

BOARD MEETING DATE: July 7, 2017

AGENDA NO. 3

PROPOSAL: Execute Contract to Develop and Demonstrate Battery Electric Switcher Locomotive

SYNOPSIS: Emissions from locomotives are projected to increase over the next decade, and development and early commercialization of zero emission locomotive technologies is a critical component for achieving the federal ambient air quality standards. Rail Propulsion Systems is currently developing a zero emission, battery electric switcher locomotive and has partnered with Coast Rail Services, EV Grid, VACON and Tractive Power to demonstrate this technology. Staff proposes to cost-share the project. This action is to execute a contract with Rail Propulsion Systems to develop and demonstrate a zero emission, battery electric switcher locomotive in an amount not to exceed \$210,000 from the Clean Fuels Program Fund (31).

COMMITTEE: Technology, June 16, 2017; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Executive Officer to execute a contract with Rail Propulsion Systems to develop and demonstrate a zero emission, battery electric switcher locomotive in an amount not to exceed \$210,000 from the Clean Fuels Program Fund (31).

Wayne Natri
Executive Officer

MMM:FM:NB:AAO

Background

Diesel locomotives are projected to be one of the five largest contributors to NOx emissions by 2022, even as the legacy fleet of older and higher polluting locomotives are retired and replaced with locomotives meeting the most stringent current standard. Significant emission reductions beyond those achieved from the cleanest diesel locomotive technologies are still needed to meet the federal ozone air quality standards. Zero and near-zero emission locomotive technologies show promise as a cleaner alternative with the added benefit of lower operational (fuel) costs.

Rail Propulsion Systems is currently developing a zero emission, battery electric switcher locomotive for rail equipped facilities and small switch yards, and has partnered with Coast Rail Services, EV Grid, VACON and Tractive Power to demonstrate this technology. The U.S. EPA is cofunding the project from the Section 105 Clean Air Technology Initiative (CATI), the funds for which were recognized by the Board at its April 7, 2017 meeting. CATI was established by the U.S. EPA, CARB, San Joaquin Valley Air Pollution Control District and SCAQMD to identify and implement emission reduction projects in San Bernardino and Boyle Heights where residents are disproportionately affected by emissions of diesel exhaust from the goods movement corridors and from diesel activities at the Ports, warehouses and rail yards.

Proposal

This project is to develop and demonstrate a zero emission, battery electric switcher locomotive. Rail Propulsion Systems will perform the following: 1) design and fabricate a battery pack and rack system; 2) modify an existing switcher locomotive to integrate the battery pack and rack system as well as electronic control systems; 3) install charging infrastructure for the locomotive; and 4) perform substantial validation and durability testing to confirm the robustness of their design. Once the locomotive is developed, Rail Propulsion Systems will test and optimize the locomotive in preparation for a field demonstration. The project will ultimately conclude after the locomotive has been placed in a typical switcher locomotive operation at the Coast Rail Services rail yard to fully validate its performance, durability and reliability.

Sole Source Justification

Section VIII.B.3 of the Procurement Policy and Procedure identifies four provisions by which sole source awards may be justified when contracts are funded in whole or in part by federal funds. This award is made under provision B.3.c: The awarding federal agency authorizes noncompetitive proposals. The proposed award to Rail Propulsion Systems will be treated as a sub-award and does not require a competitive solicitation.

Benefits to SCAQMD

The proposed project supports the implementation of advanced alternative fuel technology that could potentially be used to further reduce NOx emissions from locomotives. In addition, the development and successful deployment of these zero emission switcher locomotives will promote their acceptance by railroads and facilitate their deployment at rail yards in the South Coast Air Basin as well as assist the SCAQMD to attain its clean air goals.

The proposed project is included in the *Technology Advancement Office Clean Fuels Program 2017 Plan Update* under the categories “Electric/Hybrid Technologies & Infrastructure” and “Emission Control Technologies”.

Resource Impacts

On April 7, 2017, the Board recognized U.S. EPA CATI funds of \$500,000 into the Clean Fuels Program Fund (31), noting the remaining \$210,000 would be allocated to a future project. The contract with Rail Propulsion Systems will be executed upon receipt of the U.S. EPA funds, up to the amount of the available funding received. The proposed project budget is approximately \$925,000, as follows:

Funding Source	Funding Amount	Percent
U.S. EPA	\$210,000	23
Rail Propulsion Systems (<i>in-kind</i>)	\$715,000	77
Total	\$925,000	100

Sufficient funds are available from the Clean Fuels Program Fund, 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.