State of California
AIR RESOURCES BOARD

Resolution 08-09

January 24, 2008

Agenda Item No.: 08-1-4

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 entitled "High Accuracy Mobile Emissions Laboratory" has been submitted by Los Gatos Research in response to the 2007 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 entitled "High Accuracy Mobile Emissions Laboratory," submitted by Los Gatos Research, for a total amount not to exceed $77,996.

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 entitled "High Accuracy Mobile Emissions Laboratory," submitted by Los Gatos Research, for a total amount not to exceed $77,996.

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 $77,996.

I hereby certify that the above is a true and correct copy of Resolution 08-9, as adopted by the Air Resources Board.

Lori Andreoni

Lori Andreoni, Clerk of the Board

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:

"High Accuracy Mobile Emissions Laboratory"

Background

Los Gatos Research (LGR) has developed and patented laser-based instruments, which are based on the use of high-finesse optical cavities as measurement cells, for real-time measurements of important greenhouse gases and pollutants in ambient air. LGR's patented technology provides optical path lengths of tens of kilometers to allow gas concentration measurements with unprecedented sensitivity, accuracy, and precision in a compact package. LGR has incorporated these instruments, along with global positioning, ambient temperature, gas velocity and pressure and relative humidity monitors, into a vehicle (e.g., hybrid van) that will be used to record real-time measurements of critical atmospheric gases at several urban and rural locations throughout California. This 'Mobile Lab' will enable detailed measurements and long-term monitoring of mobile and fixed-location emissions and pollutant sources with unprecedented accuracy, precision and sensitivity. In addition, the on-board instrumentation will be autonomous, easy to use, and automatically store and report data to a central station.

Objective

The objective of the project is to demonstrate, in a mobile vehicle, field-ready state-of-the-art gas analyzers for autonomous measurements of critical greenhouse gases and pollutants with high accuracy and sensitivity.

Methods

The vehicle (hybrid van or truck) containing the analyzers will serve as a mobile laboratory (Mobile Lab) and allow measurements at any site without extensive operator training. Measurements will be recorded within minutes of arriving at a new measurement site. The Mobile Lab will be used to monitor hot spots, for compliance monitoring, cap and trade, and for pollutant credits accounting, at several locations throughout California. In this project, LGR will quantify the ability of the Mobile Lab to record and report measurements in real time with high accuracy. In addition, LGR will work with the ARB research personnel to determine the most important urban and rural locations to monitor (candidate locations include agricultural areas around San Joaquin Valley, manufacturing facilities in Los Angeles, and around the Sacramento Delta) for extended studies.

Expected Results

It is expected that the project will demonstrate the usefulness and feasibility of a mobile emissions laboratory based on the LGR patented laser-based gas analyzers.

Significance to the Board

The proposed Mobile Laboratory will allow ARB to measure several important greenhouse gases and pollutants, including methane, carbon dioxide, and stable isotopes of carbon dioxide, carbon monoxide, and nitrogen dioxide, at the source and in ambient air, in real time with high frequency. Furthermore, the proposed Mobile Laboratory will substantially reduce the cost and improve the ease of obtaining data on the concentration of pollutants in ambient air, indoor air, or at the point of emission. The proposed mobile laboratory will be useful in California for emission control or prevention or air monitoring and its commercialization will provide economic benefits to California.

Applicant: Los Gatos Research

Project Period: April, 2008 to September, 2009

Principal Investigator: Doug Baer

ICAT Funding: $77,996

Co-funding: $189,618

Past Experience with This Principal Investigator:

None.

Prior ICAT Funding to 2007

Year	2006	2005	2004
Funding	0	0	0

BUDGET SUMMARY

Los Gatos Research

"High Accuracy Mobile Emissions Laboratory"

Direct Costs and Benefits	**ICAT**	**Total**
1. Labor	$ 47,909	$ 47,909
2. Employee Fringe Benefits	$ 30,087	$ 30,087
3. Subcontractors	$ 0	$ 0
4. Equipment	$ 0	$163,725
5. Travel and Subsistence	$ 0	$ 0
6. Materials and Supplies	$ 0	$ 0
7. Other Direct Costs	$ 0	$ 0
Total	$ 77,996	$241,721
Indirect Costs		
1. Overhead	$ 0	$ 17,315
2. Other Indirect Costs	$ 0	$ 8,578
Total	$ 0	$ 25,893
Total Project Costs	**$ 77,996**	**$267,614**