Statement of

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Electronic Scrap:
Can the Nation Manage Modern End of Life Equipment in the Digital Age?

Mr. Chairman and Members of the Committee. Good Morning. My name is Eric Harris and I am the Associate Counsel and Director of Government and International Affairs for the Institute of Scrap Recycling Industries, Inc. - the "Voice of the Recycling Industry."

Introduction

ISRI is the world's largest trade association of recyclers with well over 1,550 member companies that operate over 3,000 locations in the United States who process, broker and industrially consume scrap commodities, including metals, paper, plastics, glass, rubber, textiles and electronics. More than 20 percent of ISRI's membership is involved in electronic scrap processing and industrial consumption of scrap material generated by electronics recyclers. In fact, electronics recycling is the fastest growing segment of ISRI's membership.

In 2007, the domestic scrap recycling industry manufactured approximately $71 billion of specification grade commodities that were used in lieu of virgin materials to manufacture basic products in the United States and throughout the world. This figure includes more than 81 million tons of iron and steel, 5 million tons of aluminum, 1.8 million tons of copper, and 2 million tons of stainless steel, just to name a few. Of the $71 billion of scrap recycled last year, nearly $22 billion worth of these commodities were exported to 152 countries worldwide, making a significant positive contribution to the United States' balance of trade with other nations and serving as the first link in the global manufacturing supply chain. Scrap accounts for approximately 40% of the world's raw material needs.

Scrap recycling is one of the world's most climate friendly activities. The use of recycled scrap materials to manufacture new products sustains the earth's natural resources, while at the same time, conserves impressive amounts of energy in the manufacturing process, and thereby significantly reduces greenhouse gas emissions from those facilities.

For example, recycling 1,000 computers and monitors rather than landfilling them would prevent a net total of 52.64 metric tons of carbon equivalent (MTCE) and 193 metric tons of carbon dioxide equivalent (MTCO2) from entering the atmosphere. This is the equivalent of not driving 42 cars for an entire year. This would also save over 3370 million BTUs. And, the energy savings would equal 27,171 gallons of gasoline.[1]

U.S. Electronic Scrap Generation and Recycling

Approximately 2.8 billion pounds (1.4 million tons) of electronic equipment were recycled in 2006, including 65 million units of computer equipment (CPUs, monitors and printers). The electronics recycling process yielded approximately 1.3 billion pounds of recyclable materials, more than half of which were metals. Consumer electronics, alone, are now considered to be approaching more than 3 million tons generated annually.

According to a recent study by the Consumer Reports National Research Center, *E-Waste 2006*, 90% of Americans own at least one computer. That means there are over 270 million computers in America. However, 45% of American consumers retain electronics because they are unsure of the appropriate method to deal with such items at the end of their useful lives. Moreover, 35% of American consumers retain electronics because they consider it inappropriate to dispose of them with the garbage. Consequently, upwards of 50% of American consumers have yet to send their obsolete electronic equipment into the recycling stream. .

With the proliferation of new electronic products every day, obsolete consumer electronic equipment levels are expected to increase to 400 million units annually during the rest of the decade, including 100 million units of computer equipment. If we combine both consumer and non-consumer computer equipment (commercial, industrial and government sectors), we can estimate that more than 2 billion will become obsolete over the next five years.

ISRI members provide comprehensive recycling operations, which covers everything from logistics (e.g., collection and transportation) and data security to demanufacturing, to manufacturing specification grade commodities from the electronic products. Our members make their living scrubbing and reselling hard drives, by testing and then reselling cell phones, monitors and CPUs that are in good working order, and using machinery and equipment to shred or otherwise process electronics to extract the various commodities that are contained in electronic equipment including steel, aluminum, gold, silver, titanium, copper, nickel, plastic and glass – for use as valuable raw material feedstock in the manufacture of new products.

Once electronics products reach our members they are first triaged to determine whether they are to be resold, refurbished, or processed into specification commodity streams

Whether the decision is made to refurbish or process into specification grade commodities, the export market for the resulting product is an essential part of the legitimate recycling chain. With regard to reusable or refurbished electronics, there is an increasing presence of large for-profit reuse markets in developing countries, especially Asia, Africa, and South America, where the majority of the population simply cannot afford to purchase the latest available technology. It is

[1] United States Environmental Protection Agency WAste Reduction Model (WARM), http://www.epa.gov/climatechange/wycd/waste/calculators/Warm_home.html

both environmentally and socially responsible to provide for the continued export of these viable products that make basic technologies and communications available where they would otherwise potentially not be. There is now even a growing market in the third world for the purchase of monitors to be converted into TVs.

As a result of the above, recycling experts anticipate that as collection of household electronic equipment in the United States increases, exports of certain recyclable streams will also increase; for example, used, intact equipment for reuse; used components for reuse; used equipment for refurbishment; and, fully processed materials for use as raw materials in manufacturing.

Key Challenges

The key challenges to increasing electronics recycling in the United States include, among other things: (1) how to adequately cover the costs associated with collection, transportation and recycling of household electronic equipment; (2) distinguishing scrap from waste and not over regulating; (3) free and fair trade; (4) developing adequate end-use markets for recyclable plastics and glass and demand for that material; (5) Design for Recycling®; and, (6) promoting EPA's Responsible Recycler practices and ISRI's Recycling Industry Operating Standard (RIOS) as the proper means to address environmental concerns.

How to adequately cover the costs?

The cost to responsibly recycle electronic products remains the greatest challenge for recyclers. As the competition to collect household computer equipment increases across the country, recyclers are being forced to take in a growing list of older, less valuable electronic equipment, such as televisions, AM/FM radios, and old hairdryers. Under current market conditions, much of the collected electronic equipment, for example at weekend collection events, has little to no resale value and has a net-negative cost to recycle (the cost to recycle the equipment outweighs the value of the processed material). This problem is only exacerbated when you factor in the logistical challenges and associated costs to get the collected electronic equipment transported to a facility that can responsibly recycle it.

As a result, until such time as the market for recyclable electronics becomes economically viable, ISRI's policy continues to support holding producers responsible for the collection, transportation and recycling of household electronic equipment that has a net-negative cost to recycle, such as cathode ray tubes in monitors and televisions. ISRI firmly believes that producer responsibility will provide manufacturers with the needed incentive to design their products with an eye to the future, incorporating design changes that maximize recycling at the end of life. This concept, which ISRI calls Design for Recycling®, is critical to the success of increasing the recycling of electronics long term. In the interim, as successful businesspeople, we believe that if given the flexibility and opportunity to internalize the costs manufactures will create a model that will be less bureaucratic and burdensome and cheaper for the tax payer.

While ISRI will ultimately defer to the wisdom of the Congress and the states to decide which financial mechanism is most apt to spur markets for electronic recycling, we strongly encourage the Congress and the states to end any financial mechanism as soon as markets for recyclable electronics become economically viable. We are not an industry that seeks government subsidies, and we believe markets must ultimately stand on their own based on solid business principles.

However, whatever financial mechanism the Congress and the states might decide to adopt in order to sustain this market, ISRI suggests that a portion should be applied to the research and development of end-use markets for the scrap materials recovered from electronics products, particularly plastics and glass.

Scrap is not Waste, Recycling is not Disposal

For recycling in general, and particularly for electronics recycling, we need to avoid creating unnecessary impediments. It is very important to distinguish between scrap and waste as well as recycling and disposal. Simply stated, scrap is the opposite of waste. Processed scrap materials are commodities that have a significant value on domestic and international markets as raw material feedstocks that substitute for virgin materials in the manufacture of new basic materials such as copper, steel, and plastics. Unlike scrap, 'waste' has no value and is typically buried in a landfill.

Electronics scrap, like scrap paper, glass, plastic, metal, textiles, and rubber, is not waste when recycled. Defining scrap electronics as waste undermines and overlooks the value that these electronics retain, if properly recycled. Saddling them with the moniker of "waste" imposes a whole host of unwarranted regulatory burdens that will undermine the ability to allow the recycling system to operate effectively and efficiently.

Private sector electronics recyclers are subject to all the federal and state environmental, safety, and export/import regulations that are applicable to any industrial operations. For example, recyclers currently operate under a host of applicable environmental regulations, such as permitting requirements in the Clean Air Act, the Clean Water Act and its various storm water provisions, among others. In addition, electronics recyclers adhere to state requirements which in some cases are more stringent than the corresponding federal requirements, federal and state transportation and occupational safety and health laws, US export laws and regulations and the import requirements of foreign countries, such as those administered by China's General Administration on Quality Supervision, Inspection and Quarantine (AQSIQ).

For these reasons, it is critically important that we avoid confusing the valuable commodities manufactured by scrap recyclers with wastes, whether in our vernacular or in written form.

Free and Fair Trade

Another key aspect underlying ISRI's policy is the concept of free and fair trade. We have been in the recycling business a long time and experience tells us that the specification grade commodities we manufacture are some of the best examples of basic supply and demand economics. These materials are traded in the global marketplace, supplying America's basic manufacturing industries with valuable raw material feed stocks that are used in place of virgin materials, and also contributing significantly towards a positive balance of trade with other nations. And these global markets are far from new – the London Metal Exchange started trading copper in 1876, harnessing an already existing global market in copper.

Despite the realities of the global marketplace, however, exporting electronic scrap continues to be besmirched. We have all seen the horrendous photographs and broadcasts regarding China's artisan communities. But, there has been little to no coverage regarding China's sophisticated

recycling parks, which have been developed in China over the past ten years in an effort by the Chinese government to reign in the "rogue recyclers" who have been responsible for some terrible situations. However, costs and demand for scrap material is still driving the market. Experts tend to agree that this is largely being driven by the fact that most of all new electronic equipment is being manufactured in Asian markets. As a result, since demand is so high, Asian brokers are able to pay more for the obsolete electronic equipment than in Europe and the United States. Thus, countries like China continue to purchase obsolete electronic equipment from countries all over the world, including the United States.

ISRI contends that the stigma associated with "exporting" is misguided and exports should be viewed from the prism of the realities of the global economy. The focus must be to promote responsible recycling globally and concentrate efforts towards enhancing and promoting environmentally capable facilities that will receive and properly handle recycled materials anywhere in the world. ISRI suggests that the United States government should refocus its attention on negotiating trade agreements with key trading partners around the world, such as China and India. These agreements could detail the environmental and safety requirements for these facilities and establish a process that would allow the materials to flow more on the basis of value of the commodity and less on the geographic location of the collection.

Markets for Plastic and Glass

Two of the greatest challenges of electronics recycling are the difficulties in recycling chemically coated glass from cathode ray tubes (CRTs) and sorting the different resins of plastic.

ISRI has suggested that state bills and a federal bill should focus on establishing a *short-term* financial subsidy for *consumer* generated monitors and televisions with CRTs. Moreover, additional markets for the recycled glass are a critical necessity. If CRT manufacturing is, as most predict, soon to be obsolete and lead smelters continue to charge a fee analogous to a hazardous waste landfill fee then recyclers need alternative end-use markets for that CRT glass. ISRI strongly recommends that research and development dollars need to be invested to develop alternative markets.

With regard to plastics, despite the continual improvement in automation and optical sorting technology (which helps distinguish between different colors and streams, due to the heterogeneous nature of input materials) sorting variations of mixed plastic resins remains a challenge for recyclers. In addition, since the market for engineered plastics is not fully developed in the United States, the vast majority of baled plastic is being exported. And, although foreign markets are driving the price of baled plastic in the right direction, the stigma on exporting, in general, is creating a lack of confidence in the U.S. market.

Although no single technology has solved the task of sorting plastic to a level that can compete against virgin resin streams, the technology has improved. What is lacking is investor confidence in the overall market. ISRI contends that as the market matures and end-use markets for plastic and glass develop investment dollars will follow. Similar to CRT glass, research and development dollars are needed to help develop new end use markets for mixed plastics scrap. This will create more opportunities in the market place and thus increase investment confidence in existing optical and sorting technology.

Targeting funds to advance technology in these two fields would have a positive impact on making end-use consumer markets more economically viable, which would, over time, ensure these markets could stand on their own without a subsidy. In fact, ISRI believes it would be wholly appropriate for the Congress to support research efforts aimed toward the development of technologies that could remove the remaining impediments in plastics and glass in order to utilize these materials in the manufacturing process.

Designing for Recycling©

Removing hazardous components from scrap electronic equipment and sorting through material that is difficult to recycle, such as mixed plastics, costs recyclers time and money. ISRI has long advocated working with manufactures to design their products to be easily recycled at the end of their useful lives, without using hazardous, toxic constituents, or impediments that can hinder the recycling of those products.

To date, voluntary calls by the recycling industry to motivate manufacturers to adopt a Design for Recycling® philosophy have been met with only a tepid response. We do recognize that electronics manufacturers have taken some steps towards designing for recycling; however, there is significant room for improvement. For example, manufacturers use of mercury. The new technology in flat screen monitors utilizes a system of lamps containing mercury powder. These mercury lamps are very time consuming to remove or replace, which makes this new technology difficult to recycle. Similarly, some of the cell phone batteries with small traces of mercury take up to five minutes to remove. And, laptops contain tiny mercury lamps that are very difficult to locate and remove. In the end, it takes a lot of extra time to recycle in the proper manner. This drives up the labor costs, which makes recycling these products less profitable. Design for Recycling® will help to avoid these additional costs and improve recycling efficiency.

More collaborative opportunities are needed to think through some of these design issues before these products reach the market. For example, EPEAT is an electronic product design standard adopted by the Environmental Protection Agency that has been very successful in the marketplace. Most major computer manufacturers are using EPEAT as their measure of environmental product design, and are competing to gain additional credits from EPEAT by going beyond what other OEMs have done. Some manufacturers have incorporated significant amounts of recycled plastic in their products. This creates demand for recycled plastics from computers which increases the value that recyclers can capture for the material. Similar types of programs could be encouraged by the Congress.

EPA's Responsible Recycler Practices and ISRI's Recycling Industry Operating Standard

For the past two years, ISRI has represented electronics recyclers in a multi-stakeholder process to develop responsible recycling practices (R2) for electronics recyclers. The Environmental Protection Agency has convened and facilitated this effort. Once completed, ISRI intends to incorporate this set of specific performance practices into its Recycling Industry Operating Standard (RIOS) for electronics recyclers.

ISRI developed RIOS as an integrated management system standard designed specifically for the scrap recycling industry and the ANSI-ASQ National Accreditation Board will oversee the third party registrars who will audit recyclers. It provides electronic recyclers with an affordable tool

to monitor their quality, environmental, health and safety goals. Few industries worldwide have endeavored to undertake such a huge step, but the recycling industry in the United States has always been, and intends to remain, the global leader in recycling technology, environmental protection, worker safety and the production of high quality materials. RIOS is a tool for us to accomplish those goals and will help assure that ISRI members who recycle scrap electronics will do so in a manner that is best for our country and the world in which we live.

ISRI is hopeful that the combination of the EPA led effort, R2, and RIOS will provide a "one-stop-shop" for electronics recyclers. This will help to build needed confidence in the market place and reward responsible recyclers that are willing to be audited to a set of requirements in an open and transparent process.

Conclusion

In closing, I want to remind the Committee that our members have provided stable, good-paying jobs in this country during the boom years, the lean years, in war time, and in peace time. In one capacity or another, ISRI members have been recycling electronics for decades as an integral part of their recycling operations. We feel these experiences from our membership will assist the Committee in developing effective solutions that will help address the onslaught of consumer based electronic products that are now entering the market.

Thank you for this opportunity to address the Committee today. ISRI looks forward to future opportunities to work with the Committee to continue advancing these and other solutions on issues important to recycling.

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Mr. Harris advocates policy and provides legal counsel for ISRI. Areas include: climate change and sustainability, electronics, air, the Basel Convention, and ISRI's arbitration program. Mr. Harris received his masters of law degree from the George Washington University in International Environmental law and his law degree from the University of Montana. Before coming to ISRI, Mr. Harris provided legislative counsel to U.S. Senator Max Baucus from Montana.