


BOARD MEETING DATE: October 4, 2013

AGENDA NO. 9

PROPOSAL: Recognize Revenue and Execute Contracts for Development, Integration, and Demonstration of Ultra-Low Emission Natural Gas Engines for On-Road Heavy-Duty Vehicles 

SYNOPSIS: In May 2013, the Board released an RFP for the development, integration and demonstration of ultra-low emission natural gas engines for heavy-duty vehicles. Six proposals were received in response to the RFP. This action is to recognize up to \$5,000,000 in revenue from the CEC and Southern California Gas Company, and to execute contracts with Cummins Westport Inc. and Cummins Inc. to conduct engine development and demonstration activities at a total cost not to exceed \$7,000,000 from the Clean Fuels Fund (31).

COMMITTEE: Technology, September 20, 2013. Less than a quorum was present; the Committee Members concurred that this item be forwarded to the Board for consideration.

RECOMMENDED ACTIONS:

Authorize the Chairman to:

1. Recognize upon receipt up to \$4,000,000 from the CEC into the Clean Fuels Fund (31);
2. Recognize upon receipt up to \$1,000,000 from the Southern California Gas Company into the Clean Fuels Fund (31); and
3. Execute contracts from the Clean Fuels Fund (31) with:
 - a. Cummins Westport Inc. (CWI) to develop and demonstrate an ultra-low emission natural gas engine in an amount not to exceed \$3,500,000; and
 - b. Cummins Inc. to develop and demonstrate an ultra-low emission natural gas engine in an amount not to exceed \$3,500,000.

Barry R. Wallerstein, D.Env.
Executive Officer

Background

Heavy-duty on-road diesel vehicles are currently one of the largest sources of NOx emissions in the South Coast Air Basin. This source category is still projected to be one of the largest contributors to NOx emissions, even as the legacy fleet of older and higher polluting vehicles are retired from operation and replaced by the cleanest vehicles meeting the most stringent emission levels required by 2010 emissions standards. The 2012 AQMP showed that NOx reductions in excess of 60% will be needed from all source categories to meet future federal ambient air quality standards for ozone. The development of ultra-low emission natural gas engines would significantly reduce emissions from this on-road heavy-duty source category and assist the region in meeting federal ambient air quality standards in the future. To achieve this goal, staff worked closely with the CEC, So Cal Gas Company and the DOE to craft an RFP for the development of an ultra-low NOx emissions engine.

The objective of the RFP was to develop natural gas engines for on-road heavy-duty applications that would achieve NOx emission levels 90% lower than 2010 engine emission certification standards. The RFP required applicants to conduct development activities to achieve the emissions target, as well as durability testing to validate the robustness of their design. Once developed, these engines shall be emissions tested on both the Federal Test Procedure for emissions certification, as well as non-certification test cycles. The non-certification cycles will be representative of the real-world use in different vocations that are prevalent in the air basin. The use of vocational specific test cycles will provide additional insight towards the engine's real-life emission reduction potential. The program will ultimately conclude with the engines being integrated into on-road heavy-duty chassis and placed in commercial service to fully validate the performance and viability of the engines developed as part of this program.

Outreach

In accordance with SCAQMD's Procurement Policy and Procedure, a public notice advertising the RFP/RFQ and inviting bids was published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, and Riverside County Press Enterprise newspapers to leverage the most cost-effective method of outreach to the South Coast Basin.

Additionally, potential bidders may have been notified utilizing SCAQMD's own electronic listing of certified minority vendors. Notice of the RFP/RFQ has been emailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations, and placed on the Internet at SCAQMD's website (<http://www.aqmd.gov>). Information is also available on SCAQMD's bidder's 24-hour telephone message line (909) 396-2724.

Proposal Evaluations

Six proposals were received in response to RFP #P2013-22 by the deadline of July 24, 2013. The proposals were reviewed and evaluated by an eight-member panel in accordance with established SCAQMD guidelines, using technical and cost criteria outlined in the RFP. The eight-member evaluation panel consisted of two SCAQMD Air Quality Specialists with experience in private industry engine development and exhaust aftertreatment, a Technology Development Manager and Senior Technology Development Advisor from the Southern California Gas Company, two engineering advisors from the CEC, a Senior Combustion and Fuels Engineer from the DOE's National Renewable Energy Lab and a representative from CARB; two Asian, six Caucasian; eight male.

The proposals receiving a score of at least 56 out of 70 points were considered technically qualified and eligible for contract awards. Bidders were awarded additional evaluation points associated with the amount of requested funding and cost-share provided up to a maximum of 30 points. Upon evaluation, Cummins Westport Inc. and Cummins Inc. proposals received 87 and 82 points, respectively, while the remaining proposals scored less than the minimum 56 points required to be deemed technically acceptable by all panel members. The Cummins Westport Inc. and Cummins Inc. technical and cost scores are shown below.

	Proposal		Total
	Technical	Cost	
Cummins Westport Inc.	65	22	87
Cummins Inc.	62	20	82

Proposed Awards

Cummins Westport Inc. (CWI)

CWI is a joint venture company with 50/50 ownership by Cummins Inc. and Westport Innovations Inc. Established in 2001, CWI's objectives are to develop, commercialize and support alternative fueled engines for commercial vehicle applications. The CWI Product Engineering team has brought multiple natural gas engines to market dating back to the early 1990's, prior to the inception of CWI. The most recent product offerings include the 8.9L ISL G and 11.9L ISX G natural gas engines, which are currently being broadly used in our air basin in applications that include transit buses, refuse trucks and other class 8 vehicles. The organization follows the Cummins product development and commercialization process, which is focused on delivering robust products that meet critical customer requirements including emissions, performance, cost and quality. In addition, CWI has strong industry partners and end-users for this program. The proposed partners include Peterbilt, Autocar, New Flyer, Waste

Management, LA MTA, and Advanced Transit Vehicle Consortium. SCAQMD staff believes these attributes and partnerships will allow CWI to successfully meet the objectives of the program.

Staff proposes to execute a contract with CWI to develop and demonstrate an ultra-low emission 8.9L natural gas engine.

Cummins Inc.

Cummins Inc. is a Fortune 500 corporation and original equipment engine manufacturer that sells in 190 countries, with engines that span the displacement range between 5.9L to 95L. The Cummins Technical Center in Columbus, IN, consists of a multi-building complex with 378,000 sq. ft. of laboratory space. The Center has 88 test cells that cover all aspects of diesel engine and alternative fuel engine applications. These engine testing capabilities also include the ability to dynamically model the vehicle and test vehicle emissions and performance prior to installing the engine in a chassis.

Additionally, Cummins Inc. has assembled a strong project team that includes both industry leaders in their respective fields and relevant end-users operating in the SCAQMD air basin. The proposed partners include Peterbilt for chassis integration, Johnson Matthey for aftertreatment, UCR for in-use emissions testing, and California Cartage Company for the end-use demonstration. SCAQMD staff believes these strong partnerships, along with Cummins’ demonstrated capabilities, will result in a project that meets the goals identified in the RFP.

Staff proposes to execute a contract with Cummins Inc. to develop and demonstrate a 15L natural gas engine.

Benefits to SCAQMD

The proposed projects support the implementation of advanced alternative fuel technology that could potentially be used to further reduce NOx emissions from on-road heavy-duty vehicles. The proposed projects are included in the *Technology Advancement Office 2013 Plan Update* under “Engine Systems.”

Resource Impacts

The total cost for these two projects is estimated to be \$13,645,000, of which SCAQMD’s cost-share shall not exceed \$2,000,000. The contract with Cummins Westport Inc. shall not exceed \$3,500,000 and Cummins Westport will provide up to \$4,837,000 in cost-share. The Cummins Inc. contract shall not exceed \$3,500,000 and Cummins will provide up to \$1,808,000 in cost-share. The total estimated cost-share for these projects is shown in the table below:

Project Partners	Funding Amount	Funding %
CEC	\$4,000,000	29.3%
So Cal Gas Co.	\$1,000,000	7.3%
Cummins Westport Inc.	\$4,837,000	35.4%
Cummins Inc.	\$1,808,000	13.3%
SCAQMD Requested	\$2,000,000	14.7%
Total	\$13,645,000	100%

Sufficient funds for these two proposed projects 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.