

State of California
AIR RESOURCES BOARD

Resolution 06-47

December 7, 2006

Agenda Item No.: 06-11-2

WHEREAS, the Air Resources Board has been directed to carry out an effective research program in conjunction with its efforts to combat air pollution, pursuant to Health and Safety Code Sections 39700 through 39705;

WHEREAS, a proposal Number 65, entitled "Development, Demonstration and Commercialization of a 0.20 g/bhp-hr NO_x Natural Gas Engine," has been submitted by Cummins Westport, Inc., in response to the 2006 Innovative Clean Air Technologies (ICAT) Program solicitation;

WHEREAS, the proposal has been independently reviewed for technical and business merit by highly qualified individuals; and

WHEREAS, the Research Division staff and the Executive Officer and Deputy Executive Officers have reviewed and recommend for funding:

Proposal Number 65, entitled "Development, Demonstration and Commercialization of a 0.20 g/bhp-hr NO_x Natural Gas Engine," submitted by Cummins Westport, Inc., for a total amount not to exceed \$250,000.

NOW, THEREFORE BE IT RESOLVED, that the Air Resources Board, pursuant to the authority granted by Health and Safety Code Section 39703, hereby approves the following:

Proposal Number 65, entitled "Development, Demonstration and Commercialization of a 0.20 g/bhp-hr NO_x Natural Gas Engine," submitted by Cummins Westport, Inc., for a total amount not to exceed \$250,000.

BE IT FURTHER RESOLVED, that the Executive Officer is hereby authorized to initiate administrative procedures and execute all necessary documents and agreements for the efforts proposed herein, and as described in Attachment A, in an amount not to exceed \$250,000.

I hereby certify that the above is a true and correct copy of Resolution 06-47, as adopted by the Air Resources Board.

Lori Andreoni, Clerk of the Board

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:

“Development, Demonstration and Commercialization of a 0.20 g/bhp-hr NO_x Natural Gas Engine”

Background

Cummins Westport Inc. intends to commercialize its next generation natural gas engine employing spark ignition (SI), cooled exhaust gas recirculation (EGR), and a three way catalyst (TWC). The SI/EGR technology combines the low emissions advantages of stoichiometric combustion and three-way catalyst technology with the high torque, durability and efficiency enabled by cooled EGR systems. Cummins Westport intends to commercialize this new technology on its 8.9 liter engine platform, which will be marketed as the “ISL G” engine. The proposed work includes ARB certification at 0.20 g/bhp-hr NO_x and 0.01 g/bhp-hr PM, with commercial availability beginning in April, 2007 for medium-duty and heavy-duty vehicle applications.

Objective

The objective of the project will be to demonstrate the feasibility of the SI/EGR technology in the medium duty truck applications.

Methods

Cummins Westport will equip and operate a medium-duty engine using the SI/EGR technology, and monitor operation and performance of the engine for 12 months.

Expected Results

It is expected that the 0.20 g/bhp-hr NO_x and 0.01 g/bhp-hr PM standards will be met in a medium-duty engine application using the Cummins Westport SI/EGR technology.

Significance to the Board

The Cummins Westport SI/EGR technology will provide another option for original equipment manufacturers (OEMs) to meet the ARB’s 2010 NO_x and PM standards.

Applicant: Cummins Westport Inc.

Project Period: April 2007 to April 2009

Principal Investigator: Scott Baker

ICAT Funding: \$250,000 (ARB: \$250,000, expected to be reimbursed by California Energy Commission)

Co-funding: \$760,500

Past Experience with This Principal Investigator:

None.

Prior ICAT Funding to 2006

Year	2005	2004	2003
Funding	0	0	0

BUDGET SUMMARY

Cummins Westport Inc

“Development, Demonstration, & Commercialization of a 0.20 g/hp-hr NOx Natural Gas Engine”

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$154,000	\$458,000
2. Employee Fringe Benefits	\$ 0	\$ 90,000
3. Subcontractors	\$ 0	\$ 0
4. Equipment	\$ 0	\$100,000
5. Travel and Subsistence	\$ 8,000	\$ 11,500
6. Materials and Supplies	\$ 25,000	\$ 25,000
7. Other Direct Costs	<u>\$ 63,000</u>	<u>\$126,000</u>
Total	\$250,000	\$ 810,500
 <u>Indirect Costs</u>		
1. Overhead	\$ 0	\$200,000
2. Other Indirect Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	<u>\$ 0</u>	<u>\$200,000</u>
Total Project Costs	\$250,000	\$1,010,500