Editorial Board

Transportation Research Part B: Methodological

To Whom it may concern,

Thank you for considering our paper titled “A Quantitative Framework for Assessing Long-Trip Transportation Accessibility for Road Vehicles” for possible publication in Transportation Research Part B. We are pleased to present our full manuscript. We chose to submit to Part B as we feel that the content of the paper fits well with the aims and scope of the journal. Our paper primarily serves to introduce a mathematical framework for analysis of transportation accessibility for regional travel considering electric and internal consumption vehicles as different modes. These vehicles use the same roads but rely on separate supply networks to enable long trips. Further, there is disparity within EVs based on different access to chargers (specifically with regards to Tesla).

There is a current gap in the research and analysis space when it comes to DC chargers. It is very common to see policy and analysis focused on the number of chargers within a given region or the amount of a region “covered” by chargers. Simultaneously, there is significant effort, including at the authors’ institution into measuring the reliability of chargers which is coupled with a regulatory drive to increase reliability. These efforts are laudable and necessary but fail to capture the impacts of the quantities measured. The purpose of a transportation system is to provide access for users to opportunities. Considering the subset of opportunities which require inter-city travel, road vehicle user experience is significantly impacted by supply network characteristics. The presented method measures the supply network impact on user experience for long-trips. This model finds the optimal route for O/D pairs subject to probabilistic understandings of equipment reliability and delay time at stations for drivers with different priorities and risk attitudes. The paper then persents a case study for the state of California showing the impacts of vehicle range and charging speed, equipment reliability, station utilization, and driver risk attitude on expected total travel times for inter-city O/D pairs. This analysis extends to identifying which stations are most beneficial and why. This method is highly adaptable and the paper will be accompanied by an open-source code repository.

We know of no conflicts of interest associated with this publication, and there has been no significant financial support for this work that could have influenced its outcome.

Sincerely,

Aaron Rabinowitz

Research Scientist

Electric Vehicle Research Center

Institute of Transportation Studies

University of California, Davis

arabinowitz@ucdavis.edu