

May 13, 2003

The Honorable Pamela P. Resor  
Senate Chair, Joint Committee on Natural Resources and Agriculture  
Room 410  
State House  
Boston, MA 02133

The Honorable William G. Greene, Jr.  
House Chair, Joint Committee on Natural Resources and Agriculture  
Room 473F  
State House  
Boston, MA 02133

RE: Statement of the IPC on Senate Bill 692/ House Bill 2482 Relating to Mercury Reduction and Education

IPC - Association Connecting Electronics Industries – appreciates the opportunity to offer the following testimony in regards to Massachusetts Senate Bill 692 and House Bill 2482, Relating to Mercury Reduction and Education. IPC is the national trade association for the electronic interconnection industry, and represents over 2,300 member facilities, 100 of which are in the State of Massachusetts. The industry is vital to the U.S. economy and the State of Massachusetts, employing more than 400,000 people nationwide and exceeding \$44 billion in sales.

Printed circuit boards and electronic assemblies are used in a variety of electronic devices including computers, cell phones, pacemakers, and sophisticated missile defense systems. Without printed circuit boards and electronic assemblies, you would not be able to start your car, watch television, answer a telephone, turn on a light switch, or brew a cup of coffee. There would be no Internet, no e-mail, no VCRs or Nintendo. Although IPC members include electronic giants, such as Intel, Hewlett Packard, and IBM, sixty percent of IPC members meet the Small Business Administration's definition of "small business." The typical IPC member has 100 employees and has a profit margin of less than four percent.

IPC is deeply concerned that the proposed legislation will result in a significant economic and operational handicap for printed circuit board facilities operating in Massachusetts. Domestic electronics manufacturers are already under significant pressure from current economic conditions, reduction in demand, coupled with growing competition with lower cost manufacturers in developing countries, particularly China. If the legislation is not abandoned or modified, it could lead to the closure of a significant number of electronics manufacturing facilities currently located in Massachusetts.

The manufacture of circuit boards, the backbone of electronics manufacturing, depends on flawless execution of a number of complicated, multi-step manufacturing processes, each of which is integral to the functional value of the final product. As electronics increasingly add functions, while decreasing in size, circuit boards are becoming increasingly high-tech, while at the same time becoming increasingly miniaturized with a decreasingly small margin for any manufacturing errors. Today's high-tech circuit boards depend on the precise development of high definition lines separated by no more than 2/1000<sup>ths</sup> of an inch. In order to compete at all with low cost foreign production, companies must continue to move toward this type of advanced technology circuit board.

A critical step in the manufacturing process is the transfer of the circuit board pattern, or image, to the copper plated laminate on which the circuit board will be created. Successful image transfer depends on the use of image exposure equipment. During the image transfer process, mercury lamps are used to photographically develop the circuit board image. There is no viable existing commercial process that could accomplish this vital step without the use of image exposure equipment, which in turn depends on the use of the specially designed mercury lamps. In fact, as companies move to high-tech circuit boards with higher definition patterns, they are increasingly relying on image exposure equipment that uses higher mercury content short-arc lamps. Even if emerging technology were able to supplant the use of mercury containing image exposure equipment, Massachusetts companies would be forced to make a significant investment capital expenditure to replace their existing exposure equipment.

Exposure equipment ranges in cost up to \$250,000 per machine, with an average cost around \$100,000. Even the smallest of Massachusetts facilities that we have contacted have three such machines, while larger manufacturers may have one to two dozen.

In addition to image exposure equipment, mercury lamps are an integral component in equipment used for the ultra-violet (UV) curing of coatings applied to the finished circuit board to protect against oxidation or other damage. One Massachusetts circuit board manufacturer we have contacted has two of these machines with an average value of \$100,000 each.

Mercury lamps are also used by circuit board manufacturers and other industries for the UV disinfection of treated wastewater. While other methods of wastewater disinfection exist, switching to another system would require the purchase of additional equipment and the use of hazardous chemicals.

The purchase of even a single piece of capital equipment is daunting in the current economic conditions. In the words of one Massachusetts circuit board manufacturer, "Our industry has been devastated by the prolonged economic downturn as evidenced by the closure of several facilities in New England, including one in Massachusetts. Our facility in Wilmington, MA is currently struggling to survive. No significant capital purchases have been approved in almost three years." As the industry continues to consolidate, legislation such as this could be the determining factor in the closure of the remaining Massachusetts printed circuit board facilities.

Massachusetts circuit board manufacturers are mindful of the importance of mercury management and use reduction. They have made conscious effort to reduce and or eliminate the use of mercury-based instrumentation from their operations and have required their suppliers to minimize or eliminate mercury content in raw materials and process chemicals. Most importantly, mercury containing lamps used by industry are managed as universal waste and are shipped to licensed recycling/recovery facilities via licensed transporters. Because mercury containing lamps are already being managed in an environmentally conservative mode, no additional environmental benefit will be derived from this legislation.

IPC and its members support cost-effective environmental protections. Unfortunately, this legislation, as it pertains to the industrial use of mercury containing lamps, is neither cost-effective nor environmentally beneficial. The proposed phase-out of these lamps will only contribute to the continuing exodus of manufacturing jobs from Massachusetts. We urge the legislator to reconsider the effects of this legislation as it is currently written and to adopt only cost-effective environmental measures.

Should you have any questions about this testimony, please contact me at 202-962-0460.

Sincerely,

Fern Abrams  
Director of Environmental Policy