

Item #11
May 4, 2011
Energy Commission Business Meeting

CUMMINS INC.

Grant Agreement ARV-10-044
for

Ultra-Low Carbon Powetrain Program

Summary

Cummins Inc. (Cummins) will develop a medium-duty hybrid truck engine optimized for E85 ethanol fuel with the primary goal of significantly reducing greenhouse gas (GHG) emissions while matching performance, economy and fuel cost of a diesel counterpart vehicle.

In order to deliver this level of GHG reduction, Cummins will employ three primary technology components. These include adapting a medium-duty engine specifically to use E85 fuel, reducing the engine size from 6.7L to 4.5L as a means to increase fuel efficiency, and developing an integrated start/stop system to improve fuel economy by eliminating engine idling.

Cummins proposes to develop a 4.5L engine leveraging on-going work from existing Cummins programs. The 4.5L alcohol fueled engine provides sufficient torque and power for a medium-duty application in Class 6 even without the electric motor associated with the hybrid system.

The Energy Commission is providing \$2,715,707 in Alternative and Renewable Fuel and Vehicle Transportation program funds. The project participants are providing a minimum of \$3,153,452 in additional match funding.

Benefits

Successful completion of this project may result in a new market for E85 fuel now dominated by gasoline and diesel.

E85 hybrid has GHG reduction potentials from 0-60 percent depending on the feed source used and the vehicle drive cycle. California produced corn ethanol would produce 10-20 percent reduction in GHG emissions.

Participants

Cummins is a major worldwide manufacturer capable of quickly commercializing this technology in California and worldwide through their existing network.

Implementation Schedule

The analysis and design work for the downsized 4.5L engine will be completed in the 3rd and 4th quarters of 2011 to support a development engine build in the 2nd quarter of 2012. The test cell demonstration of the power plant system will occur in the 1st and 2nd quarters of 2013.

CEQA

The Chief Counsel's Office has reviewed this project to determine what level of environmental review is necessary under the California Environmental Quality Act (CEQA) and recommends including a finding that the project is categorically exempt from further environmental review (see attached draft Notice of Exemption).

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