

BOARD MEETING DATE: May 4, 2018

AGENDA NO. 3

**PROPOSAL:** Execute Contract to Develop and Certify Near-Zero Emission Propane Engine for On-Road Medium-Duty Vehicles

**SYNOPSIS:** The SCAQMD helped to develop near-zero emission CNG engines that are 90% cleaner than the current heavy-duty engine standard, and those engines are now available in the market. There is a need, however, to develop and certify near-zero engines for medium-duty vehicles. Roush CleanTech proposes to modify an existing Ford 6.8-liter propane engine to achieve certification at near-zero NOx for use in Type C school buses and cutaway trucks and vans. This action is to execute a contract with Roush CleanTech to develop, demonstrate and certify a 6.8-liter near-zero emission propane engine in an amount not to exceed \$488,750 from the Clean Fuels Program Fund (31).

**COMMITTEE:** Technology, April 20, 2018; Recommended for Approval

**RECOMMENDED ACTION:**

Authorize the Chairman to execute a contract with Roush CleanTech for the development, demonstration and certification of a 6.8-liter ultra-low emission propane fueled engine for on-road medium-duty vehicles in an amount not to exceed \$488,750 from the Clean Fuels Program Fund (31).

Wayne Nastri  
Executive Officer

MMM:FM:NB:JL

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**Background**

The 2016 AQMP highlights the need to lower NOx emissions, which are precursors to ozone formation in the South Coast Air Basin (Basin). The SCAQMD helped develop near-zero emission CNG engines that are 90% cleaner than the current heavy-duty engine standard. Those natural gas engines have been certified and are commercially available and eligible for incentives through SCAQMD programs offering funding for buses and heavy-duty trucks. There is a need, however, to develop and certify near-zero engines for medium-duty vehicles, such as Type C buses as well as cutaway trucks and

vans. Propane powered engines are preferred by some school districts and fleets and others desiring options for turning over their existing high emissions fleet vehicles to near-zero vehicles.

### **Proposal**

This action is to execute a contract with Roush CleanTech to modify, demonstrate and certify a Ford 6.8-liter to achieve a near-zero NOx emission propane engine for use in on-road medium-duty vehicle applications. The project is intended to advance engine and aftertreatment technologies in the current 6.8-liter propane engine classification to achieve NOx emission levels that are at least 90% lower than 2010 engine emission certification standards. Roush CleanTech will be required to conduct engine and aftertreatment development tasks to achieve the ultra-low emissions target and perform validation and durability testing to confirm the robustness of their technology pathway. Once developed, the engine will be tested using both the Federal Test Procedure for emissions certification and non-certification test cycles representative of real-world use in different vocations that are prevalent in the Basin. The use of vocational specific test cycles will provide additional insight towards the engine's real-life emission reduction potential. The project will ultimately conclude with the engine being integrated into on-road heavy-duty chassis and placed in commercial service to fully validate its performance and viability.

### **Benefits to SCAQMD**

Projects to support near-zero emissions are included in the *Technology Advancement office Clean Fuels Program 2018 Plan Update* under the category Engine Systems. Near-zero NOx propane engines will lead to further technology pathways in the advancement of near-zero NOx natural gas engines for medium-duty vehicles. Furthermore, this will expand the number of engine offerings for SCAQMD incentive programs, which will contribute toward lower emissions, particularly in environmental justice communities.

### **Sole Source Justification**

Section VIII.B.1 of the Procurement Policy and Procedure identifies provisions by which sole source awards may be justified. This request for a sole source award is made under provision B.2.c.: The desired services are available from only the sole-source based upon one or more of the following reasons: B.2.c.(1): The unique experience and capabilities of the proposed contractor or contractor team; B.2.c.(2): The project involves the use of proprietary technology; and B.2.c.(3): The contractor has ownership of key assets required for project performance. The contractor has significant investment as a manufacturer with over 40 years of experience. As a certified Ford Qualified Vehicle Manufacturer in alternative fuels and proven capability to develop and certify these Ford engines, Roush CleanTech provides a product with emission reductions and fueling options for medium-duty vehicles.

### Resource Impacts

SCAQMD's cost-share from the Clean Fuels Program Fund (31) will not exceed \$488,750. The estimated total project costs are \$1,955,000, as summarized below:

#### Proposed Project Cost-Share

<b>Funding Source</b>	<b>Funding Amount</b>	<b>% of Project</b>
Roush CleanTech	\$1,466,250	75
SCAQMD ( <i>requested</i> )	\$488,750	25
<b>Total</b>	<b>\$1,955,000</b>	<b>100</b>

Sufficient funds are available from the Clean Fuels Fund (31), 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.