

BOARD MEETING DATE: October 7, 2022

AGENDA NO. 4

PROPOSAL: Execute Contract to Demonstrate Zero-Emission Port Equipment and Mobile Hydrogen Refueler

SYNOPSIS Toyota Tsusho America, Inc. (TAI) is developing a hydrogen mobile refueler that can be used to support fuel cell powered off-road equipment. Under this project, a mobile hydrogen refueler will be used to support fuel cell powered cargo handling equipment at the Port of Los Angeles. This action is to execute a contract with TAI to develop a hydrogen mobile refueler in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31).

COMMITTEE: Technology, September 16, 2022; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Chair, or on the Chair's behalf, the Executive Officer, to execute a contract with Toyota Tsusho America, Inc. to develop a hydrogen mobile refueler in an amount not to exceed \$900,000 from the Clean Fuels Program Fund (31).

Wayne Nastri
Executive Officer

AK:PSK:SH

Background

There are a variety of fuel cell applications for off-road equipment. Off-road equipment generally does not have access to hydrogen fueling stations and installing onsite hydrogen refueling would add significant costs and is not feasible in land constrained areas such as port complexes. Mobile hydrogen refueling stations may provide the necessary refueling support to fuel cell powered off-road equipment without installing expensive hydrogen fueling infrastructure.

Under this project, a fuel cell powered mobile hydrogen refueler will be developed and demonstrated to provide hydrogen to fuel cell powered cargo handling equipment

(CHE). This demonstration will help ascertain the technical details needed for mobile hydrogen fueling and the economic feasibility of this approach at a port complex.

Proposal

Toyota Tsusho America, Inc. (TAI) proposes to develop a fuel cell powered hydrogen mobile refueler for refueling fuel cell CHE. The CHE hydrogen technologies will be demonstrated in the Fenix Marine Services terminal at the Port of Los Angeles (POLA).

TAI has assembled a team of industry stakeholders and service professionals that includes: Toyota Motor North America (TMNA—fuel cell stack developer); US Hybrid (fuel cell system integrator); OneH2 (mobile refueler technology and hydrogen production provider); Fenix Marine Services terminal (demonstration site); National Renewable Energy Laboratory (data analysis); and Momentum (grant and project administration).

Fenix Marine Services will provide one diesel top handler currently in operating at its terminal to US Hybrid to be retrofitted with a fuel cell from TMNA. OneH2 will design and assemble a fuel cell powered mobile, ultra-high-pressure hydrogen mobile refueler. The fuel cell top handler and hydrogen mobile refueler will be demonstrated for a 12-month period including data collection and analysis of operational data in revenue service.

South Coast AQMD funding will be for the development of a fuel cell powered hydrogen mobile refueler. This action is to execute a contract with TAI in an amount not to exceed \$900,000 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 a sole source award may be justified. This request for sole source award is made under provision B.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the South Coast AQMD. Specifically, these circumstances are B.2.d.(1): Project involving cost-sharing by multiple sponsors. The proposed projects will include in-kind contributions and cost-share by POLA, TAI, OneH2, FENIX, and US Hybrid.

Benefits to South Coast AQMD

Projects to support development and demonstration of zero-emission drayage truck technologies are included in the Technology Advancement Office Clean Fuels Program 2022 Plan Update under the category “Hydrogen and Fuel Cell Technologies and Infrastructure.” This project is to develop and demonstrate zero-emission fuel cell drayage truck technologies for goods movement operations. Currently, nearly 400 top handlers operate within the San Pedro Bay Ports. Implementation of this project is consistent with the Draft 2022 AQMP which relies on zero-emission technologies to

achieve National Ambient Air Quality Standards for ozone and PM2.5. The successful demonstration of fuel cell top handlers and mobile hydrogen refuelers will serve as a model to build confidence among end-users, increase demand for fuel cell CHE, and reduce costs to enable the feasible transition of CHE to zero-emission technologies.

Resource Impacts

The total cost for the proposed project is \$7,996,045, of which South Coast AQMD's proposed contribution will not exceed \$900,000 from the Clean Fuels Program Fund (31), as summarized below.

Proposed Zero Emission Port Demonstration Project Costs

Source	Funding Amount	% of Project
TAI and Project Partners	\$6,236,045	78
POLA	\$860,000	11
South Coast AQMD (proposed)	\$900,000	11
Total	\$7,996,045	100

Sufficient funds are available in the Clean Fuels Program Fund (31) for this proposed project. 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 advanced 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.