AEEMA

25 July 2006

Mr Tim Rogers
Executive Director
Sustainability Programs Division
Department of Environment and Conservation PO Box 644
PARRAMATTA NSW 2124

via email:

Dear Tim

Thank you for meeting with the AEEMA delegation on 5 July. We found the meeting useful in clarifying issues and better understanding the NSW Government's product stewardship priorities.

The purpose of this letter is threefold: to advise you of the major appliance sector's reasoning in choosing not to join at this stage with other sectors such as automotive or other electrical/electronic consumer durables; to provide more information on proportions of potentially hazardous materials in current design major appliances; and to propose a study that will provide valuable necessary information on waste issues associated with these appliances.

Rationale for sector not joining with others

Following our meeting on 5 July AEEMA established a Major Appliances Environmental Working Group in order to provide more focus and a faster response on environmental issues associated with major appliances. The Working Group

complements and contributes to the work of AEEMA's Environmental Policy Working Group.

The Major Appliances Environmental Working Group believes this segregation will improve the efficiency of identifying and focusing on the real issues of the major appliances sector. The reason is that, at end-of-life, there are more differences than similarities between major household appliances and adjacent product categories. Comparison of the significant characteristics of major appliances with those of products in the adjacent groups (automomative on one side and other electrical/electronic consumer durables on the other) will demonstrate why this separation is deemed useful:

- Because of their size and weight, major appliances are not cash and carry'. They require special delivery. Similarly scrapped major appliances are not generally transportable by the homeowner. Thus the preferred method(s) of collection is likely to be unique to this sector.
- All the appliances in this sector are too large for disposal in wheelie bins. Hence the requirements for policing illegal dumping are different.
- In contrast with other electric/electronic items, typically only a very small proportion of major appliance plastic is of fire retardant grades. Plastics with fire-retardants are inherently more difficult to recycle than those without. The percentage of them may also have significance in any future waste-to-energy (WTE) process.
- Because major appliances have significant metal content, once they are collected they possess positive scrap value.
- Apart from older designs of washing machine gearboxes (and a very small quantity in refrigerator compressors), appliances do not contain oils.
- Those unfamiliar with the industry find the levels of other substances now deemed hazardous surprisingly low in either historic appliance waste or in current product. One overseas study found it no higher than in average domestic refuse.
- Apart from concrete balance weights and glass items, shredder floc is likely to be virtually all plastic or rubber. This gives it a high calorific value in any WTE project.
- Appliances do not have solid metal parts such as automotive crankshafts or engine blocks etc. This could make it more practical to use a mobile shredder for them in remote locations.
- The companies supplying major appliances have much in common with each other, and are used to working together to deal with common issues such as performance and safety standards and writing and helping formulate water and energy efficiency levels and labelling regimes. They have much less in common with other groups. Thus this existing cohesive grouping is expected to be able to respond much more quickly than would members in a multiple-group approach.

Potentially hazardous materials in major appliances

The level of hazardous substances in major appliances has never been high, although several materials now identified as hazardous have been used in the past.

The attached papers from AEEMA members Electrolux Home Products and Fisher & Paykel provide further information on the level of potentially hazardous materials.

Proposal for an investigation into waste disposal and recycling of major appliances in Australia

AEEMA's Major Appliances Environmental Working Group has concluded that the problem as perceived of end-of-life major appliances is one or a combination of the following three factors:
1. Too many appliances are going to landfill without pre-processing.
2. Shredder floc from major appliances contain unacceptably high levels of substances deemed to be hazardous.
3. The weight/volume of shredder floc going to landfill is unacceptably high.

Before setting out to rectify the perceived problem, it is necessary first to analyse and quantify the above factors.

Anecdotal evidence available to AEEMA suggests that very few appliances go straight to landfill. For this reason it may be practicable to impose a landfill ban to stop the remaining few that do.

Based on their own records, manufacturers of major appliances believe that the hazardous content of appliance shredder floc is likely to be lower than that from items from any other mechanical or electrical sector. The industry has generally set about eliminating substances shown to be hazardous without the need for compelling legislation.

If the issue is an unacceptable weight/volume of shredder flock going to landfill, action should focus on investigating viable ways to reduce it. It may be worth analysing to what theoretical extent any level of partial dismantling or even complete dismantling (at whatever cost) would reduce the quantity of waste being disposed of. Experience with recycling just under one quarter of a million major appliances by one of the companies represented in AEEMA's Major Appliances Environmental Working Group has shown that while various levels of dismantling may increase the price for better segregated recovered metals, most of the remainder still has to be dumped. Data on WTE systems overseas show that while not cheap to construct or operate, they can be built to meet very stringent emission levels and reduce waste volumes by around 90%. The Working Group believes that this option should not be precluded from consideration on purely emotional or political grounds. If such alternatives are not acceptable, it may be that the present quantity going to landfill will need to be accepted.

In order to help clarify the issues raised above, AEEMA proposes that a study be undertaken of the options for recycling of major appliances and the disposal of any resultant waste. The study will fill major gaps in our knowledge of the end-of-life fate of these products. It is proposed that the study determine:
- the quantity of product collected, recycled, land filled and illegally dumped by type of appliance and region
- the proportion of land filled shredder floc contributed by major appliances as a percentage of the total floc
- the environmental impact of the current disposal of the product including hazardous materials
- opportunities for reducing shredder floc by WTE or other means based on examples in Australia and overseas

- opportunities for waste avoidance
- impact of a landfill ban on major appliances
- options to augment the existing process

A separate paper providing more details on the proposed study is attached.

AEEMA looks forward in particular to the Department's response on the proposed study. Our major appliance suppliers are committed to co-operate in provision of information and other assistance, including financial support of up to $10,000 to make the study a success.

Yours sincerely

Bryan Douglas
DEPUTY CHIEF EXECUTIVE

Reduction of Hazardous substances used in Electrolux Major Appliances

Electrolux Home Products Pty Ltd supplies approximately 50% of the Australian market with brand names including Electrolux, AEG, Westinghouse, Simpson, Hoover, Dishlex, Chef and Kelvinator. Changes to EHP products therefore have a significant influence on the overall market and there has been a general reduction of hazardous material (HM) in these appliances over the last 20 years for the following reasons:

1. **Design improvements have consistently reduced the overall weight of active components containing hazardous materials.**
This is the result of better design techniques and improved processes, largely driven by cost reductions. For example, the Control panel assembly of a Westinghouse dishwasher consists of an external cover, FR carrier panel, door lock and Circuit Board. A model made in 1991 is compared with the current design in production from 2003. All the components except the cover contain RoHS identified hazardous materials. The carrier panel has been reduced from 295 to 70gms, the door lock from 82 to 46 gms and the circuit board from 330 to 108 gms, with overall HM content reduced by more than 50%. The designs are shown below.

This trend has also been reflected in the overall weight reduction of most appliances. Although generalisation is difficult, typical reductions are shown below in some of EHP's products since 1993. The data was obtained from historic shipping documents. These trends, which we believe are industry typical, are running at approximately 1 % reduction per year and will continue because of cost pressures.

EHP Appliances - Crated Weights 1993 - 2006

Regarding appliances made 20 years ago, weights were significantly higher. For example, the large cabinet washing machines made by EHP in the 80's weighed over 100kg, and contained several litres of oil in the gearbox. Current gearbox driven machines have .07 litres of oil and are progressively being replaced with direct drives.

2. Many materials once considered benign, have subsequently been identified as hazardous and either eliminated or reduced in EHP products.
These include cadmium as a plating material, asbestos as an insulator, mercury for switch contacts, nickel in exposed items, CFCs and HCFCs.

3. There has been a community demand, backed in many cases by legislation, to reduce use of hazardous substances. The continued regulatory pressures to control waste has had a significant influence on product design, and the possible adoption of RoHS into Australia which is currently under investigation, will encourage designers to adopt benign materials where possible.

4. Overseas component suppliers have in general reduced hazardous material content
Suppliers have in many cases become RoHS compliant due to market forces. These include suppliers of electrical components such as timers, valves, switches and circuit boards. With the adoption of RoHS becoming more accepted, we expect this trend to continue. For example, the components listed in the previous dishwasher example have recently been made RoHS compliant at no cost penalty.

5. Electrolux has voluntarily adopted a Restricted Material policy, banning many items, and restricting the use of others.
Banned items include most Aromatic amines, BromoChloroFluoroCarbons, Halons, HydroBromoFluorocarbons, Halogenated organics, PolyChlorinated Biphenyls, Greenhouse gases, Persistent Organic Pollutants, CMR's and Chlorinated solvents. The full list is available on the Electrolux international website www.electrolux.com/node2l4.aspx.

In summary, Electrolux can demonstrate a measurable decline in the use of hazardous substances over many years, due to a number of factors, including competition, community pressures, regulatory requirements and company policy. There is no indication that this trend will diminish, and the likely introduction of RoHS into Australia will ensure reduced levels of hazardous materials going to landfill.

On the other hand, the replacement of metal parts with plastics has reduced weight but increased the complexity of recycling initiatives, and competing requirements such as energy reduction has increased the use of some material that ends up as floc. An example is the amount of foam used around refrigerator

freezer compartments, which has increased from 50mm to 75mm thickness to meet current MEPs requirements.

Despite this, there is evidence that the hazardous content of appliance shredder floc is comparable to domestic refuse (UK - Warren Spring laboratory, 1992:28). It should also be noted that there is a general recognition that Major Appliances contain fewer hazardous substances than other electronic and electrical equipment.

Although this discussion is specific to Electrolux Products, we believe the arguments apply to other major appliance manufacturers who are AEEMA members. While the NSW Department of Environment and Conservation may adopt other measures to reduce waste going to landfill, it should be recognised that the already low proportion of hazardous materials contained in major appliances has been reducing, and will continue to do so, as a result of actions already adopted within the industry.

I.G. Forte,
July 06.

Australian Electrical and Electronic Manufacturers' Association

A **PROPOSAL TO THE DEPARTMENT OF ENVIRONMENT AND CONSERVATION** (NSW) **TO INVESTIGATE WASTE DISPOSAL AND RECYCLING OF MAJOR APPLIANCES**

BACKGROUND

While there have been a number of studies into the life cycle, recycling and waste disposal of e-waste - including major appliances - in Australia, there remains a lack of hard data regarding the real environmental impact of disposal of major appliances.

The percentage of these recovered for recycling is not known. It is generally assumed that 70% of major appliances are recycled, but a recent study in New Zealand concluded that in that country the figure was approximately 95%. One important outcome of the NZ study is a demonstrated need to accurately determine this figure in Australia.

AEEMA considers that before any decision can be made on what actions need to be taken, a rigorous study of current practices and options should be undertaken. It is expected that the study will provide the basis for sound decisions.

SCOPE

Items to be considered are those appliances that are typically too large for ‘cash and carry':

- domestic clothes washing machines
- refrigerators
- freezers
- air conditioners
- dishwashers
- clothes dryers
- water heaters
- free-standing ranges
- ovens and cook tops

TERMS OF REFERENCE

Study to report on:

- the quantity of product collected, recycled, land filled and illegally dumped by type of appliance and region
- the proportion of land filled shredder floc contributed by major appliances as a percentage of the total floc

- the environmental impact of the current disposal of the product including hazardous materials

- opportunities for reducing shredder floc by WTE or other means based on examples in Australia and overseas
- opportunities for waste avoidance
- impact of a landfill ban on major appliances
- options to augment the existing process

TIMING

Report to be completed by 16 October 2006 (this will enable AEEMA to respond to Minister Debus' request for further information on product stewardship intentions by 31 October 2006).

AEEMA

24 July 2006

Executive Director
Sustainability Programs Division
Department of Environment and Conservation PO Box 644
PARRAMATTA, NSW 2124

Re: NSW EXTENDED PRODUCER RESPONSIBILITY

PRIORITY STATEMENT 2005-2006 INTRODUCTION

AEEMA is pleased to provide this response to the EPR Priority Statement 2005-2006 released pursuant to section 18 of the *Waste Avoidance and Resource Recovery Act 2001 (the Waste Act).* As previously advised in our letter to the Minister, AEEMA has established an Environmental Policy Working Group made up of key member companies to meet the policy and strategic issues created by increasing government interest in product stewardship matters. This Group encourages policy debate and discussion across the membership and with the AEEMA Board about all relevant environmental matters in the public arena.

At the outset we wish to thank Departmental and Ministerial representatives for agreeing to meet with AEEMA recently to discuss various matters relating to waste management. This meeting was especially helpful to clarify directions and certain issues. During the meeting we agreed to provide additional data to Departmental representatives about efforts made currently to restrict the level and amount of hazardous substances in products by some suppliers. Two examples of this are attached.

We note that a Report on submissions will be published on 30 September 2006, and we request that this Report recognise that AEEMA no longer acts as the secretariat for the Consumer Electronic Suppliers' Association, (CESA) but we do have in our membership companies such as Motorola, Philips, Panasonic and NEC, which manufacture and supply consumer electronics products.

AEEMA's stated policy platform on the crucial issues surrounding waste management and resource efficiency can be summarised as follows:

- promote the concept of developing a *waste processing industry* rather than placing encumbrances on the supply sector

- promote, and convince governments to fund, programs of sustainable consumption alongside sustainable production

- encourage the use of regulation only to the extent that is necessary and consistent with open trade in electronics/electrical sectors

- ensure any regulatory framework guards against unfair competition in the marketplace

AEEMA notes and welcomes the stated commitment by the NSW Government to support voluntary rather than mandatory sector initiatives in the waste management debate. This approach recognises and encourages innovation and flexibility for industry, as the Priority Statement rightly notes. This is supported by international experience. In a paper published December 2005, the Network of Heads of European Environment Protection Agencies, stated clearly that "voluntary agreements between governments and industry can prove to be *useful policy tools* to promote innovative environmental practices particularly based on core, realistic regulatory frameworks accompanied by a series of specific voluntary measures and activities of common interest set up with a wide range of stakeholders". *(The Contribution of Good Environmental Regulation to Competitiveness, p.3).* Consistent with this recognition, mandatory take-back and recycling requirements for waste products can impose significant costs yet simultaneously fail to reduce environmental risks. Mandated recovery of higher quantities of domestic appliances over current levels would involve significantly higher marginal costs, but would likely result in little additional material recycling.

AEEMA

AEEMA membership is broad, covering all sectors from smart cards to IT security and data capture. But in particular, those members producing and supplying domestic appliances and lighting products are especially affected by all policy decisions made in any jurisdiction federal or state, relating to waste management and resource efficiencies. As such we state, again, that there remains an urgent need to ensure a more effective national waste management and resource efficiency strategy is adopted to avoid the unnecessary imposts on industry caused by fragmented policy development and jurisdictionally-based regulation.

This perspective has been recognised recently by the Productivity Commission in its Draft Report on Waste Management; "With so many parties involved in policy development, and different approaches being taken in different jurisdictions, waste management policy in Australia is for the most part, poorly coordinated." (page xxvi)

SECTORAL APPROACH NEEDED

AEEMA supports the cost-effective recovery and recycling of waste products and full life-cycle consideration of social, economic and environmental costs and benefits, to ensure there is informed policy consideration of whether regulatory approaches such as extended producer responsibility (EPR) should be pursued for any given product. But it should be noted that uniform waste policies may not suit all types of products or sectors. As an example, waste management approaches suitable for smaller domestic appliances do not readily translate to large domestic appliances (rarely suitable for landfill treatment) and lighting products. The environmental concern to recycle lighting products, for example, must always be balanced with the cost to transport end of life product over substantial distances. With those materials considered to be hazardous, the impact of transport, possible accidents, and attendant safety considerations mean that they cannot be managed in the same way as other items. The market for ewaste is not homogeneous and it is necessary to differentiate between, say, computers, televisions, and other types of ewaste. Not only are those products not as easily shipped as smaller consumer products but there is not a robust market for reuse through refurbishment. So a targeted policy framework is required that is suited to the particular characteristics of the item in question.

AEEMA wishes again to highlight the importance of a balanced approach to regulatory imposition and to caution against heavy-handed regulation. AEEMA supports a policy framework that promotes the concept of 'recovery where justified' and 'regulation where appropriate'.

RECOGNITION OF OTHER POLICY AREAS

It is important to recognise that, in addition to waste management, the design of electrical products is influenced by other areas of public policy, intended to achieve desirable outcomes for our community. Principal areas are safety and energy efficiency, both of which are the subject of regulation in a number of jurisdictions. Often the aims in the different policy areas are in conflict as they influence the design of products. For

example, the increased use of foam insulation in fridges and water heaters (in order to achieve the mandated improvements in energy efficiency) has the potential to cause an increase in the volume of shredder floc created when the product reaches its end of life. Likewise, improvements in appliance design aimed at achieving the safety outcomes required by regulation can increase the amount of waste generated. It is important that the correct balance is struck between all areas of public policy having an impact on the design and manufacture of electrical products.

SPECIFIC ACTIONS IDENTIFIED FOR MONITORING AND EVALUATION DURING 2006 - PRIORITY STATEMENT REQUIREMENTS.

The Priority Statement lists several specific matters requiring responses from AEEMA by 31 March 2006. All have been addressed in a previous letter to the Minister. Responses are provided here in summary and bold below.

1. Specific proposals or current actions to establish a recovery plan for end of life consumer electronics products that contain rechargeable batteries with a further report by 31 October 2006.

AEEMA does not represent industries that use re-chargeable batteries in their products, other than mobile phones and emergency lighting, addressed elsewhere.

2. Specific proposals or current actions on improving the recovery and recycling of NiCad batteries from emergency lighting and exit signs with a further report on implementation by 31 October 2006.

There is no NiCad battery recycling facility in Australia. Discussions continue with Cleanaway regarding collecting and shipping batteries to Europe.

3. Measures to improve labelling to educate consumers on options to recycle or safely dispose of used NiCad batteries with a progress report by 31 October 2006.

As there is currently no effective recycling facility in Australia to which consumers can be directed, any educative labelling on safe disposal techniques will not be able to provide consumers with any useful advice.

4. Initiatives to improve or establish systems for collection and recycling and to reduce hazardous substances in whitegoods, consumer electronic and lighting products.

There is already an effective system in place for the collection and recycling of major white good appliances; the intrinsic value of the metal in these products makes their recycling efficient. We believe these systems are adequate and support the conclusion of the Productivity Commission that any proposed EPR regime should be rigorously tested for net benefit. (Draft report page XXXIII).

Regarding hazardous substances, the current inquiry into the possible introduction of ROHs into Australia has put this item into the National arena. Our members are already voluntarily introducing ROHs compliant components into their products, resulting in a decline in the level of these substances. AEEMA has made a submission to this inquiry and supports the introduction of ROHs as long as it is regulated nationally and with proper consultation of all parties. Another important issue is that some hazardous substances such as flame retardants are used in these products for safety reasons, and AEEMA will continue to support stringent safety standards for the benefits of consumers.

Lighting products contain some materials that are required for safety and on the basis of current evidence AEEMA considers safety benefits outweigh perceived concerns about hazardous substances. Lighting Council Australia is currently working with regulators and standards organisations to reduce the level of mercury in lamps sold in Australia. The recycling of lamps in Australia is problematical because of their fragility in transport and collection. Costs associated with recycling a fluorescent lamp exceed the cost of the lamp itself, and industry will not undertake any recycling activity that is so patently uncommercial. As the Productivity Commission has warned, "policy makers... need to be guided by open and rigorous analysis of costs, benefits and risks..." (Draft Report, page xxxv)

5. Specific proposals or current actions to reduce the amount of shredder floc going to landfill for end of life whitegoods with a further report by 31 October 2006. Proposals or actions could include dismantling non-metallic

components prior to shredding, developing ways to separate material from shredder floc or developing end markets for shredder floc.

Efficient and safe energy recover of shredder floc is only possible if it is shipped to Japan or Europe for treatment. Costs of this option outweigh the benefits and thus the option does not represent sound commercial sense. Dismantling and/or separating materials from floc similarly represent costs in excess of benefits. AEEMA does not consider it an appropriate or achievable obligation on suppliers or an industry sector to "develop end markets".

6

6. Specific proposals or current actions on focussing the attention of the commercial sector on improving the recovery and recycling of fluorescent tubes and other vapour lamps with a further report on implementation by 31 October 2006.

See response to 4. above