



ERGONOMICS PROGRAM  
DEPARTMENT OF BIOENGINEERING  
COLLEGE OF ENGINEERING

RICHMOND FIELD STATION  
1301 SOUTH 46<sup>TH</sup> STREET, BUILDING 163  
RICHMOND, CALIFORNIA 94804

January 25, 2024

California Air Resources Board

Re: Electrify America California ZEV Investment Plan: Cycle 4

Dear CARB Board Members:

I was the lead investigator of the 2022 UC Berkeley study of all DC Fast Chargers in the Greater Bay Area. Based on the findings of that study, our follow-up studies, and studies by other researchers, I strongly recommend that the Electrify American California ZEV Investment Plan: Cycle 4 not be approved as written.

Most of the Cycle 4 funds should be used to replace or repair all non-functioning chargers. In addition, an independent company should be funded with this money to evaluate Electrify America data and conduct field studies of Electrify America stations to identify non-functioning chargers in order to quantify uptime and functionality. The goal of this effort should be to improve the quality of the Electrify America system so that it meets the California Energy System and federal NEVI criteria of 97% uptime and a similar high level of functionality.

Our 2022 study [Rempel D, et al.; Reliability of Open Public Electric Vehicle Direct Current Fast Chargers. Human Factors, November 30, 2023; doi.org/10.1177/00187208231215242] tested all 655 DC fast chargers in the nine counties of the Bay Area. 378 Electrify America DC Fast chargers were tested and 21% were found to be not functional. We repeated the study in two of the nine counties four months later and found little change. The problems were broken screens, blank screens, errors, failure to accept payments, and charge initiation failure. The system was poorly designed and not maintained. These problems could have been addressed with replacement of non-functional chargers and with the adoption of a well-executed maintenance program.

Charging failures with the Electrify America system are being experienced daily by EV drivers in California and have led to high level of dissatisfaction. In 2023, a study by JD Power found that customer satisfaction for the EA charging system was the lowest of all public EV charging systems. The California goal of growing the adoption of EVs is being stymied by this level of dysfunction.

Sincerely,

David Rempel, M.D., M.P.H.

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