



PUBLIC MEETING AGENDA

February 24-25, 2005

9:00 a.m./8:30 a.m.

Agenda Items to be heard;

05-2-1, 05-2-2, 05-2-3,

05-2-4, 05-2-5

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ELECTRONIC BOARD BOOK

LOCATION:

Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814

PUBLIC MEETING AGENDA

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(This facility is accessible to persons with disabilities.)

February 24 - 25, 2005

9:00 a.m./8:30 a.m.

Agenda
Item #

05-2-1 Report to the Board on a Health Update - Association Between Exposure to Traffic and Heart Disease

Staff will present the results of a study that found an association between exposure to traffic and onset of a heart attack within one hour afterwards. This study, which was carried out in Germany, found that the time spent in cars, on public transportation, motorcycles or bicycles was consistently linked with an increase in the risk for a heart attack.

05-2-2 Public Board Hearing to Consider Proposed Modifications to the Fleet Rule for Transit Agencies and the Addition of Requirements for Transit Fleet Vehicles

Transit agencies have been required, since 2001, to reduce NOx and PM emissions from their urban buses. Staff believes it is appropriate and necessary to add requirements for transit agencies to reduce emissions from the buses and trucks they own or operate but which are not covered under the current rule. In addition, staff is proposing several clean-up amendments for the rules that apply to transit agencies. Staff's proposal has five elements: new NOx and PM fleet emission standards for buses and trucks owned and operated by public transit agencies that are not urban buses, which staff terms "transit fleet vehicles"; new sections to address the issue of a schedule for emission reductions for a new transit agency established after adoption of the regulations; addition of a diesel PM fleet standard applicable to urban buses to allow for fleet growth while maintaining emission reductions; clarifying language for the adopted 2004 to 2006 model year diesel hybrid electric urban bus engine standard to address non-methane hydrocarbon, carbon monoxide, and formaldehyde emission standards; and renumbering of existing Fleet Rule for Transit Agencies [title 13, California Code of Regulations (CCR), sections 1956.2-1956.4], currently located with engine emission standards, to new sections set aside for rules controlling diesel particulate emissions from fleets.

05-2-3 Public Meeting to Consider the Approval of New Grants Under the Innovative Clean Air Technologies (ICAT) Program

In response to a public solicitation of applications, the ARB staff has received 14 project proposals that are complete and eligible for ICAT grants. The proposals have been reviewed for the quality of their innovative technologies, their potentials for reducing air pollution and for commercial application in California, their potential economic benefits for California, the quality of the proposed demonstration projects, and their value to ARB's programs.

05-2-4 Public Meeting to Update the Board on Port Emission Reduction Activities

This agenda item is an update to the Board on activities to address port related air emissions. Staff will discuss current and planned regulatory efforts to reduce emissions from ocean-going vessels, harbor craft, and cargo handling equipment. Staff will also discuss voluntary efforts and incentive-based approaches to reduce port truck and ocean-going vessel emissions on an accelerated schedule.

05-2-5 Public Meeting to Update the Board on Locomotive Emission Reduction Activities

This agenda item is an update to the Board on activities to address locomotive related air emissions. Staff will discuss current and planned regulatory efforts to reduce emissions from locomotives in California. Staff will also discuss the results from the Roseville Rail Yard risk assessment that was completed in 2004.

TO SUBMIT WRITTEN COMMENTS ON AN AGENDA ITEM IN ADVANCE OF THE MEETING:

**CONTACT THE CLERK OF THE BOARD, 1001 I Street, 23rd Floor, Sacramento, CA 95814 your welcome
(916) 322-5594**

FAX: (916) 322-3928
ARB Homepage: www.arb.ca.gov

To request special accommodation or language needs, please contact the following:

- TTY/TDD/Speech-to-Speech users may dial 7-1-1 for the California Relay Service.
- Assistance for Disability-related accommodations, please go to <http://www.arb.ca.gov/html/ada/ada.htm> or contact the Air Resources Board ADA Coordinator, at (916) 323-4916.
- Assistance in a language other than English, please go to <http://www.arb.ca.gov/as/eo/languageaccess.htm> or contact the Air Resources Board Bilingual Coordinator, at (916) 324-5049.

OPEN SESSION TO PROVIDE AN OPPORTUNITY FOR MEMBERS OF THE PUBLIC TO ADDRESS THE BOARD ON SUBJECT MATTERS WITHIN THE JURISDICTION OF THE BOARD.

Although no formal Board action may be taken, the Board is allowing an opportunity to interested members of the public to address the Board on items of interest that are within the Board's jurisdiction, but that do not specifically appear on the agenda. Each person will be allowed a maximum of five minutes to ensure that everyone has a chance to speak.

THOSE ITEMS ABOVE THAT ARE NOT COMPLETED ON FEBRUARY 24 WILL BE HEARD BEGINNING AT 8:30 A.M. ON FEBRUARY 25.

THE AGENDA ITEMS LISTED ABOVE MAY BE CONSIDERED IN A DIFFERENT ORDER AT THE BOARD MEETING.

SMOKING IS NOT PERMITTED AT MEETINGS OF THE CALIFORNIA AIR RESOURCES BOARD

LOCATION:

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Byron Sher Auditorium Second Floor
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PUBLIC MEETING AGENDA

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February 24 - 25, 2005

9:00 a.m./8:30 a.m.

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TITLE 13. CALIFORNIA AIR RESOURCES BOARD

NOTICE OF PUBLIC HEARING TO CONSIDER PROPOSED MODIFICATIONS TO THE FLEET RULE FOR TRANSIT AGENCIES AND NEW REQUIREMENTS FOR TRANSIT FLEET VEHICLES

The Air Resources Board (the Board or ARB) will conduct a public hearing at the time and place noted below to consider adoption of amendments to the Fleet Rule for Transit Agencies. The amendments would establish new requirements for vehicles owned or operated by transit agencies that are not currently covered by the Fleet Rule, add a new definition for commuter service buses, add requirements for newly formed transit agencies, modify the urban bus particulate matter (PM) fleet standard to allow for fleet growth, modify the urban bus engine emission standard for 2004 to 2006 model year diesel hybrid-electric bus engines to clarify the standards, and make structural changes that move the existing Fleet Rule for Transit Agencies from sections devoted to new engine emission standards to a new section set aside for the regulation of fleet diesel particulate emissions. This notice summarizes the significant amendments. The Initial Statement of Reasons, or staff report, presents all of the proposed amendments in greater detail.

DATE: February 24, 2005

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Air Resources Board
Byron Sher Auditorium, Second Floor
1001 I Street
Sacramento, California 95814

This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., February 24, 2005, and may continue at 8:30 a.m., February 25, 2005. This item may not be considered until February 25, 2005. Please consult the agenda for the meeting, which will be available at least ten days before February 24, 2004, to determine the day on which this item will be considered.

If you have a disability-related accommodation need, please go to <http://www.arb.ca.gov/html/ada/ada.htm> for assistance or contact the ADA Coordinator at (916) 323-4916. If you are a person who needs assistance in a language other than English, please contact the Bilingual Coordinator at (916) 324-5049. TTY/TDD/Speech-to-Speech users may dial 7-1-1 for the California Relay Service.

INFORMATIVE DIGEST OF PROPOSED ACTION AND POLICY STATEMENT OVERVIEW

Sections Affected: Proposed adoption of sections 2023, 2023.1, 2023.2, 2023.3, 2023.4; amendment of sections 1956.1, 2020, 2021; and repeal of sections 1956.2, 1956.3, 1956.4, title 13, California Code of Regulations (CCR).

Background: In February 2000, the Board confirmed its continued commitment to improving emissions from public transportation by establishing a new fleet rule for transit agencies and more stringent emission standards for new urban bus engines and vehicles. The Board directed staff to report back regularly on implementation progress and to develop a test procedure to certify hybrid-electric urban buses (HEBs). Staff reported back to the Board at its September 20, 2001, and March 21, 2002, public meetings.

As instructed by the Board, staff developed modifications to the fleet rule for transit agencies and a new test procedure for certification of HEBs, which were adopted at the October 24, 2002, public hearing. Subsequently, the Board approved further modifications at the June 24, 2004, hearing, to allow any transit agency on the diesel path to purchase diesel hybrid electric buses at a higher oxides of nitrogen (NOx) emission level, provided that the transit agency offset the higher NOx emissions through actions to reduce NOx emissions from other buses in its fleet. In addition, the June 24, 2004, amendments adjusted the zero emission bus demonstration requirements to better reflect the actual evolution of the relevant technology and markets.

Proposed Actions: Staff is proposing to expand the fleet rule to include smaller diesel and alternative-fueled buses, commuter buses, and heavy-duty trucks owned or operated by transit agencies. The affected vehicles are called transit fleet vehicles, and would be subject to a fleet average NOx limit and PM reduction requirement, phased-in between 2007 and 2010. These standards can be met by using verified retrofit technology, installing newer engines, or replacement of vehicles. About 4000 vehicles, which is about 25 percent of all the vehicles owned or operated by transit agencies, would be affected. The engines used in newly purchased transit fleet vehicles would remain subject to the on-road heavy-duty truck engine exhaust emission standards.

Staff's proposal would require transit agencies to reduce emissions from transit fleet vehicles. By December 31, 2007, transit agencies must reduce PM emissions of transit fleet vehicles by 40 percent relative to their January 1, 2005, baseline, and reduce average NOx emissions to 3.2 grams per brake horsepower-hour (g/bhp-hr). By December 31, 2010, the transit agencies would be required to reduce PM fleet emissions by 80 percent relative to their January 1, 2005, baseline, and achieve average NOx fleet emissions of 2.4 g/bhp-hr.

As a part of these changes, staff is proposing to add a definition for a commuter service bus, which is a subcategory of a transit fleet vehicle. A commuter service bus is a bus that would otherwise meet the definition of an urban bus except that its duty cycle includes very little of the stop-and-go operations of an urban bus. This definition is necessary to clarify existing policy regarding when a commuter service bus is not subject to the urban bus new engine emission standards and requirements in the fleet rule for transit agencies. In this case, a commuter service bus will be classified as a transit fleet vehicle, not an urban bus. This definition codifies existing policy based on a guidance issued in 2001.

Another proposed amendment concerns newly formed transit agencies. The fleet rule for transit agencies is currently silent on how a newly formed transit agency is to comply with the existing rule, which has requirements that began as early as 2001. The new proposed language will clarify how new transit agencies are to comply.

Staff is also proposing to amend the PM reduction schedule for urban buses. At its October 2002 hearing, the Board modified the mechanism used by transit agencies to reduce diesel PM emissions from urban buses in recognition of the lack of available retrofit technology originally projected to be available for PM reduction from all diesel fuelled urban buses. After working with the transit agencies, staff recognized that the new PM reduction requirements did not allow for fleet growth after 2007 (diesel path agencies) or 2009 (alternative-fuel path agencies) when the transit agencies were to have reduced total fleet PM emissions to 15 percent of their January 1, 2002, baseline PM emissions. Staff is proposing to modify the urban bus PM fleet standard to allow for fleet growth while maintaining emission reductions.

Another modification is being proposed to clarify standards that were inadvertently left out of the amendments adopted at the June 2004 Board hearing. The new engine emission standards for 2004 to 2006 model year diesel hybrid-electric urban buses provide specific language for NO_x and PM engine exhaust emission standards, but are silent on exhaust emission standards for carbon monoxide, hydrocarbon, and formaldehyde. Staff is proposing language to clarify the engine exhaust emission standards for these pollutants.

Finally, staff is proposing a codification change to move the existing fleet rule for transit agencies from title 13, CCR, sections 1956.2-1956.4, currently located with the engine emission standards, to new sections set aside for controlling diesel particulate emissions from fleets in title 13, CCR, section 2020, 2023 to 2023.4.

COMPARABLE FEDERAL REGULATIONS

There are no comparable federal regulations that reduce emissions from in-use urban buses or other buses and vehicles owned or operated by transit agencies.

AVAILABILITY OF DOCUMENTS AND AGENCY CONTACT PERSONS

The Board staff has prepared a Staff Report: Initial Statement of Reasons (ISOR) for the proposed regulatory action, which includes a summary of the economic and environmental impacts of the proposal. The report is titled: "Proposed Modifications to the Fleet Rule for Transit Agencies: Addition of Proposed Requirements for Transit Fleet Vehicles."

Copies of the ISOR and the full text of the proposed regulatory language, in underline and strikeout format to allow for comparison with the existing regulations, may be accessed on ARB's web site listed below, or may be obtained from the Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, 1st Floor, Sacramento, California 95814, (916) 322-2990 at least 45 days prior to the scheduled hearing February 24, 2005.

Upon its completion after the Board hearing, the Final Statement of Reasons (FSOR) will be available and copies may be requested from the agency contact persons in this notice, or may be accessed on ARB's web site listed below.

Inquiries concerning the substance of the proposed regulation may be directed to Ms. Kathleen Mead, Air Pollution Specialist, by email at kmead@arb.ca.gov or by phone at (916) 324-9550, or to Dr. Nancy L.C. Steele, Manager, by email at nsteele@arb.ca.gov or by phone at (626) 350-6598.

Further, the agency representative and designated back-up contact persons to whom nonsubstantive inquiries concerning the proposed administrative action may be directed are Artavia Edwards, Manager, Board Administration & Regulatory Coordination Unit, (916) 322-6070, or Amy Whiting, Regulations Coordinator, (916) 322-6533. The Board has compiled a record for this rulemaking action, which includes all the information upon which the proposal is based. This material is available for inspection upon request to the contact persons.

This notice, the ISOR and all subsequent regulatory documents, including the FSOR, when completed, are available on ARB Internet site for this rulemaking at <http://www.arb.ca.gov/regact/bus04/bus04.htm>.

COSTS TO PUBLIC AGENCIES AND TO BUSINESSES AND PERSONS AFFECTED

The determinations of the Board's Executive Officer concerning the costs or savings necessarily incurred by public agencies and private persons and businesses *in reasonable compliance with the proposed regulations* are presented below.

Pursuant to Government Code sections 11346.5(a)(5) and 11346.5(a)(6), the Executive Officer has determined that the proposed regulatory action will not create costs or savings to any state agency or in federal funding to the state, costs or mandate to any local non-transit agency or school district whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, or other nondiscretionary savings to state or local agencies.

The proposed regulation would impose fiscal impacts on local public transit agencies. All direct costs that will be required to comply with staff's proposal and achieve emissions reductions will only impact public transit agencies. Staff estimates that the proposed regulation will cost \$12.8 million to \$26.7 million overall, with an average estimate of just under \$19 million (in 2005 dollars) over the lifetime of the regulation. In addition, transit agencies can be expected to experience relatively minor impacts due to additional record-keeping and auditing requirements.

In developing this regulatory proposal, ARB staff evaluated the potential economic impacts on representative private persons or businesses. It is possible that *transit passengers may experience slight increases in fares or other fees* as an indirect result of relatively small increases in transit agency costs.

The Executive Officer has made an initial determination that the proposed regulatory action will not have a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states, or on representative private persons. There are no associated costs for business, only for local public transit agencies. Staff expects there will be benefits to those businesses that produce or sell new vehicles or engines, and retrofit technology.

In accordance with Government Code section 11346.3, the Executive Officer has determined that the proposed regulatory action will not result in the elimination of jobs within the State of California, or the elimination of existing businesses within the State of California. It is possible that the proposed regulatory action may lead to the creation of a few jobs or new businesses, or the slight expansion of existing businesses, in California. A detailed assessment of the economic impacts of the proposed regulatory action can be found in the ISOR.

The Executive Officer has also determined, pursuant to title 1, CCR, section 4, that the proposed regulatory action will not affect small businesses because the modifications do not directly affect any businesses.

In accordance with Government Code sections 11346.3(c) and 11346.5(a)(11), the Executive Officer finds that the reporting requirements of the regulation that apply to businesses are necessary for the health, safety, and welfare of the people of the State of California.

Before taking final action on the proposed regulatory action, the Board must determine that no reasonable alternative considered by the Board or that has otherwise been identified and brought to the attention of the Board would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.

BENEFITS OF THE PROPOSAL

ARB staff estimates that in 2010 the proposed amendments would result in the reduction of 44 pounds per day (lbs/day) of diesel PM, 0.19 tons per day (tpd) of NOx, 0.04 tpd of HC, and 0.04 tpd of CO emissions. In 2020, staff estimates reductions of 47 lbs/day of diesel PM, 0.31 tpd of NOx, 0.07 tpd of HC, and 0.05 tpd of CO emissions. The PM reductions represent a 43 percent and 81 percent reduction in 2010 and 2020, respectively, from the 2000 baseline emissions. NOx is reduced 29 percent in 2010 and 83 percent in 2020 from the 2000 baseline emissions.

ARB staff estimates that approximately 11 premature deaths would be avoided by 2020 as a result of emission reductions obtained through this regulation. The proposed regulation will reduce PM emissions by a cumulative amount of 140 tons by the end of year 2020, and therefore prevent an estimated 10 premature deaths (5 to 15, 95 percent confidence interval (95% CI)) by year 2020. In addition, staff estimates that the proposed regulation will accrue a cumulative reduction of 620 tons of NOx by the end of 2020, therefore avoiding an estimated one premature death (0 to 1, 95% CI).

The estimated cost of the proposed regulatory amendments is \$0.90 to \$1.90 per pound of NOx and \$42 to \$88 per pound for PM. These values are within the range of recently adopted regulations.

Staff calculated the value of avoiding one premature death, arriving at a range from \$4 million to \$6 million (in 2004 dollars). For the proposed regulation, the estimated cost of control per premature death prevented is about \$1.5 million to \$2 million for this proposal which is about three times lower the United States Environmental Protection Agency's benchmark for value of avoided death. This

rule is, therefore, a cost-effective mechanism to reduce premature deaths that would otherwise be caused by diesel emissions without this regulation.

SUBMITTAL OF COMMENTS

The public may present comments relating to this matter orally or in writing at the hearing, and in writing or by e-mail before the hearing. To be considered by the Board, written submissions not physically submitted at the hearing must be received **no later than 12:00 noon, February 23, 2005**, and addressed as follows:

Postal mail is to be sent to:

Clerk of the Board
Air Resources Board
1001 I Street, 23rd Floor
Sacramento, California 95814

Electronic mail is to be sent to: **bus04@listserv.arb.ca.gov** and received at the ARB **no later than 12:00 noon, February 23, 2005**.

Facsimile transmissions are to be transmitted to the Clerk of the Board at (916) 322-3928 and received at the ARB **no later than 12:00 noon February 23, 2005**.

The Board requests but does not require that 30 copies of any written statement be submitted and that all written statements be filed at least 10 days prior to the hearing so that ARB staff and Board Members have time to fully consider each comment. The Board encourages members of the public to bring to the attention of staff in advance of the hearing any suggestions for modification of the proposed regulatory action.

STATUTORY AUTHORITY AND REFERENCES

This regulatory action is proposed under that authority granted in Health and Safety Code sections 39600, 39601, 39659, 39667, 39701, 41511, 43013, 43018, 43100, 43101, 43104, 43701(b) and 43806, and section 28114 of the Vehicle Code. This action is proposed to implement, interpret and make specific sections 39002, 39003, 39017, 39018, 39033, 39500, 39650, 39657, 39667-39675, 39700, 39701, 40000, 41510, 41511, 43000, 43000.5, 43009, 43013, 43018, 43101, 43102, 43104, 43105, 43700, 43701(b), 43801, 43806 of the Health and Safety Code, and sections 233 and 28114 of the Vehicle Code.

HEARING PROCEDURES

The public hearing will be conducted in accordance with the California Administrative Procedure Act, Title 2, Division 3, Part 1, Chapter 3.5 (commencing with section 11340) of the Government Code.

Following the public hearing, the Board may adopt the regulatory language as originally proposed, or with non-substantial or grammatical modifications. The Board may also approve the proposed regulatory language with other modifications if the text as modified is sufficiently related to the originally proposed text that the public was adequately placed on notice that the regulatory language as modified could result from the proposed regulatory action; in such event the full regulatory text, with the modifications clearly indicated, will be made available to the public, for written comment, at least 15 days before it is adopted.

The public may request a copy of the modified regulatory text from the ARB's Public Information Office, Air Resources Board, 1001 I Street, Visitors and Environmental Services Center, 1st Floor, Sacramento, California 95814, (916) 322-2990.

CALIFORNIA AIR RESOURCES BOARD

A handwritten signature in cursive script that reads "Catherine Witherspoon for".

Catherine Witherspoon
Executive Officer

Date: December 28, 2004

CALIFORNIA AIR RESOURCES BOARD**NOTICE OF PUBLIC MEETING TO CONSIDER THE APPROVAL OF GRANTS
UNDER THE INNOVATIVE CLEAN AIR TECHNOLOGIES (ICAT) PROGRAM**

DATE: February 24, 2005

TIME: 9:00 a.m.

PLACE: California Environmental Protection Agency
Byron Sher Auditorium
1001 I Street
Sacramento, California

This item will be considered at a two-day meeting of the Board, which will commence at 9:00 a.m., February 24, 2005, and may continue at 8:30 a.m., February 25, 2005. This item may not be considered until February 25, 2005. Please consult the agenda for the meeting, which will be available at least 10 days before February 24, 2005, to determine the day on which this item will be considered.

If you have special accommodation or language needs, please contact the ARB's Clerk of the Board at (916) 322-5594 or landreon@arb.ca.gov as soon as possible. TTY/TDD/Speech-to-Speech users may dial 7-1-1 for the California Relay Service.

The Board's ICAT program co-funds demonstrations of new technologies that can improve air quality in California and support ARB programs while helping to stimulate the state's economy. The ARB staff will recommend that the Board approve co-funding for four projects that were received in response to a public solicitation. Three of these projects were selected because they address important ARB program needs, are technically sound, can reduce emissions, and can succeed commercially within a few years. The fourth project was selected because it matches the Board's goal of improving the availability of inexpensive and easily used instruments for measuring air quality. The Board will consider proposed resolutions to approve co-funding for these projects at its meeting.

The ARB staff will provide an oral presentation at the meeting. Interested members of the public may present comments orally or in writing at the meeting and in writing or by email before the meeting. To be considered by the Board, written submissions not physically submitted at the meeting must be received no later than **12:00 noon, February 23, 2005**, and be addressed to the following.

Postal mail is to be sent to:


Clerk of the Board
Air Resources Board
1001 "I" Street, 23rd Floor
Sacramento, California 95814

Electronic mail is to be sent to icat05@listserv.arb.ca.gov and received at the ARB no later than **12:00 noon, February 23, 2005.**

Facsimile submissions are to be transmitted to the Clerk of the Board at (916) 322-3928 and received at the ARB no later than **12:00 noon, February 23, 2005.**

The Board requests, but does not require, 30 copies of any written submission. Also, the ARB requests that written and email statements be filed at least ten days prior to the meeting so that ARB staff and Board members have time to fully consider each comment. Further inquiries regarding this matter should be directed to Mr. Bart E. Croes, P.E., Chief, Research Division, P.O. Box 2815, Sacramento, California 95812, (916) 445-0753.

CALIFORNIA AIR RESOURCES BOARD


Catherine E. Witherspoon
Executive Officer

Date: February 9, 2004

PROPOSED**State of California
AIR RESOURCES BOARD****Resolution 05-16
February 24, 2005****Agenda Item No.:05-2-3**

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 05-06, entitled "A Low-Cost Ultra-fine Particle Concentration Monitor", has been submitted by Aerosol Dynamics, Inc., in response to the 2005 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 05-06, entitled "A Low-Cost Ultra-fine Particle Concentration Monitor", submitted by Aerosol Dynamics, Inc., for a total amount not to exceed \$80,000.

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 05-06, entitled "A Low-Cost Ultra-fine Particle Concentration Monitor", submitted by Aerosol Dynamics, Inc., for a total amount not to exceed \$80,000.

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 \$80,000.

ATTACHMENT A**Innovative Clean Air Technologies (ICAT) Grant Proposal:
"A Low-Cost Ultra-fine Particle Concentration Monitor"****Background**

Aerosol Dynamics has proposed a compact, low-cost instrument for real-time measurement of the counts of ultrafine airborne particles. The instrument will use water as a working fluid, as opposed to the smelly and flammable butanol used in other instruments that perform a similar function. Also, it is expected to have advantages of smaller size, lower cost, reduced maintenance needs, and simpler use than other instruments.

Objective

The project is intended to demonstrate performance comparable to that of commercially available particle counters.

Methods

The ICAT project will consist of:

- (1) fabrication, refinement and laboratory testing of the proposed instrument
- (2) field validation versus laboratory-grade instruments at several sites in California, with instrument refinement
- (3) data submittal and reporting

Expected Results

A relatively low-cost, simple, and safe particle counter should be ready for commercial production.

Significance to the Board

Researchers or organizations concerned about the nature of ultrafine PM, indoors or outdoors, would have a device that could be widely applied to monitor the number concentration of PM. If coupled with a size-discriminating device, the new instrument would allow the characterization of PM by size.

Applicant: Aerosol Dynamics, Inc. (Berkeley, California)

Project Period: February 28, 2005, to May 28, 2006

Principal Investigator: Dr. Suzanne Hering, President

ICAT Funding: \$80,000

Co-funding : \$80,000

Past Experience with This Principal Investigator:

Prior ICAT Funding to 2005

Year	2004	2003	2002
Funding	0	0	0

BUDGET SUMMARY

Aerosol dynamics, Inc.

"A Low-Cost Ultra-fine Particle Concentration Monitor"

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$ 31,600	\$ 60,030
2. Employee Fringe Benefits	\$ 15,320	\$ 21,490
3. Subcontractors	\$ 0	\$ 0
4. Equipment	\$ 0	\$ 12,000
5. Travel and Subsistence	\$ 71	\$ 3,166
6. Materials and Supplies	\$ 131	\$ 5,375
7. Other Direct Costs	\$ 0	\$ 0
Total	\$ 47,142	\$102,511
<u>Indirect Costs</u>		
1. Overhead	\$ 32,858	\$ 57,489
2. Other Indirect Costs	\$ 0	\$ 0
Total	\$ 32,858	\$ 57,489
Total Project Costs	\$ 80,000	\$160,000

PROPOSED**State of California
AIR RESOURCES BOARD****Resolution 05-17
February 24, 2005****Agenda Item No.: 05-2-3**

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 05-18, entitled "Electric Diesel Particulate Filter Demonstration", has been submitted by Cleaire Advanced Emission Controls, LLC, in response to the 2005 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 05-18, entitled "Electric Diesel Particulate Filter Demonstration", submitted by Cleaire Advanced Emission Controls, LLC, for a total amount not to exceed \$71,400.

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 05-18, entitled "Electric Diesel Particulate Filter Demonstration", submitted by Cleaire Advanced Emission Controls, LLC, for a total amount not to exceed \$71,400.

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 \$71,400.

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:
“Electric Diesel Particulate Filter Demonstration”

Background

Cleaire will transfer, from stationary engines in Europe to heavy-duty truck engines, plug-in electric regeneration of passive diesel particulate filters.

Objective

The project should demonstrate that passive filtration with plug-in regeneration is a practical technology for centrally-garaged heavy-duty vehicles that are not suitable for retrofits with active (catalytic) particulate filters.

Methods

The project will begin with constructing a prototype on-board passive filter and controls suitable for the demonstration vehicles. The next step will be to design and install a regeneration station at the host site(s). Cleaire will then install the filters and data-loggers on several older vehicles, including a school bus and utility truck. Operating parameters such as back-pressure will be collected and analyzed periodically. After a six-month durability period, the emission performance of the filters will be measured at a chassis dynamometer laboratory.

Expected Results

The project should show that retrofit filters suitable for entry into the ARB's Diesel Emission Control Strategies Verification program can be regenerated electrically.

Significance to the Board

The technology should provide a practical retrofit option for diesel trucks that are subject to current and forthcoming regulations but are not suitable for the passive particulate filters that are being installed on most types trucks.

Applicant: Cleaire Advanced Emission Controls, LLC

Project Period: February 28, 2005, to June 28, 2006

Principal Investigator: Dr. Bradley Edgar

ICAT Funding: \$71,400

Co-funding: \$146,700

Past Experience with This Principal Investigator: None

Prior ICAT Funding to 2005

Year	2004	2003	2002
Funding	0	0	0

BUDGET SUMMARY

Cleaire Advanced Emission Controls, LLC

"Electric Diesel Particulate Filter Demonstration"

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$ 0	\$ 37,000
2. Employee Fringe Benefits	\$ 0	\$ 12,950
3. Subcontractors	\$ 71,400	\$ 77,100
4. Equipment	\$ 0	\$ 48,500
5. Travel and Subsistence	\$ 0	\$ 0
6. Materials and Supplies	\$ 0	\$ 0
7. Other Direct Costs	\$ 0	\$ 0
Total	\$ 71,400	\$ 75,550
 <u>Indirect Costs</u>		
1. Overhead	\$ 0	\$ 42,550
2. Other Indirect Costs	\$ 0	\$ 0
Total	\$ 0	\$ 42,500
Total Project Costs	\$ 71,400	\$218,100

PROPOSED**State of California
AIR RESOURCES BOARD****Resolution 05-18
February 24, 2005**

Agenda Item No.: 05-2-3

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 05-29, entitled "Innovative Means To Minimize Electric GSE Charging Infrastructure Costs", has been submitted by Electric Transportation Engineering Corporation in response to the 2005 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 05-29, entitled "Innovative Means To Minimize Electric GSE Charging Infrastructure Costs", by Electric Transportation Engineering Corporation, for a total amount not to exceed \$120,250.

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 05-29, entitled "Innovative Means To Minimize Electric GSE Charging Infrastructure Costs", by Electric Transportation Engineering Corporation, for a total amount not to exceed \$120,250.

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 \$120,250.

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:

“Innovative Means To Minimize Electric GSE Charging Infrastructure Costs”

Background

EETEC has developed an electronic controller that allows battery charging infrastructure for electric pushback tractors to be installed without the need to install a new power supply circuit for the charger. The EETEC Bridge Power Manager (BPM) allows the power supply circuit for the passenger bridge at each gate of an airport to also supply power for a battery charger located at or near that passenger gate. Sharing an existing power supply can greatly reduce the cost of electrifying pushback tractors.

Objective

The project should show allow the electric pushback tractor to be recharged from the power supply that serves the passenger bridge without compromising the service of either the tractor or the bridge.

Methods

The BPM will be installed at San Francisco International Airport at a passenger gate operated by United Airlines. An electric for a period of 6 months. Data will be collected during the operating period to validate proper operation of the BPM. Upon completion pushback tractor and BPM will be operated of the demonstration period, the capacity of the electric pushback propulsion battery will be tested to verify that the BPM has provided sufficient electrical power to maintain the battery capacity.

Expected Results

The project should show that both the pushback tractor and the passenger bridge can share a single power supply without compromising the performance of either device.

Significance to the Board

The technology would reduce the cost of airlines' compliance with the ARB/SCAQMD/EPA/industry memorandum of understanding about the reduction of diesel PM emissions.

Applicant: Electric Transportation Engineering Corporation (Phoenix, Arizona)

Project Period: February 18, 2005, to October 18, 2005

Principal Investigator: Donald Kerner, President

ICAT Funding: \$120,250

Co-funding: \$141,180

Past Experience with This Principal Investigator:

ETEC had a previous ICAT grant that was conducted successfully and professionally.

Prior ICAT Funding to 2005

Year	2004	2003	2002
Funding	0	0	0

BUDGET SUMMARY

Electric Transportation Engineering Corporation

“Innovative Means to Minimize Electric GSE Charging Infrastructure Costs”

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$ 68,434	\$ 68,434
2. Employee Fringe Benefits	\$ 7,309	\$ 7,309
3. Subcontractors	\$ 2,000	\$ 47,480
4. Equipment	\$ 0	\$ 12,500
5. Travel and Subsistence	\$ 12,000	\$ 12,000
6. Materials and Supplies	\$ 4,130	\$ 11,330
7. Other Direct Costs	<u>\$ 0</u>	<u>\$ 76,000</u>
Total	\$ 93,873	\$235,053
 <u>Indirect Costs</u>		
1. Overhead	\$ 26,377	\$ 26,377
2. Other Indirect Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	<u>\$ 26,377</u>	<u>\$ 26,377</u>
 Total Project Costs	 \$120,250	 \$261,430

PROPOSED**State of California
AIR RESOURCES BOARD****Resolution 05-19
February 24, 2005**

Agenda Item No.: 05-2-3

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 05-38 entitled "Field Demonstration of Prototype Super Boiler", has been submitted by the Gas Technology Institute in response to the 2005 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 05-38, entitled "Field Demonstration of Prototype Super Boiler", submitted by the Gas Technology Institute, for a total amount not to exceed \$240,054.

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 05-38, entitled "Field Demonstration of Prototype Super Boiler", submitted by the Gas Technology Institute, for a total amount not to exceed \$240,054.

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 \$240,054.

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:
"Field Demonstration of Prototype Super Boiler"

Background

GTI and Cleaver-Brooks have developed a new gas-fired steam generation system--the Super Boiler--for increased energy efficiency, reduced equipment size, and reduced emissions. The Super Boiler is capable of 94% fuel efficiency (higher heating value), can operate on natural gas with 5 ppmv NO_x and CO (@ 3%O₂), and will be 50 percent smaller than conventional boilers of similar steam output.

Objective

The ICAT project would demonstrate the fuel economy, performance, and low NO_x emissions of the boiler.

Methods

The 250-HP commercial prototype boiler will be installed at an industrial host site in Turlock. The field demonstration will consist of parametric and life-cycle tests of up to 12 months. At the conclusion of the demonstration period, the host site will have the option to purchase the Super Boiler for continued operation at its facility.

Expected Results

The project should achieve NO emissions less than current BACT for a life-cycle cost less than that of the current BACT technologies for boilers.

Significance to the Board

The cost and effectiveness of NO_x control on boilers should be improved.

Applicant: Gas Technology Institute (Illinois)

Project Period: February 28, 2005, to May 28, 2007

Principal Investigator: Rick Knight

ICAT Funding: \$240,054

Co-funding: \$342,105

Past Experience with This Principal Investigator:

None. However, GTI has had two previous ICAT grants with different investigators. Our experience with the GTI staff during both projects was positive.

Prior ICAT Funding to 2005

Year	2004	2003	2002
Funding	0	\$45,832	\$106,941

BUDGET SUMMARY

Gas Technology Institute

"Field Demonstration of Prototype Super Boiler"**Direct Costs and Benefits**

	<u>ICAT</u>	<u>Total</u>
1. Labor	\$ 13,085	\$ 65,414
2. Employee Fringe Benefits	\$ 4,841	\$ 6,073
3. Subcontractors	\$133,900	\$147,180
4. Equipment	\$ 0	\$225,470
5. Travel and Subsistence	\$ 29,474	\$ 32,460
6. Materials and Supplies	\$ 10,340	\$ 25,425
7. Other Direct Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	\$191,640	\$502,022

Indirect Costs

1. Overhead	\$ 22,229	\$ 27,884
2. Other Indirect Costs	<u>\$ 26,185</u>	<u>\$ 52,253</u>
Total	<u>\$ 48,414</u>	<u>\$ 80,137</u>

Total Project Costs**\$240,054****\$582,159**

No written material available at time of electronic book creation.