

State of California  
AIR RESOURCES BOARD

Resolution 06-56

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 8, entitled "Particle Measurement Devices" has been submitted by Environmental Systems Products Holdings, 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 8, entitled "Particulate Measurement Devices," submitted by Environmental Systems Products Holdings, 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 8, entitled "Particulate Measurement Devices," submitted by Environmental Systems Products Holdings, 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 06-56, as adopted by the Air Resources Board.

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Lori Andreoni, Clerk of the Board

## ATTACHMENT A

### Innovative Clean Air Technologies (ICAT) Grant Proposal: “Particulate Measurement Devices”

#### **Background**

Environmental Systems Products Holdings, Inc. (ESP) has developed a technology called an electronic tailpipe PM sensor (or ETaPS) that measures particle mass emissions down to 10 nm from motor vehicles. The ETaPS measures PM active surface area using a simple electrostatic method. Particles in vehicular exhaust are charged with a corona discharge. This charge can be measured, the magnitude of which is proportional to the particle mass. The commercial availability of an instrument such as ETaPS would allow the consideration of an Inspection and Maintenance (I&M) program for PM emissions from motor vehicles.

#### **Objective**

The objective of the project will be to demonstrate the ability of the ETaPS instrument to measure particulate emissions from diesel exhaust at a level of accuracy commensurate with the standard filter-based gravimetric method.

#### **Methods**

ESP will test a number of heavy-duty diesel vehicles over an engine dynamometer and measure the emissions using both the ETaPS instrument and the standard filter-based gravimetric method that is used for engine certification purposes. ESP will then develop correlations between the emissions measurements given by the two methods to demonstrate the ability of the ETaPS instrument to give accurate PM emission measurements.

#### **Expected Results**

It is expected that the ETaPS method will be demonstrated to be able to accurately measure PM emissions from heavy-duty diesel vehicles.

#### **Significance to the Board**

Due to the relative simplicity of the ETaPS method, its demonstration would allow the consideration of an inspection and maintenance (I&M) program for particulate emissions from motor vehicles.

**Applicant:** Environmental Systems Products Holdings Inc.

**Project Period:** April 2007 to September 2008

**Principal Investigator:** Charles M. Sulik

**ICAT Funding:** \$250,000 (ARB: \$125,000, SCAQMD: \$125,000)

**Co-funding:** \$254,614

**Past Experience with This Principal Investigator:**

None.

**Prior ICAT Funding to 2006**

Year	2005	2004	2003
Funding	0	0	0

## BUDGET SUMMARY

Environmental Systems Products Holdings Inc.

### “Particulate Measurement Devices”

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$131,720	\$163,440
2. Employee Fringe Benefits	\$ 23,699	\$ 47,398
3. Subcontractors	\$ 35,520	\$ 51,040
4. Equipment	\$ 0	\$ 0
5. Travel and Subsistence	\$ 1,977	\$ 3,955
6. Materials and Supplies	\$ 57,084	\$ 76,436
7. Other Direct Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	\$250,000	\$342,269
 <u>Indirect Costs</u>		
1. Overhead	\$ 0	\$162,345
2. Other Indirect Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	<u>\$ 0</u>	<u>\$162,345</u>
<b>Total Project Costs</b>	<b>\$250,000</b>	<b>\$504,614</b>