

BOARD MEETING DATE: March 1, 2024

AGENDA NO. 5

PROPOSAL: Execute Contract to Develop and Demonstrate Megawatt Fast Charging for Battery Electric Trucks

SYNOPSIS: Electric Power Research Institute was awarded a CEC grant for \$12,999,155 to develop and demonstrate megawatt fast charging systems for Class 7 and 8 battery electric trucks. The development and deployment of megawatt charging is needed to accelerate commercialization of battery electric zero-emission technologies. This action is to authorize the Executive Officer to execute a contract with the Electric Power Research Institute in an amount not to exceed \$1,500,000 from the Clean Fuels Program Fund (31) to co-fund the development and demonstration of megawatt fast charging systems.

COMMITTEE: Technology, February 16, 2024; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Executive Officer to execute a contract with the Electric Power Research Institute (EPRI) to develop and demonstrate megawatt fast charging systems in an amount not to exceed \$1,500,000 from the Clean Fuels Program Fund (31).

Wayne Natri
Executive Officer

AK:MW:VP:PSK

Background

The development and deployment of megawatt fast charging systems are needed to accelerate the commercialization of battery electric zero-emission technologies. Deployment of megawatt fast charging systems will extend the operational usage by reducing charging times for Class 7 and 8 battery electric trucks. The development of the megawatt fast charging systems will utilize the Society of Automotive Engineers approved Megawatt Charging System connector, the global standard connector for megawatt charging for medium- and heavy-duty vehicles.

EPRI was awarded a CEC grant for \$12,999,155 to develop and demonstrate innovative megawatt fast charging systems for Class 7 and 8 battery electric trucks along priority freight corridors in the South Coast Air Basin. This award was made under CEC GFO-20-306 Research Hub for Electric Technologies in Truck Applications for EPRI's Electric Truck Research and Utilization Center (eTRUC) project. Project partners include a consortium of industry, government, national laboratories, academia, utilities, and community partners.

Proposal

Staff recommends providing \$1.5 million from the Clean Fuels Fund (31) for EPRI to develop and demonstrate innovative megawatt (MW) fast charging systems and energy storage, pilot deployment, evaluation, and data collection. Demonstration of the Megawatt Charging System charging equipment at the Southern California Edison (SCE) Advanced Transportation Research Center in Pomona will confirm functionality of the charging equipment at the SCE laboratory prior to a commercial deployment at the Travel Centers of America truck stop in Ontario. The Travel Centers of America installation will assess the feasibility of public charging for Megawatt Charging System capable battery electric trucks at an active truck stop location. eTRUC includes data collection and analysis of charging sessions by Megawatt Charging System capable battery electric trucks.

The Travel Centers of America Ontario truck stop demonstration site will include a 250 kW solar with 1 MWh battery energy storage. There will be three truck charging lanes: one charging lane with a 1 MW fast charger and two charging lanes with 350 kW dual port fast chargers. As more Megawatt Charging System trucks are produced with the capability of charging at the 1 MW level, there will be additional charging lanes added with the 1 MW level chargers. The charging lanes are designed so that trucks can pull into the charging lanes without unhitching their trailers. At the Travel Centers of America site in Ontario, energy storage will minimize consumption of on-peak energy and solar will offset electricity costs (at an agreed upon per kWh rate from SCE for electricity generated from solar). Data collected and analyzed from the project will enable a better understanding on how to deploy megawatt fast charging, using storage and solar to reduce grid demand, impacts of megawatt fast charging on battery life, and pathways for commercialization for heavy-duty public charging.

This action is to authorize the Executive Officer to execute a contract with EPRI to develop and demonstrate innovative megawatt fast charging systems in an amount not to exceed \$1,500,000 from the Clean Fuels Program Fund (31).

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which sole source award may be justified and section VIII.B.2 identifies four major provisions under which contracts may be made as a sole source award. The request for sole source awards for the EPRI contract is made under provision B.2.d.(1), projects involving cost sharing by multiple sponsors. The proposed project includes match share by EPRI and CEC.

Benefits to South Coast AQMD

South Coast Air Basin is classified as an extreme nonattainment area for ozone. Successful development and pilot demonstration of megawatt chargers will help to deploy zero emission technologies that will help to reduce NOx and PM2.5 to achieve federal ambient air quality standards for ozone and PM2.5. The project supports the Technology Advancement Office Clean Fuels Program 2023 Plan Update under the categories of “*Electric/Hybrid Technologies*” and “*Zero-Emission Infrastructure*.” The annual emission reductions are 47.56 tons of NOx and 15,143 tons of CO2, based on assumptions on grid electricity and conventional fuel use reductions.

Resource Impacts

The contract with EPRI to develop and demonstrate megawatt charging will not exceed \$1.5 million from the Clean Fuels Program Fund (31). This proposed project includes almost \$13 million in CEC funding. The proposed project cost share is shown in the table below:

Proposed eTRUC Costs

Funding Source	Funding Amount	Percent
CEC	\$12,999,155	67%
EPRI	\$2,195,019	11%
South Coast AQMD (<i>requested</i>)	\$1,500,000	8%
Travel Centers of America	\$889,625	5%
Southern California Association of Governments	\$577,270	3%
SCE	\$500,000	2.6%
MHX Solutions	\$500,000	2.6%
Momentum	\$100,000	0.5%
InTech Energy, Inc.	\$65,705	0.3%
Total	\$19,326,774	100%

Sufficient funds are available from the Clean Fuels Program Fund (31). The Clean Fuels Program Fund (31) is established as a special revenue fund resulting from the state mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.