FUTURE MOBILITY CALCULATOR: AN ELECTRIC MOBILITY INFRASTRUCTURE ASSESSMENT TOOL

Vishant Kothari, Ryan Sclar, Eleanor Jackson, Emmett Werthmann, Jone Orbea

As urban centres continue to grow, so will the share of global emissions they produce. In 2019, transportation accounted for 24 percent of global CO_2 emissions and is the fastest growing emissions sector, with road vehicles accounting for nearly three-quarters of all transport CO_2 emissions. Electrification within the transport sector presents a solution to help mitigate potential emissions associated with the growth of cities.

While electric vehicles (EVs) are an attractive option to reduce emissions and operational costs, uptake of the technology at scale will require the development of a robust vehicle adoption pathway and charging infrastructure network. Understanding the appropriate quantity and type of charging stations to install, the increased electricity demand from EVs, and the costs and the benefits of vehicle and infrastructure deployment is crucial for effective resource management and decision making.

Electrification within the transport sector presents a solution to help mitigate potential emissions associated with the growth of cities.

To help facilitate planning, this paper introduces the Future Mobility Calculator (FMC). Developed by the World Resources Institute and Siemens in collaboration with the Coalition for Urban Transitions, the FMC focuses on the urban infrastructure needed for successful EV and charging station rollout and the costs and social benefits associated with that investment. The FMC aims to help cities make informed decisions and plan accordingly for the future of their mobility and energy systems.

The FMC is an Excel-based tool that, for a given range of city-specific inputs (general city data, mobility data, charging infrastructure data, and cost data) and a projected electric transport uptake scenario for 2035 and 2050, identifies the quantity and cost of infrastructure required. It also quantifies some of the emissions benefits that would result from an investment in electric transport infrastructure, based on input data and listed assumptions.

The FMC incorporates a transparent interface allowing the user to view inputs and calculations as well as integrate their own data, allowing complete customization for the city in question. When city-specific data are not available, the tool is programmed with over 500 default data points, which help fill gaps in the user's data. These default inputs are sourced from work done by a range of institutions including the IPCC, World Bank, C40, IEA, IRENA, US EPA, UNEP, and ICCT, among others. The tool is open-sourced, and users can change any desired default assumptions, in addition to the suggested city-specific inputs.

ACKNOWLEDGEMENTS

The tool is available at: **urbantransitions.global**

Full methodology available at: **urbantransitions.global**

Coalition for Urban Transitions
c/o World Resources Institute
10 G St NE
Suite 800
Washington, DC 20002, USA
+1 (202) 729-7600

C40 Climate Leadership Group
3 Queen Victoria Street
London EC4N 4TQ
United Kingdom
+44 (0) 20 7922 0300

WRI Ross Center for Sustainable Cities
10 G St NE
Suite 800
Washington, DC 20002, USA
+1 (202) 729-7600

UK Government

Find us
🌐 urbantransitions.global
🐦 @CoalitionUrban

Photo: An electric bus charging in Moscow
© ANDREY-SHA74/Shutterstock