future of transportation. This talk will provide a clear understanding to find an optimal pathway for adopting EV in transportation sector and shed light on green opportunities towards a sustainable future.