DRISI

CALTRANS DIVISION OF RESEARCH, INNOVATION AND SYSTEM INFORMATION

TRANSFORMING IDEAS INTO SOLUTIONS

Research Notes

Mobile Electric Vehicle DCFC Infrastructure Deployment Opportunities

To evaluate the use of mobile or semi-permanent electric vehicle (EV) charging systems for operations in the California Department of Transportation (Caltrans).

Equipment

MAY 2025

Project Title:
Mobile Electric Vehicle DCFC Infrastructure Deployment Opportunities

Task Number: 4409

Start Date: September 25, 2023

Completion Date: September 30, 2025

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WHAT IS THE NEED?

Due to the increase in zero-emission vehicle implementation required by ongoing fleet regulations, the Caltrans will need to install adequate EV chargers to support the incoming vehicles. Currently, the installation of permanent, grid-tied, infrastructure is a long process and cannot be fully established before these vehicles arrive. Caltrans needs mobile or semi-permanent charging infrastructure that can be implemented in a similar timeframe as the mandated EV vehicle deployments. The systems must be able to trickle-charge from the existing site infrastructure, and rapidly charge multiple heavy EVs on demand.

WHAT ARE WE DOING?

In this project the research team from Advanced Highway Maintenance and Construction Technology (AHMCT) Research Center University of California Davis will work with project panel including representatives from Caltrans Division of Equipment (DOE) to identify candidate commercially available mobile or semi-permanent EV charging systems, procure the selected systems (by purchasing, leasing, or renting), document the system installation and/or setup for each system, and evaluate the applicability and feasibility of each EV mobile or semi-permanent charging system for Caltrans activities. The assessment will address questions regarding system suitability, maintenance requirements, integration challenges, necessary training for staff, and potential benefits of adoption for Caltrans. The contractor will also prepare a final report summarizing the evaluation results and future recommendations.

Caltrans

DRISI provides solutions and knowledge that improves California's transportation system.

WHAT IS OUR GOAL?

The goal of this project is to evaluate the commercially available mobile or semi-permanent EV charging systems and see it they can provide accessibility to the Direct Current Fast Charging (DCFC) units, to meet the mandated EV deployment in Caltrans' fleet.

WHAT IS THE BENEFIT?

The results of this project will help determine whether the evaluated mobile or semi-permanent EV charging systems are feasible for implementation in Caltrans. If they are, then the evaluated systems will enable Caltrans to meet the mandated EV deployment requirements in a reasonable fashion.

WHAT IS THE PROGRESS TO DATE?

The kick-off meeting was held on October 11, 2023, and panel meetings were held on October 30, 2023, and January 11, 2024. Contractor completed purchase orders for the two EV chargers including EVES-6060-NA and FreeWire Boost Charger 200, selected by the customer from DOE. Contractor has also developed test plans for both EV chargers.

IMAGES

Image 1: FreeWire Boost Charger 200.

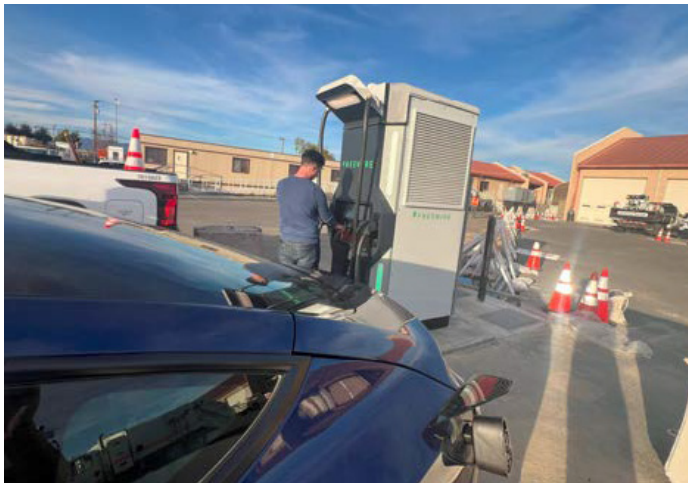

Image 2: Testing FreeWire Boost Charger 200 during final commissioning process.

Image 3: Chevrolet Bolt being charged by EVES-6060-NA charger.

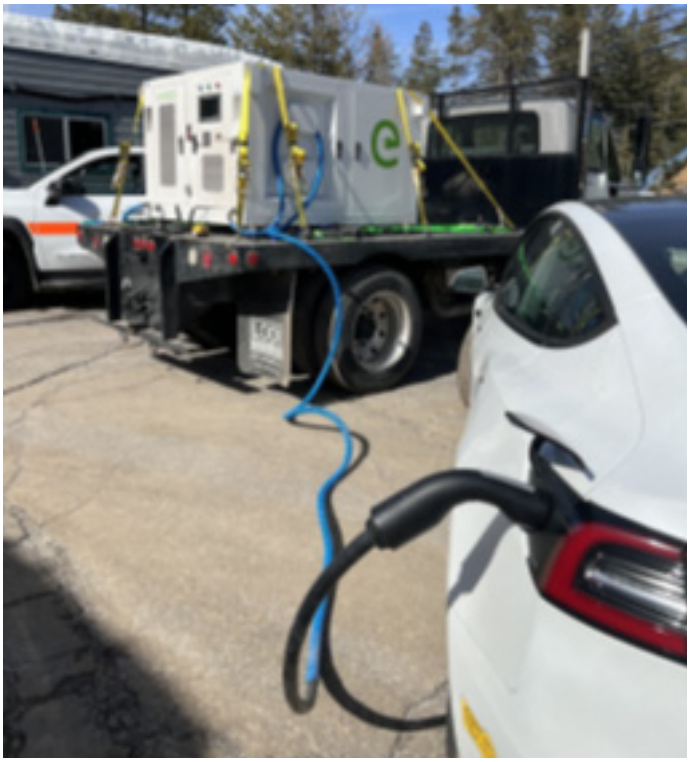

Image 4: Tesla Model 3 being charged by EVES-6060-NA charger.

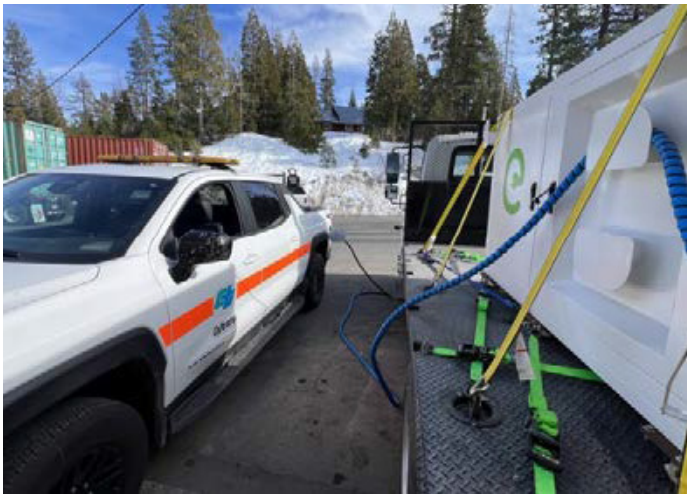

Image 5: Chevrolet Silverado EV being charged by EVES-6060-NA charger.