

January 29, 2003

Mr. Luis Montoya  
Head of Unit  
DG ENTR G3  
European Commission  
Rue de la Loi 200  
1049 Brussels, BELGIUM  
Luis.Montoya@cec.eu.int

Mr. Luc Werring  
Head of Unit  
DG TREN D1  
European Commission  
Rue de la Loi 200  
1049 Brussels, BELGIUM  
Luc.Werring@cec.eu.int

Dear Mr. Montoya and Mr. Werring,

I write to provide the following NEMA contributions to the stakeholder consultations on the Draft Working Paper on Eco-Design Requirements for End-use-Equipment (EuE).

The National Electrical Manufacturers Association (NEMA) is the largest trade association representing the interests of U.S. electrical industry manufacturers. Founded in 1926 and headquartered in Rosslyn, Virginia, our more than 400 member companies manufacture products used in the generation, transmission, distribution, control, and use of electricity. These products are used in utility, industrial, commercial, institutional and residential installations. The Association's Medical Products Division represents manufacturers of medical diagnostic imaging equipment including MRT, C-T, x-ray, ultrasound and nuclear products. NEMA members' annual shipments exceed \$100 billion in value.

Many NEMA members, or their parent companies, have operations within the European Union, often in multiple member states. We look forward to the deliberations over the EuE initiative including and accounting for input from all stakeholders in the EU market for products that would be impacted by such legislation.

NEMA has been a strong advocate for greater energy efficiency in North America. In the development of prospective U.S. energy legislation, we have played a key role in pushing for incentives to promote new more efficient technologies – a stand that has been praised by many NGO groups. We are also long-time supporters of the ENERGYSTAR™ program and have

worked closely with the U.S. Environmental Protection Agency and Department of Energy in the development of specifications for lighting products and other product areas within our scope.

Moreover, NEMA is also engaged in international efforts at the International Electrotechnical Commission aimed at developing more environmentally friendly products and several NEMA member companies are involved in developing similar standards for their specific product types.

We welcome the Commission's announcements (at the November 18, 2002 workshop) that, if the EuE proposal becomes a directive:

- There will be no retroactive actions against products already on the market.
- Article 95 of the Treaty will be invoked, ensuring harmonized functioning of the internal market.
- Industry self-commitments (or voluntary agreements) are encouraged.
- There should be adequate "balance" between the nature of design requirements, technical limitations and commercial needs.

However, we find that, rather than reliance on hard regulatory initiatives, it is more appropriate to find alternatives such as industry-developed, voluntary, international guidelines that address any identified design for environment concerns. Furthermore, in light of the new directives on Waste Electrical and Electronic Equipment (WEEE) and Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (ROHS), and the nascent Integrated Product Policy and Strategy for Sustainable Development, we urge the Commission to maintain a consistent approach to environmental policy-making by ensuring there is no overlapping legislation and by embracing voluntary initiatives as a first resort.

In this vein, our membership considers the EuE initiative of DG Enterprise and DG Transport and Energy to be unnecessary and finds that it fails to address many of the issues raised by NEMA and other industry groups regarding its predecessor initiatives, the EEE and EER. In short, NEMA shares the concerns raised by other industry groups to the effect that the proposal:

- Does not give preference to market-driven, voluntary measures.
- Would create an excessive regulatory burden that would stifle product development and be particularly difficult for small and medium-sized enterprises (SMEs) to meet. Any standard, as well as the procedural and administrative burdens on product designers, will adversely affect consumers by limiting product functionality and product choices and increasing product prices. Product standards will not keep up with product design improvements.
- Sets the stage for mandatory Life-Cycle Assessment (LCA) and inventories for individual products rather than product categories. LCA can be a useful tool in some circumstances but is not appropriate for the purposes envisioned in the EuE.

- Assumes recycling is always the preferred solution without considering the economic and environmental costs of recycling and its feasibility. Successful recycling depends largely on commodity pricing that in turn may not be conducive to recycling.
- Does not exempt components and sub-assemblies that will already be impacted through final product design requirements (and is also impractical given modern international commercial realities).
- Does not indicate which specific product categories would fall under the scope of any future implementing measures of the Framework Directive.
- Does not specify which eco-efficiency criteria it will be using.
- Would lead to the de facto imposition of working procedures within companies.
- Lacks intrinsic coherence in its requirements, as well as coherence vis-à-vis other current and prospective requirements such as the planned White Paper on Integrated Product Policy (IPP) and possible energy efficiency requirements.
- Has global implications that need to be taken into consideration. Only referencing EU Directives and approaches is therefore inappropriate. The EuE would affect products manufactured worldwide. Any standards, therefore, should be developed by international rather than European entities. The EuE attempts to influence actions such as raw material development and manufacturing that in many instances occur wholly outside the EU and have no affect on the EU. The EuE should focus on the stages of a product that could affect the EU.
- Should be developed in transparent consultation with all stakeholders and be subject to business impact assessment.

As noted, many of these concerns mirror those we voiced regarding the draft EEE. I am attaching a copy of our earlier letter with other associations identifying these concerns.

Thank you for your consideration of these remarks.

Sincerely,



Timothy P. Feldman  
Vice President, Government Affairs

Attachment: As indicated

cc: Michail Papadoyannakis (Michail.Papadoyannakis@cec.eu.int)  
Andre Brisaer (Andre.Brisaer@cec.eu.int)  
Jim Sanford, USTR (jsanford@ustr.gov)  
Hank Levine, U.S. Department of Commerce (henry\_levine@ita.doc.gov)

**AeA, EIA, NEMA AND SIA POSITION PAPER ON EEE**  
**August 2001**

**EXECUTIVE SUMMARY**

This paper summarizes the view of four principal associations in the electrical and electronics industries – AeA (formerly the American Electronics association), the Electronic Industries Alliance (EIA), the National Electrical Manufacturers Association (NEMA), and the Semiconductor Industry Association (SIA) – with respect to the draft proposal for an EU Commission Directive on the “Impact on the Environment of Electrical and Electronic Equipment” (EEE). (See [Appendix 1](#) for a more complete discussion of these views and [Appendix 2](#) for a description of each of the associations.)

In February 2001, the Directorate-General of Enterprise in the European Commission (DG Enterprise) released a draft for a proposed EEE Directive. Previous to this draft proposal, there were informal consultations with selected industry stakeholders on two internal DG Enterprise working papers. Despite these consultations, the proposal remains largely unchanged from its original content, apart from some changes in procedural and labeling provisions. The draft proposal could be interpreted to require manufacturers to design electrical and electronic equipment in a way that assesses and takes account of every environmental attribute in a product or component’s life cycle, as a condition of being able to market the product in the EU. This position paper explains why these requirements would be unworkable and would produce significant negative consequences both for electrical and electronics technologies as well as, potentially, for consumers and the environment.

AeA, EIA, NEMA, and SIA (hereinafter referred to as “the associations”) share the Commission’s desire to examine the role that electrical and electronic product development, manufacturing, use, and disposal play in minimizing the overall impact of electrical and electronic equipment on the environment. However, we differ with the Commission on how those goals are best achieved. We believe that based on current practices and intimate knowledge of how products are manufactured and used, industry – through future voluntary commitments – can meet any identifiable design-for-environment challenge while also meeting consumer needs. We believe that a voluntary approach can meet scientifically identified needs without the likely negative effects of a mandatory directive -- unnecessary costs to the consumer, hindrance to future technological innovation, barriers to trade, and unintended, negative environmental impacts.

**SUMMARY OF ASSOCIATION RECOMMENDATION**

The associations recommend that DG Enterprise withdraw the proposed directive. Rather than rely on regulatory initiatives, it is more appropriate to find alternatives such as industry-developed, voluntary, international guidelines that address any identified design for environment concerns. Furthermore, in light of the pending adoption of the EU directives on Waste Electrical and Electronic Equipment (WEEE) and Restrictions on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (ROHS), and the nascent Integrated Product Policy and Strategy for Sustainable Development, the associations urge the Commission to maintain a consistent approach to environmental policy-making by ensuring there is no overlapping legislation and by embracing voluntary initiatives as a first resort. This approach would be

**EEE POSITION PAPER**  
**August 2001**

consistent with recent speeches by a few key senior Commission officials that have touted voluntary approaches<sup>i</sup>.

**ASSOCIATIONS' VIEW OF CURRENT DRAFT EEE PROPOSAL**

The associations believe that:

1. A prescriptive, regulatory design-for-environment directive covering electrical and electronics products is not necessary. Existing industry voluntary initiatives and legislation address a wide variety of environmental concerns potentially raised by the use of electrical and electronic products. If other environmental needs or issues are identified and scientifically justified, the electrical and electronics industry should be able to address them through future voluntary initiatives.
2. The Commission needs to adopt a coherent over-arching legislative and regulatory approach for addressing environmental concerns. The draft EEE is not being developed in a vacuum. The WEEE and ROHS directives are working their way through the legislative process in the European Parliament and Council. Both of these directives will place an enormous burden on the electronics industry, in the form of take-back costs and the design of new products to eliminate certain hazardous substances. Simultaneously, the Commission is engaging selected stakeholders in the gestation of the Integrated Product Policy (IPP) and a strategy for promoting sustainable development. The Commission should defer further work on the draft EEE directive in DG Enterprise until it is able to craft a coherent over-arching framework for these various initiatives. Such a framework will help to ensure that environmental concerns related to electrical and electronics products are evaluated in the context of other important public considerations, such as negative effects on innovation and cost to consumers.
3. The proposal's basic requirements and its subsequent implementing standards could become a straightjacket for product innovation by hindering design flexibility. The draft EEE threatens to impose numerous procedural and administrative burdens on product designers. These burdens, and the ambiguous design tradeoffs that they would entail, will harm the consumer by limiting product functionality, product choices, and increasing product prices.
4. The scope is too broad and the impacts will be extra-territorial. It will be difficult to establish the basis for determining conformity with the requirements of the directive, because the broad list of requirements seemingly covers the impact of every conceivable aspect of product design on the environment. The design choices driven by the EEE will have environmental and economic impacts in non-EU countries, without those countries being able to affect the judgments behind the EEE requirements.
5. Enforcement of the EEE may prove problematic. The broad scope and the many trade-offs that will need to be made by designers will pose extremely difficult enforcement problems. Unless design choices are prescribed in detail (which would pose significant barriers to innovation), product designers and manufacturers will have multiple options for balancing the trade-offs inherent in life-cycle analysis. This ambiguity may open the way for EU member countries, and even competitor companies, to challenge the final choices made by the

---

<sup>i</sup> See, for example, SPEECH/01/57 "Better Regulation: from Principles to Practice" delivered by Erkki Liikanen, Member of the European Commission responsible for Enterprise and the Information Society, Brussels, 6 February 2001.

**EEE POSITION PAPER**  
**August 2001**

manufacturer. This could lead to legal challenges and market uncertainty that will harm the consumer in the form of higher prices and reduced product availability. One potential result is differing determinations of acceptable products among the Member States. Environmental product design considerations do not equate to requirements for product safety design - as has been suggested - since the latter provide objective criteria which can be similarly interpreted by both product designer and enforcement authority.

6. Design-for-environment standards should be set by international guidelines, not regional standards. The draft proposal could have trade-distorting and anti-competitive impacts due to inadequate stakeholder input. Such impacts are threatened whenever all stakeholders are not included and do not have a meaningful opportunity to provide input into the standardization process that determines the regulatory and compliance details that companies are required to follow. We believe the use of regional standards to provide a presumption of conformity may lead to trade-distorting and anti-competitive effects by implicitly favoring EU products and approaches to design-for-environment.
7. Life cycle assessment should not be mandated either explicitly or implicitly. Although the term “life cycle assessment” (LCA) does not appear in the text of the proposal, elements of an LCA are included in the basic requirements. Moreover, there is a strong likelihood that detailed standards would create a *de facto* LCA requirement by requiring most if not all of the aspects of a formal LCA. LCA is more of an art than a science and, while a useful tool in some circumstances, is not appropriate to the purpose envisioned in the draft EEE directive.

## APPENDIX 1

### **AeA, EIA, NEMA AND SIA VIEWS ON EEE DETAILED EXPLANATORY MEMORANDUM**

#### **BACKGROUND**

DG Enterprise has employed the “New Approach” legislative model for the EEE. The European Community initiated the New Approach in 1985 as a means of facilitating the free movement of goods within the EU by harmonizing divergent national legislation. Historically, New Approach directives have been developed and worked well in the area of product safety. However, we have concerns about the New Approach being applied to environmental issues. These New Approach directives have featured general legislative “essential requirements,” whose details get filled in through subsequent action by private standardization bodies like CEN and CENELEC. Although these detailed standards are nominally “voluntary” and treated by the Commission as optional, in practical terms they typically become mandatory as the only reliable means of compliance with “New Approach” Directives.

In order to place products on the EU market under the current EEE draft, a manufacturer must assess and declare that its products conform to the basic requirements in the Directive. The basic requirements include:

1. Identifying the “environmental characteristics” of the product;
2. Determining the “optimal design solution” while incorporating environmental aspects;
3. Examining environmental aspects whenever product design is reviewed; and
4. Providing information to customers and consumers on environmental characteristics.<sup>ii</sup>

In addition, the manufacturer is required to develop an “ecological product profile.” This profile includes:

1. Identifying and estimating the magnitude of the “significant” environmental impacts;
2. Considering the entire product lifecycle and the various environmental “inputs” and “outputs”; and
3. Focusing on aspects of the product that can be influenced by product design.<sup>iii</sup>

Furthermore, the EEE requires manufacturers to balance design requirements to “ensure that a high level of environmental protection [is] in balance with technical and economic requirements, respecting health and safety legislation, and taking into account key principles:

1. Prevent pollution and conserve resources,
2. Make efficient use of energy and materials,
3. Encourage recycling and reuse,
4. Minimize release of hazardous substances,
5. Optimize the useful lifetime, and

---

<sup>ii</sup> See Annex II: Essential Requirements in the DG Enterprise Working Paper for an EEE Directive, Version 1.0, February 2001, pages 14-16.

<sup>iii</sup> Ibid, pages 14-15.

**EEE POSITION PAPER**  
**August 2001**

6. Facilitate end-of-life management.<sup>iv</sup>

The EEE proposal also requires manufacturers of components or sub-assemblies to provide “all necessary information to enable another manufacturer making use of the component or sub-assembly to identify and estimate the magnitude of the environmental inputs and outputs of a product containing the component.”<sup>v</sup> In particular, the proposal requires manufacturers of these components of sub-assemblies to provide information on “the material composition and consumption of energy and/or resources of their components or sub-assemblies, and where available, case reference studies which concern the use and end-of-life management of the component or sub-assembly.”<sup>vi</sup>

**NO DEMONSTRATED NEED FOR A REGULATORY DESIGN DIRECTIVE**

The associations do not understand what environmental problems DG Enterprise is attempting to solve through the EEE. The associations believe that prescriptive legal requirements for an environmental design directive covering electrical and electronics products and components are not needed. Rather, if design-for-environment problems can be identified, we strongly believe they are better addressed by industry on a voluntary basis.

The electrical and electronics industry believes it is inappropriate for DG Enterprise to develop specific design requirements. Indeed, the industry is already a global leader in research and innovative design to eliminate or reduce, wherever feasible, substances of concern from electrical and electronics products and to promote their reuse and recyclability.

This industry already participates in a variety of voluntary product design initiatives such as the U.S. Environmental Protection Agency’s Design-for-environment (DfE) program and eco-labeling programs such as Energy Star. Some association member companies make declarations to voluntary standards and schemes, such as ECMA TR/70, that consider many environmental factors such as material content, energy efficiency, packaging, and ease of disassembly.

In addition to these voluntary actions, the implementation of, and compliance with, the proposed Directives on WEEE and ROHS will bring significant challenges to the electrical and electronics industry. As currently framed, the ROHS will require the industry to find substitutes for lead, cadmium, mercury, hexavalent chromium and certain flames retardants by as soon as 2006. Not only are these substitutions costly because alternatives are scarce, reliant on the time needed to change product design, but the technical challenges are staggering. The WEEE Directive also poses significant a financial burden since industry will be required to pay for the collection, treatment, recovery and recycling of all electrical and electronics products.

Furthermore, the associations welcome the dialogues launched by the Commission on the IPP and on sustainable development. We intend to participate actively on the associated multi-stakeholder meetings and hope that this transparent dialogue facilitates a global exchange of information, experiences, and expertise on environmental and industrial policy matters.

---

<sup>iv</sup> Ibid, page 15.

<sup>v</sup> Article 3.1 of the DG Enterprise Working Paper for an EEE Directive, page 6.

<sup>vi</sup> Article 3.2 of the DG Enterprise Working Paper for an EEE Directive, page 6.

## **POLICY AND LEGISLATIVE COHERENCE**

The electronics sector currently faces the burdens of the WEEE and ROHS directives specifically targeting the reduction of the environmental impact of electronic and electrical equipment. These directives are already well on their way through the legislative process, a draft Council Common Position having been agreed upon on June 7, 2001. The electronics sector is analyzing the potential effects of the Integrated Product Policy (IPP) on our sector, as well as the Commission's strategy for promoting sustainable development. Considered holistically, it is difficult to ascertain the relationship between the draft EEE directive and these initiatives in various stages of development. The Commission should defer further work on the draft EEE until the relationship and the purpose of EEE is explained in the context of these other important efforts.

## **STRAIGHTJACKET ON INNOVATION**

Beyond merely not being necessary, the draft EEE could potentially stifle innovation in the electrical and electronics industry by constricting product performance and choices, retarding time-to-market, and reducing customer satisfaction. The draft includes basic requirements that are much more detailed than the high-level goals found in the typical "New Approach" directive. This could hinder design flexibility and the ability to innovate. This is not simply a burden to industry. Ultimately, design mandates may make a difference to the customer by limiting product functionality, adversely affecting product safety, and increasing the price that customers see in the market.

Additionally, product designers would be subject to numerous procedural and bureaucratic hurdles in demonstrating compliance with the directive's requirements, but without any corresponding environmental or product performance benefit. Moreover, design decisions could be called into question on the basis of undefined environmental factors. Unintended consequences of design choices may pose their own significant environmental risks. Examples of potential unintended consequences and constraints on innovation are:

### *Mercury/Energy Example*

Requiring elimination of certain heavy metals from electronic products could cause unintended consequences. Mercury use in bulbs, for example, enhances the energy efficiency of electronic and lighting products. There is no known substitute for mercury in the production of energy-efficient light. Ironically, eliminating mercury in bulbs – by increasing the production of electricity – would have the unintended consequence of increasing mercury emissions, since much of the world's electrical power comes from coal, the largest source of mercury emissions.

### *Modular Design Example*

Requiring modular design will likely lead to increased use of materials without resulting in an equal increase in consumers utilizing this feature. Due to the rapid pace of technology development, new modules utilizing new technology will not likely be able to be "plugged in" to old module slots. The evolution of memory in the PC industry is a good example. A year old PC is not compatible with new memory technology. It would be impossible to predict future technology and design products in its anticipation.

### *Product Lifetime Example*

World consumers benefit greatly from the fast pace of technological innovation in our industry, which ensures that they continue to have available ever more capable and cheaper

**EEE POSITION PAPER**  
**August 2001**

products. This fast pace of innovation often ensures that components more than a year or two old are not likely to be able to be reused. Requiring, or influencing, a product to last a set amount of time would effectively freeze innovation and sacrifice the consumer benefits that innovation brings.

*Reuse Example*

Setting a target for reuse would likely result in increased socketing of components for easy disassembly. The environmental impact of increased use of metal material for sockets is likely to outweigh any environmental benefits due to reuse of components.

**OVERLY BROAD SCOPE, EXTRA-TERRITORIAL IMPACTS**

The associations believe the scope of the proposal is overly broad. It will be difficult for companies to establish the basis for determining conformity with the requirements of the directive, because the broad list of requirements seemingly covers every conceivable aspect of product design, manufacture, use and disposal, encompassing the product supply chain up through the harvesting of the raw materials. In addition, it is unclear how product designers are supposed to handle tradeoffs and conflicts among environmental media, stages of a product's life cycle, or the environmental priorities of different Member States. The results of the standardization process may not produce clear, measurable standards that Member States could use to determine compliance. This may result in a situation where Member State authorities question a company's design decisions, which could be detrimental to innovation and free movement of goods throughout the EU. Moreover, what may be considered to be "environmentally beneficial" in one Member State for purposes on compliance may be different in another Member State, due to differing priorities and circumstances.

Beyond these impacts within the European Union, the design choices made pursuant to the EEE will have environmental impacts that are global in scope. This is because the supply chain in the electrical and electronics industry is worldwide, and raw materials and components that comprise a product on the EU market will come from many countries outside the EU. Those countries may question why the EU is making policy and value judgments that affect their economy and environment, without any input or recourse.

**PROBLEMATIC ENFORCEMENT**

Enforcement of the EEE may also prove problematic. The broad scope and the difficulty of the many trade-offs that will need to be made by designers will pose extremely difficult enforcement problems. Unless design choices are prescribed in detail (which would pose significant barriers to innovation), product designers and manufacturers will have multiple options for balancing the trade-offs inherent in life-cycle analysis. This ambiguity may open the way for EU member states, and even competitor companies, to challenge the final choices made by the manufacturer. This may give rise to legal challenges and, ultimately, market uncertainty that will cost the consumer in the form of higher prices and reduced product availability.

The enforcement authority will need to determine the acceptability of the product design "after the fact" by questioning the judgment -- in the form of the choices made -- of the product designer. One potential result is differing determinations of acceptable products among the Member States. Such lack of certainty is not consistent with acceptable enforcement practice. Environmental product design considerations do not equate to requirements for product safety design -- as has been suggested -- since the latter provide objective criteria which can be similarly interpreted by both product designer and enforcement authority.

### **INTERNATIONAL GUIDELINES, NOT REGIONAL STANDARDS**

The EEE could potentially have trade-distorting and anti-competitive impacts if the standardization process, which will fill in the regulatory and compliance details which companies have to follow, does not include all stakeholders. The Technical Committee, as developed for any New Approach Directive, and the new Sectoral Committee under the EEE proposal, effectively will have the power to determine the scope and content of the Directive's compliance requirements. Unfortunately, however, these committees will not be open or accountable to stakeholder involvement and/or input.

In addition, for reasons noted above, we believe the use of regional standards to provide a presumption of conformity may lead to trade-distorting and anti-competitive effects by implicitly favoring EU products and approaches to design-for-environment. Interests from within the region typically dominate regional standards bodies. Therefore, we believe international, rather than regional, standards development organizations (SDOs) should produce voluntary guidelines to address the environmental impacts of product design. We understand that certain international SDOs already have work underway, and we believe these agendas could be shaped to address any environmental concern DG Enterprise identifies.

### **LIFE-CYCLE ASSESSMENT A TOOL, NOT A REQUIREMENT**

The associations believe that life cycle assessment should not be mandated. Although the term "life cycle assessment" (LCA) does not appear in the text of the proposal, elements of an LCA are included in the basic requirements. The current EEE proposal would result in the development of standards that would become *de facto* LCA mandates. This would lead to problems because:

1. There is no agreement among technical experts on how to assess the environmental information required by the draft proposal. LCA considers just one aspect (environmental) of various critical product factors, while ignoring safety, electromagnetic compatibility, technical compatibility, feasibility, and risk assessments. The controversy surrounding the trade-off between the incremental fire safety provided by brominated fire retardants versus environmental concerns with those fire retardants is a good example of this problem.
2. A product level LCA cannot consider local environmental priorities and drivers. For example, waste impact is an important priority in the EU, whereas a greater priority for the U.S. may be energy optimization.
3. LCA cannot predict future product trends of environmental priorities and policies. Over-optimizing for today's priorities may jeopardize the future.
4. It must be recognized that business is global. There are more than 200,000 electrical and electronic products and many more components on the global market today. This growth will continue to increase over time. Carrying out detailed LCA studies on such a huge number of products will simply not be possible.
5. Technological advances continue to be made at unprecedented rates, year after year, and many of these advances have led to a reduction in negative environmental impacts. These advances will always outpace LCA studies. The effective "for sale" life of a large number of electrical and electronic products is measured in months – not years – and as such, the time to market (TTM) is key for the success of companies particularly in the ICT sector. A typical

**EEE POSITION PAPER**  
**August 2001**

LCA study would normally take longer than the expected life span of many products, thus making that product obsolete at launch and potentially putting the company out of business.

6. The ISO 14000 committees are still battling over how to write standards around LCA and environmental impact analysis. This situation is supported by the Commission itself, in its recently published Green Paper in Integrated Product Policy, where it states that much remains to be done in the field of setting up information gathering systems for life cycle assessment.<sup>vii</sup>

---

<sup>vii</sup> See 4.3.1 of the Commission's Integrated Product Policy paper, pages 17-18.

## APPENDIX 2

### DESCRIPTION OF ASSOCIATIONS

**AeA** (formerly the American Electronics Association) is the nation's largest high-tech trade group, representing more than 3,500 U.S.-based technology companies. Membership spans the industry product and service spectrum, from semiconductors and software to computers, Internet and telecommunications systems and services. With 18 regional U.S. councils and offices in Brussels and Beijing, AeA offers a unique global policy grassroots capability and a wide portfolio of valuable business services and products for the high-tech industry. For 58 years, AeA has been the accepted voice of the U.S. technology community.

The **Electronics Industries Alliance** (EIA) is a federation of associations and sectors operating in one of the most competitive and innovative industries in the world. We are committed to promoting business opportunities for our industries. Comprised of over 2,100 members, EIA represents 80% of the \$550 billion U.S. electronics industry. Our member and sector associations represent telecommunications, consumer electronics, components, government electronics, semiconductor standards, as well as other vital areas of the U.S. electronics industry.

The **National Electrical Manufacturers Association** (NEMA) is the largest trade association representing the interests of U.S. electrical industry manufacturers. Its mission is to improve the competitiveness of member companies by providing high quality services that impact positively on standards, government regulation and market economics. Founded in 1926 and headquartered in Rosslyn, Virginia, its more than 450, mostly small-to medium-sized, member companies manufacture products used in the generation, transmission, distribution, control, and use of electricity. These products, by and large unregulated, are used in utility, industrial, commercial, institutional and residential installations. Through the years, electrical products built to standards that both have and continue to achieve international acceptance have effectively served the U.S. electrical infrastructure and maintained domestic electrical safety. Annual shipments exceed \$100 billion in value.

The **Semiconductor Industry Association** (SIA) is the leading trade association representing the computer chip industry. The mission of the SIA is to provide leadership for U.S. chip manufacturers on the critical issues of trade, technology, environmental protection and worker safety and health. With the assistance of our members, we strive to achieve: free and open markets worldwide, U.S. leadership in technology, and state-of-the-art programs to protect the environment and provide safe working conditions.