

State of California
AIR RESOURCES BOARD

Resolution 01-43

October 25, 2001

Agenda Item No.: 01-8-2

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 01-07, entitled "Elimination of Airborne Emissions from Electrolytic and Electroless Plating Operations", has been submitted by IonEdge Corporation in response to the 2001 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 01-07, entitled "Elimination of Airborne Emissions from Electrolytic and Electroless Plating Operations", submitted by IonEdge Corporation, 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 01-07, entitled "Elimination of Airborne Emissions from Electrolytic and Electroless Plating Operations", submitted by IonEdge Corporation, 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 01-43, as adopted by the Air Resources Board.

Marie Kavan, Clerk of the Board

ATTACHMENT A

Innovative Clean Air Technologies (ICAT) Grant Proposal:

“Elimination of Airborne Emissions from Electrolytic and Electroless Plating Operations”

Background

Chromium, nickel, and other metals are electro-deposited on industrial and consumer parts in aqueous processes that emit the metals to the air, leading to public exposure to these toxic pollutants. IonEdge has developed a “Dry Plating” system to replace these aqueous processes with a vacuum coating method. Their system would eliminate airborne emissions of hexavalent chromium and other toxic substances from plating. Furthermore, the technology minimizes hazardous effluent discharge and toxic waste disposal from the plating operations.

Dry Plating will eliminate toxic fumes and other hazardous emissions. There are at least 190 active commercial plating establishments in California. Although the Air Resources Board adopted an airborne toxic control measure in 1988 to control emissions of hexavalent chromium from chrome plating, a significant public health risk remains from these emissions.

Objective

The objective of this project is to demonstrate the “Dry Plating” process on a pilot-production line in a facility in California by depositing metals onto large quantities of commercial microelectronic parts.

Methods

The “Dry Plating” technology will be installed at an industrial facility in Anaheim and operated for several months. Metals will be vaporized in vacuum using heat and plasma energy. The resulting high-energy vapor-stream will be directed to the substrate to be plated. Emission monitoring will be conducted prior to installation and at various times during system operation.

Expected Results

If successful, this project would demonstrate that IonEdge’s vacuum coating method has a sufficiently high rate of deposition to be competitive with standard electroplating methods. Costs would be compared to show that the new technology is more cost-effective from a systems-wide perspective than electroplating.

Significance to the Board

If this method replaces electroplating--particularly, chrome plating--emissions of toxic air contaminants would be reduced significantly. In addition, much less water would be used, and the potential for toxic effluents to water and land would be reduced. The

following industries use electroplating, and are expected to be interested in the vacuum coating method once it is successfully demonstrated: defense/aerospace, electronics, automotive parts, and semi-conductor manufacturing.

Applicant: IonEdge Corporation

Project Period: 24 months

Principal Investigator: Mandar Sunthakar

ICAT Funding: \$250,000

Cofunding: IonEdge Corporation \$250,000

Past Experience with This Principal Investigator: None.

Although staff does not have any prior experience with the PI, the extent of review of ICAT proposals provides a sufficient level of confidence for staff to recommend the proposal for an ICAT award. The ICAT evaluation process includes reviews by five external technical and four external business advisors, as well as internal reviewers from Mobile Source Control and Operations Divisions, Stationary Source Division, Research Division, and the Executive Office.

Prior ICAT Funding to IonEdge Corporation:

Year	2000	1999	1998
Funding	\$ 0	\$ 0	\$ 0

BUDGET SUMMARY

IonEdge Corporation

Elimination of Airborne Emissions from Electrolytic and Electroless Plating Operations

<u>Direct Costs and Benefits</u>	<u>ICAT</u>	<u>Total</u>
1. Labor	\$ 52,924	\$ 68,310
2. Employee Fringe Benefits	\$ 17,465	\$ 22,542
3. Subcontractors	\$ 50,000	\$ 50,000
4. Equipment	\$ 0	\$ 15,000
5. Travel and Subsistence	\$ 10,000	\$ 15,000
6. Materials and Supplies	\$ 28,105	\$180,000
7. Other Direct Costs	<u>\$ 0</u>	<u>\$ 0</u>
Total	\$158,494	\$350,852
 <u>Indirect Costs</u>		
1. Overhead	\$ 70,389	\$ 79,922
2. Other Indirect Costs	<u>\$ 21,117</u>	<u>\$ 69,226</u>
Total	\$ 91,506	\$ 149,148
Total Project Costs	<u>\$250,000</u>	<u>\$500,000</u>