Review of the Draft Industry Interim Standard for Televisions and Computers

Analysis of "Fit for Purpose"

Prepared for

Department of Sustainability, Environment,
Water, Population and Communities

January 2011

Tim Rogers

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Prepared by:

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Executive Summary

The purpose of this review is to advise the Department of Sustainability, Environment, Water, Population and Communities whether the Draft Interim Industry Standard (DIIS) for Televisions and Computers is “Fit for Purpose” pending the development of an Australian Standard. The Australian Standard is expected to be finalised within 2 years.

This review is complemented by an analysis of Risks and Costs which is being conducted by KMH Environmental.

The review has had the benefit of the responses of members of the Stakeholder Reference Group to the DIIS and follow-up discussions with a small number of participants.

The DIIS is based on a Canadian Standard for recycling with provisions added for collection and transport. This review makes recommendations in a number of areas where the DIIS should be improved. Subject to these recommendations, the DIIS is considered to be “Fit for Purpose” as an Interim Standard directed towards the collection of end-of-life material from consumers.

Good or best practice is promoted in the areas of packing and transport and the accreditation of recyclers. The reporting regime should be strengthened and the DIIS needs to address the issue of reuse and disassembly. It does not deal with the management of material containing brominated flame retardants and further guidance from the Australian Government is required in this area before a position can be finalised.

OH&S and environmental performance is addressed but a number of provisions need to be strengthened to ensure that clear direction is given to operators.

The DIIS is generally appropriate for the Australian context although it does not deal with the extent of services for regional and remote communities nor does it detail a number of contractual issues that need to be resolved, particularly with the operators of collection sites.

Key performance indicators are being developed for the Television and Computer Scheme outside the Interim Standard process. These will be critical in driving the performance of the level of recovery under the DIIS

The DIIS references Australia’s international obligations. Its provisions in relation to hazardous wastes need to be clarified for the Australian context. The obligations under the Stockholm Convention will need to be modified in light of future Australian Government decisions arising from the proposed ratification of the 2009 amendments to the Convention.

The auditing and validation requirements should be clarified and the audit regime made more specific within the DIIS.

The proposed Australian Standard will cover a wider range of products and deal with more collection pathways than the DIIS. The process of ratifying the Stockholm Convention amendments should provide greater certainty for a regime which will deal with brominated flame retardants. The DIIS with the proposed amendments is considered to be in alignment with the likely provisions of a future Australian Standard.

1. Introduction

1.1 Scope of Work

The Department of Sustainability, Environment, Water, Population and Communities (DSEWPaC) engaged Tim Rogers to review the Draft Interim Industry Standard for the Collection, Transport and Recycling of End of Life Television and Computers (DIIS). The Review is to advise whether the DIIS is considered "fit for purpose" as an interim guideline for use in contracting service providers under the proposed National Television and Computer Product Stewardship Scheme (Television and Computer Scheme) pending the development of an Australian Standard for the collection, handling, storage, transport and treatment of e-waste.

1.2 Areas for Response

The terms of the Review require a "fit for purpose" response to the following:

1. Analyse the interim guidelines and provide advice on whether the following objectives have been satisfied:

    (a) best practice performance has been promoted, rather than minimum requirements, for the collection, handling, storage, transport and treatment of end of life televisions, computers and computer peripherals;
    (b) required occupational health and safety and environmental performance are appropriately incorporated, including as defined by Commonwealth, state and territory laws, including the *Hazardous Waste (Regulation of Exports and Imports) Act 1989* (Cth), and as identified in relevant international standards;
    (c) appropriateness for an Australian context, including consideration of regional and remote areas and demographic spread; and
    (d) Australia's international obligations, including requirements under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and the Stockholm Convention on Persistent Organic Pollutants are met.

2. Consider whether the interim guidelines provide for adequate auditing and validation requirements in any contracts between the industry-led Television and Computer Scheme and service

providers, and whether these arrangements align with international best practice.

3. Consider how the interim guidelines might align with the proposed Australian Standard and provide advice on whether any amendments are required to ensure the interim guideline will align;

4. Consider key stakeholder feedback on the interim guidelines and provide recommendation/s on how the interim guidelines might reasonably be altered to address stakeholder concerns; and

5. Provide recommendations on how the interim guidelines may be amended to meet the above objectives.

This work has been undertaken through a combination of desk-top review, inception meeting with DSEWPaC, attendance at a meeting of the Stakeholder Reference Group (SRG) and follow-up discussions with some individual recyclers and other members of the SRG to clarify issues. Details of the SRG are at Appendix A.

The work is one of two consultancies to review the DIIS, the second having risks and costs as its focus is being carried out by KMH Environmental under the direction of Geoff Latimer.

1.3 Description of the Television and Computer Scheme

At the Environment Protection and Heritage Council (EPHC) meeting on 5 November 2009, Environment Ministers' agreed, following consideration of a regulatory impact statement, that the Australian Government would, under the new product stewardship legislation, implement regulation to support an industry-led scheme that will collect and recycle end of life televisions and computers.

The product stewardship legislation is in preparation and will provide a consistent approach to reducing the environmental footprint and health and safety risks of specified manufactured products and materials, during and at the end of their useful life. The administration of co-regulatory product stewardship schemes will involve the approval of a product stewardship arrangement (approved arrangement) by the Regulator under the legislation, to be managed by the arrangement administrator.

Under the proposed approach to recycling arrangements for televisions and computers, importers or manufacturers will either join a Product Stewardship Organisation (PSO) which will act as an arrangement administrator and organise for collection and recycling of televisions and computers, or establish their own individual arrangements.

The PSO will charge members the cost of collection and recycling. Consumers of televisions and computers will be responsible for ensuring that their end of life televisions and computers are left at a designated collection point to be recycled, but there will be no charge to drop off an item.

Approval has been received from Standards Australia to establish an Australian Standard for the collection, storage, handling, transport and treatment of e-waste. Standards are an important component to the Television and Computer Scheme and the Australian Standard is expected to reflect international best practice. As the standard may take up to two years to develop, the Australian Information Industry Association (AIIA) and Product Stewardship Australia (PSA) have developed a DIIS to address the management of occupational health and safety and environmental issues when handling end-of-life televisions and computers by their proposed PSO.

The interim industry standard will form the basis for contractual agreements entered into by the AIIA/PSA proposed PSO related to collection and recycling of end-of-life televisions and computers disposed of through the Television and Computer Scheme until such time as an Australian Standard is available.[1]

2. Standards and Documentation consulted

2.1 Standards

In considering the DIIS the following Standards/Draft Standards and associated material were considered:

- Electronic Product Stewardship Canada Electronics Recycling Standard (EPSC 2009)
- Waste Electrical and Electronic Equipment Label of Excellence (WEEELABEX) Codes for Collection Transport and Treatment of WEEE (WEEE Forum 2010).
- e-Stewards Standard for Responsible Recycling and Reuse of Electronic Equipment (Basel Action Network 2009).
- Waste Electrical and Electronic Equipment Refurbishment and Recycling Good Practice Guidelines (NZ Ministry for Environment 2007)
- Guidance on Best Available Treatment Recovery and Recycling Techniques and Treatment of WEEE (UK DEFRA 2007).

[1] Adapted from DSEWPaC material at www.environment.gov.au/wastepolicy and www.environment.gov.au/ewaste

2.2 Other documents

Other reports/documents consulted:

- Consolidated Stakeholder Comments – DSEWPaC – December 2010 attached at Appendix B
- Product Stewardship Legislation Consultation Paper – DSEWPaC November 2010
- A Study of Australia's Current and Future E-Waste Recycling Infrastructure Capacity and Needs – Wright/Rawtec October 2010
- Australian Guide to Exporting and Importing Hazardous Waste – Information Paper No. 3 – DSEWPaC October 2008
- The Great Digital Switch Dump – TEC November 2010
- Jurisdictional input to the development of the DIIS – August 2010
- Industry Discussion Paper National Televisions and Computers Product Stewardship Program – Draft December 2010
- The Australian Dangerous Goods Code 7th Edition – Department of Infrastructure and Transport 2010.

3. Consultations

The project commenced with a meeting of the Stakeholder Reference Group on 30 November 2010 (Appendix A). This was followed by a meeting with officers of DSEWPaC and a representative of the drafting team for the DIIS.

An Inception Meeting was also held with DSEWPaC on the same day.

Following the closure of the period for comments on the DIIS, DSEWPaC provided a consolidated set of stakeholder comments (Appendix B).

Follow up interviews took place with Sims Recycling Solutions (SIMS) and MRI (Aust) Pty Ltd as representative recyclers (with Geoff Latimer from KMH Environmental), information was obtained from Kurrajong Recyclers and follow up information and material obtained from DSEWPaC, Department of Environment, Climate Change and Water (NSW) and Environment Protection Authority Victoria (Appendix C).

A telephone interview was also held with Geoff Pryor, representing NSW RENEW (Regional Local Government in NSW).

4. Contextual Issues

The DIIS represents PSA, the peak television industry association, and the AIIA, the peak computer industry association, response for a requirement to develop an interim Standard to be used in the delivery of a takeback scheme for computers, associated equipment and televisions at end of life from the consumer market. This comprises only a part of the computer and television discard or waste stream. Televisions and computers from commercial operations and other sources remain part of the overall Television and Computer Scheme but the DIIS has the consumer stream from households and small business as its focus. The DIIS is designed only to cater for television and computer products not the wider field of electronic material.

The DIIS is a Standard for the operation of collection facilities, transport and recycling. A range of issues are not covered by the Standard including the detailed contractual arrangements between the PSO and the collection facilities, transporters and recyclers. A proportion of the feedback received through the consultation process goes to issues which need to be dealt with as part of the contractual arrangements, particularly with the rollout of collection points. While some comment will be made in this document where it relates to issues which flow directly from the DIIS, there are stakeholder comments on other issues which need to be resolved in parallel with the DIIS.

I would particularly draw attention to the material provided under the DrumMuster Program which coordinates the collection of agricultural and veterinary chemical containers through the local government network. It provides a good example in terms of guidance for collection locations and consistency of message and materials for a coordinated rollout arrangement.

5. Analysis

Analysis of the DIIS has been undertaken in accordance of the Terms of Reference for this project. Some issues arise under several headings and will therefore be analysed from different perspectives at those points. Rather than constantly cross reference and resolve such issues in each section they will be brought together as part of the final assessment and recommendations.

5.1a Best Practice is promoted

The DIIS is generally based on the equivalent Canadian Standard for recycling with a number of modifications including provisions for collection and transport to processors.

There are five main areas in which a significant question of its attainment of best practice arise:

- Reuse and application of the waste hierarchy
- Packing and Transport provisions
- Plastics containing Brominated Flame Retardants (BFRs)
- Accreditation of Recyclers
- Reporting of recovery outcomes.

Reuse

Reuse either with or without refurbishment is, in terms of the waste hierarchy, a more desirable outcome than recycling of either components or material. The DIIS specifically excludes these activities at Part 1 (Scope) but in Part 3 (Guiding Principles) advises the use of the Waste Management Hierarchy to inform processing decisions (3.4).

The DIIS is proposed as an interim step and applicable to a specific end of life stream. It is likely that the initial period, coinciding with the digital television rollout, will bring stored and truly end of life equipment into the collection in some quantity. Older televisions and computer equipment which may have been in storage will have less value for reuse.

The DIIS does not appear to prevent those recyclers which receive equipment through the Television and Computer Scheme from reuse/refurbishment activity. Such a restriction could be included in individual contracts arranged under the Television and Computer Scheme but this would be contrary to the application of the waste hierarchy.

While the DIIS may be adequate for its purpose in relation to collection and recycling, not providing some guidance on pathways for equipment which remains useable cannot meet the goal of promoting best practice.

Protection and Transport provisions

Clause 4.4 provides for the protection and transport of material in such a way that effective recovery and recycling is not adversely affected. In particular, the packing of flat panel and CRT displays to prevent breakage is consistent with procedures being developed under the WEELABEX Draft Standards and does promote best practice.

Notwithstanding Clause 4.4 and its requirements, Clause 5.2 requires that equipment is to be prepared for transport “in accordance with instructions from the recycler”. It is unclear why this clause appears as it may lead to less stringent interpretation of Clause 4.4. If it is intended to mean that guidance on packing will be provided by recyclers, it should be clarified so that there is no confusion. Guidance on proper

packing could be appended to or referenced by the DIIS. Appendix 5 already contains some information which should be consistent with the commentary in the body of the DIIS.

Brominated Flame Retardants (BFRs)

Australia ratified and became a party to the Stockholm Convention on Persistent Organic Pollutants (POPs) in 2004. Nine new chemicals were added to the Schedules under the Convention following agreement in May 2009. These include Penta and Octa BDE which are BFRs. They are no longer used in new products but are present in a variety of articles currently in use and which will emerge as waste over coming years. These articles include electrical and electronic equipment but also carpets, mattresses and some upholstery foams.

Australia has not yet ratified the 2009 additions and, when it does, has the option of a time limited exemption to allow management practices to be put in place. Best practice would involve separation of material containing BFRs and its management. A more detailed discussion is at 5.1d below. Until appropriate practices are in place, the DIIS will remain below the level of best practice.

Accreditation of Recovery Outcomes

The proposed requirement that recyclers be accredited to ISO 14001 is consistent with best practice. Some comments are made below about making the language of the DIIS more directive which would better align with requirements under ISO 14001.

Reporting of Recovery Outcomes

The reporting regime for materials recovered/disposed of applies only to the first recycling operation with downstream operations only required to track “Substances of Concern” beyond that point. While the drafting notes in the DIIS acknowledge that this is below best practice, it is a significant issue in assessing scheme performance and achieving the best recovery outcomes.

Further comment is provided below and recommendations for improvement will be made.

5.1b OH&S and environmental performance incorporated

Covered largely by (4.1) Risk Management, (4.2) Legal Compliance and (4.4) Receiving Handling and Storage. Supplemented at (7.4) Processing and Handling for Recyclers and Appendix 5 for collection centres.

These requirements essentially rely on an assessment of the risk and compliance with the legal requirements by the operators and provide only general guidance on the extent and frequency of monitoring.

Clause 7.4 applying to processing and handling makes specific reference to “mechanical material processing and separation”. It is not clear what this differentiation is. It may separate dismantling from processing but may also apply to different types of processing and not others, all of which may generate occupational issues. For example, these requirements may include PPE for hazards other than air quality.

The Canadian Standard, WEELABEX and e-Stewards all use a more directive language in relation to recyclers, specifying processes, actions frequency of testing etc which place clearer obligations on processors.

The guidance provided in Appendix 1 relates only to the types of material found in electronic waste rather than any guidance on process.

The DIIS needs to be more directive in its language and provide clear details of the expectations placed on operators. This would improve the level of incorporation of environmental and OH&S requirements rather than relying on operators to interpret the requirements.

5.1c Appropriateness for an Australian context

The Australian context for the DIIS includes:

- A start up scheme which builds on existing practices
- An existing recovery and recycling industry
- A proposed greatly expanded collection system managed by an Industry Product Stewardship Organisation.

Elsewhere in this report the detail of the DIIS is examined and recommendations made for improvements. Subject to that analysis, it is considered generally at a level appropriate to Australia and Australian industry for those issues which it covers.

The DIIS makes no specific reference to regional or remote locations. Activity at regional and remote locations is most likely to be the operation of collection points and would be managed by local government or other organisations contracted for the purpose (options under consideration include charities and retailers). Some local disassembly may be undertaken depending on contractual arrangements.

While not part of the DIIS, the PSO is developing a position on roll out and locations. This would include permanent collection points and “events” involving periodic collections. The current proposal is for a

total of 140 collection points across Australia but that proposal is still to be finalised.

In terms of access in remote and regional areas, 140 locations represents a low penetration outside the major cities. Servicing these areas with a low cost aggregation and collection system is important as the less populated the area the less it is able to support highly engineered disposal options in the local area.

Appendix 5 provides a checklist for use by collection locations. This provides a basic guide which could be used by regional and remote locations. It appears that the requirements could be met in most locations using existing facilities. It is assumed that specialist storage (probably containers) would be obtainable under the Television and Computer Scheme rather than relying on existing structures.

Dealing with substances of concern and OH&S was not considered an issue by the recyclers contacted, all of whom claimed to have extensive programs to manage both OH&S and environmental risk. PGM Refiners refers to particular arrangements in the stakeholder comments. Whether all small operators could meet the requirements has not been tested in this analysis but the requirement to adopt ISO 14001 and costs are more fully canvassed in the KMH Environmental report.

Issues not covered by the DIIS include the management of damaged equipment, handling illegal dumping of refused material or material deposited out of hours, content of signage and similar details. The rights of collection centres to refuse to return items unsuitable for recycling and their rights to deal with the material after handover need to be clear to the public. Councils in NSW have statutory protection and own waste once collected or left at a depot (*Local Government Act 1993* section 743) but this level of legal certainty may not be evident in other arrangements.

Data Security (Clause 7.6) has been made the responsibility of the individual disposing of the equipment and this provision allows recyclers to offer the service. Both the Canadian and the e-Stewards Standards place responsibility for data protection/destruction on recyclers. The Canadian Standard requires the recycler to manage data protection and e-Stewards requires the operator to obtain a waiver if data is not protected. Given the potential importance of this issue the cost/benefit of improving data security should be considered.

5.1d Australia's international obligations

Australia is a signatory to the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal which puts an onus on exporting countries to ensure that hazardous

wastes are managed in an environmentally sound manner in the country of import.

The Australian Government manages the implementation of the Convention through the *Hazardous Waste (Regulation of Exports and Imports) Act 1989*.

The DIIS makes specific references to this Act in Clause 4.2 (Legal Compliance) as a subset of hazardous waste transport regulations. It is also presumably covered by the generic term “Hazardous Substances Legislation” in the same clause.

Further references are found at Clause 6.2 (Export Transport Requirements) and in Table 1.

The Act regulates the export and import of hazardous waste (including some electrical and electronic assemblies or scrap. Some other electronic scrap can be exported to OECD countries without a permit, but requires a permit for export to non-OECD countries.

Given the importance of this Act, including its application to whole electronic units which are not in working order, it should be a specific reference in Clause 4.2 (Legal Compliance) and not subsumed under the Transport heading.

For similar reasons, the need for permits should be given priority rather than its treatment under Clause 6.2 (Export Transport Requirements).

The content of Table 1 (Not Acceptable Practices) has been drawn from the Canadian Standard and does not always accord with advice from the Australian Government. Export of some material is allowed to non OECD countries with a permit (e.g. Singapore) and the export of some material (e.g. CRT glass) requires a permit even for OECD countries.

The table either needs to be updated in detail for Australian conditions or note that the Act may apply rather than its present descriptions which can be misleading.

The Stockholm Convention on Persistent Organic Pollutants has been mentioned earlier in this analysis. The Australian Government is still in the process of ratifying the 2009 additions to the Convention including penta and octa BDE which are BFRs used in some electrical equipment. They are no longer used but exist in historic stocks.

Disposal of plastics containing BFRs is a much larger issue than the area covered by the DIIS. It is strictly true that the obligation has not yet arisen, the DIIS complies with current requirements and advises of the issue.

Requirements for dealing with BFRs are not included in the DIIS but the additions to the Stockholm Convention covering BFRs are discussed. Noted are the difficulties of separating plastics containing brominated flame retardants from others and the potential for both a time-limited extension for recycling and the WEELABEX endorsed limits on BFRs in end of waste plastic.

While acknowledging concerns and expressing industry desire to find viable solutions are to be noted, they are out of place in the body of the DIIS.

Obligations to manage waste under both the Basel and Stockholm Conventions are placed on the Australian Government which is leading the process on the ratification of the amendments and the resulting management framework. Resolution of an appropriate management framework is a priority which should be reflected in an amendment to the DIIS as soon as available.

This is an area where policy guidelines from government are required including the acceptable limits of blending into recycled material (if any) and alternative means of disposal.

In the meantime, the expected life of the DIIS is up to 2 years and is within the time-limited exemption provisions available to the Australian Government. It would be appropriate to include the early adoption of any technology that would allow the separation and management of BFR affected plastics in the DIIS as desirable.

5.2 Are auditing and validation requirements adequate

Auditing and validation apply to material collected/processed and to the operation of collection sites, transport and recycling operations. Recycling operations are divided into two types, recyclers who receive material from the collection point and downstream processors who deal with the materials from the recyclers. The latter may process material themselves or act as an aggregator to send material for further processing, end use or disposal.

Collection and recycling data is covered by Clauses 4.6 (Reporting), 7.5 (Traceability) and 7.7 (Downstream Processors).

These clauses, read together, require collectors and recyclers to report in units or tonnes of material collected through the Television and Computer Scheme and other processors to the PSO (Clause 4.6b). They are also required to report amounts and categories recovered and disposed of (Clause 4.6c), and consigned to named downstream processors (Clause 4.6d).

Recyclers are to fully account by weight from receipt by the recycler and for the downstream flow to the next recycler but only substances of concern are traced to final disposition (Clause 7.5 Traceability). Recyclers are to maintain a documented process to evaluate and select downstream processors. These are to include periodic audits by second or third parties (Clause 7.7 Downstream Processors).

The data capture on material passing through the downstream recyclers is acknowledged in the DIIS to be below the standard of WEELABEX and also below the level of the Canadian Standard. The absence of a full accounting for material processed will undermine the capacity of the Television and Computer Scheme to deliver a robust account of recovery.

Risk Management (Clause 4.1), Legal Compliance (Clause 4.2), Emergency Response (Clause 4.3) and Receiving, Handling and Storage (Clause 4.4) all place a responsibility on the operator to meet relevant legislation and other requirements. The coverage appears adequate but the language used in these clauses varies between directive (e.g. Clause 4.2) and non directive (Clause 4.1). Given the importance of these clauses and that compliance with them determines both the adequacy of the individual operational response and the ability to audit it, recommendations have been provided to improve the wording and the linkages to relevant appendices (Appendix 1 and 5).

It would be preferable to deal with the requirements for recyclers, transporters and collection points separately for clarity. While issues which are common, such as reporting incidents (Clause 4.6a) should remain generic and be a separate item, the requirements for data collection, OH&S, legal compliance etc can be tailored for collection sites and a more detailed requirement for recyclers expressed in the relevant areas or appendices.

As the DIIS proposes that recyclers will be subject to ISO 14001, their audit regime could be made more specific, i.e. what is audited for ISO14001 and what other information is to be held for audits under the DIIS. Responsibility for the audit process should be made clear.

Clause 4.7 – Records Management is written to apply only to recyclers. This clause should apply to all participants. The fixed period of 3 years is misleading. ISO 14001 allows the organisation to set a period for retention. Periods of 3 and 5 years are common. Other records have to be maintained for different periods for taxation and regulatory purposes. This clause may better express a minimum period for all records but note the longer retention periods under various statutory and regulatory requirements.

5.3 Alignment with proposed Australian Standard

The proposed Australian Standard will cover a wider range of products than the DIIS and will deal with more collection pathways.

An Australian Standard would be expected to deal more definitively with BFRs given Australia's obligations under the Basel Convention and the timeframe for the development of the Australian Standard.

Reuse options for whole or parts of equipment would also be expected to be covered in an Australian Standard, even one dealing with end of life equipment, consistent with overseas Standards.

At a number of points there is a reference to the PSO as the manager of the approved arrangement. These should be replaced by a more generic term, so that the DIIS can be more generally used prior to the finalisation of an Australian Standard. The term 'arrangement administrator' is used in the Product Stewardship Consultation Paper and would be appropriate.

A number of recommendations will be made which should clarify the DIIS and make it more closely aligned with expectations for an Australian Standard.

5.4 Stakeholder Feedback

Stakeholder feedback is extensive. DSEWPaC has consolidated comments which would be valuable for the PSO. They deal with a range of significant issues but also drafting detail which is useful for final editing.

Non-government organisations especially the Community Recycling Network and Total Environment Centre are critical of the DIIS on a range of issues. Particular and detailed comment was provided on:

- not ensuring highest use in accordance with the waste hierarchy with a particular focus on reuse
- Insufficient criteria for restricting landfill and incineration to a minimum
- Allowing the processing and reuse of BFR contaminated plastics
- Lack of a defined recycling rate to drive best practice
- Poor tracking and auditing of material flows to downstream recyclers.

The comments are supported also by local councils and local government organisations. Organisations involved in disassembly have queried the role for the disassembler.

These comments have been taken into account drafting in the final recommendations but not all have been adopted.

Recycling industry responses were generally supportive endorsing the DIIS as suitable as an interim step before the Australian Standard is implemented. Some organisations have commented on specific parts of the document looking to strengthen or better present aspects of the DIIS including:

- more directive occupational health and safety and risk management wording (Apple, SITA)
- better guidance/stronger requirements on downstream processors (Apple, AMTA, SITA).

Jurisdictional comment was provided by DSEWPaC, DECCW and the ACT. Subsequently, comments were also received from the Victorian EPA. These provide detailed commentary on the structure of the DIIS and also aim to strengthen the wording of some sections and provide greater clarity.

The issues above are significant and go to the credibility and utility of the DIIS. They have been taken into account in developing recommendations which cover improved wording, stronger reporting requirements and the need for the reuse issue to be clarified in the DIIS. Handling of BFRs has been dealt with but is an issue principally for government guidance within the 2 year timeframe of the DIIS. The need for targets/KPI's to drive recovery is acknowledged but these are being developed for the Television and Computer Scheme as a whole.

The recommendations for change outlined in this review adopt many of the changes suggested through stakeholder consultation but leave some flexibility around recycling uses in recognition of the need for the Television and Computer Scheme to be implemented in the short term and its transitional nature. More stringent requirements might be considered as part of the development of the Australian Standard.

There are a number of other issues which are relevant to particular aspects rather than the underpinnings of the Television and Computer Scheme.

An issue raised by the ACT has parallels in comments by members of the reuse and disassembly sectors. The DIIS is based on a model of collection points shipping to recyclers but collection arrangements in the ACT already include local dismantling. A number of smaller dismantlers have raised the issue of local processing to reduce transport costs and sending material for further processing. If this type of collection and processing is contemplated, it needs to be provided for in the DIIS.

Materials collection and processing was addressed by PGM Refiners (a recycler) indicating their collection process is more efficient using mechanical methods at collection points, some compaction and mechanical loading/unloading. They also queried the ban on processing CRT displays.

The requirement to pack and deliver equipment in an unbroken state represents good international practice, maximises the options for recovery/reprocessing and minimises the risks to workers and the environment from broken and dangerous parts and the release of pollutants. The operations described by PGM Refiners require particular occupational health and safety arrangements to be put in place for the collection site and have been applied by them for 'event' collections.

The DIIS has to apply to the operation of in excess of 100 collection points and does not, at this stage, allow for alternative arrangements to be negotiated. PGM Refiners makes the point that innovation should not be discouraged and it may be appropriate to pursue performance based criteria either in a future amendment to the DIIS or the Australian Standard which would be subject to contractual conditions.

PGM Refiners's comments about mechanically processing CRT displays are supported by Apple and would be consistent with the UK Guidance on Best Available Treatment Recovery and Recycling Techniques under controlled conditions. This issue is the subject of further recommendations.

The DIIS includes provisions in both Table 1 and its accompanying notes dealing with the use of prison labour. This is a refinement of comments in the Canadian Standard that has been questioned from two perspectives.

The first is that having a provision about the use of prison labour draws attention to the possibility and may deter potential users of the service from submitting equipment which may be dealt with by prison labour. Alternatively, Apple has indicated that it and a number of other firms have a policy of not using prison labour and would wish to know any recycling firms that direct material to industries using prison labour and avoid contracting those firms. This issue is also the subject of recommendations.

6. Assessment and Recommendations

6.1 Assessment

Overall the DIIS presents a reasonable basis for the commencement of arrangements by the proposed PSO. In its present form it lacks some clarity and does not adopt a sufficiently directive stance. Much of this can be resolved by editing rather than a fundamental rewrite. In order

to assist this, Recommendation 3 below provides a detailed set of suggestions for change. These do not go into the detail of all submissions and further editing suggestions could be obtained from the combined stakeholder comments, particularly those of jurisdictions.

The DIIS does not deal with the KPI's for the Television and Computer Scheme. The KPI's are essential, whether in the DIIS or published elsewhere for the Television and Computer Scheme as a whole as they represent both the measure of the work done and a driver of good performance. Comments concerning the phased rollout of the Television and Computer Scheme and available data may offer reasons why they are not included in the DIIS which is of a temporary nature but the DIIS should encourage a sound reporting base from the start.

The existence of the Television and Computer Scheme will increase the quantity of material available for recycling and should drive better practice and the movement of material to better recovery options. At this stage, recovery options should remain flexible to ensure immediate capacity is not a constraint on recovery flows.

The DIIS does not deal with the issues arising from the Stockholm Convention and BFR contaminated plastic. Appropriate regulatory direction is required as soon as possible to assist in defining recovery/treatment/disposal pathways. This guidance is essential in order to meet the future international obligations which will arise when the 2009 additions to the Convention are ratified by the Australian Government.

The role of disassemblers is not addressed in the DIIS and needs to be, not only because of their numbers but their possible role as collectors/aggregators of equipment.

6.2 Recommendations

1. That the Australian Government provide guidance on the appropriate directions for the management and processing of materials containing BFRs listed in the 2009 amendments to the Stockholm Convention. DIIS to be amended accordingly.

2. That once the KPI's for the Television and Computer Scheme are determined the DIIS be reviewed on the basis of their possible inclusion, either as targets or in the selection criteria for processors.

3. That a review of the DIIS be undertaken in the following areas:

Preface

Material about the PSO and the Television and Computer Scheme should be here so that the DIIS stands alone. The term “arrangement administrator” should then be used throughout in the DIIS to allow it to be applied more generally.

1. Scope

It would be better to describe the reuse market rather than get into detail such as “parts harvesting” which can be done by recyclers.

2. Application

The DIIS is proposed as an interim Standard. References to “guidance” should be removed; adherence is expected through contractual arrangements between the PSO and collection, transport and recycling service providers.

3. Guiding Principles

The duty of care (Clause 3.2) would be better expressed as being managed in accordance with “legislation, regulations, codes and directions and environmental management practices”.

The hierarchy described at Clause 3.4 is not consistent with the hierarchy on page 26 of the DIIS.

It would be better in Clause 3.6 to place an obligation on <u>all</u> participants to maintain records of compliance and data which is to be available for independent verification.

Additionally, protection of the environment should be emphasised e.g. “Collection, transport, storage, dismantling and recycling must be managed to ensure the environment, including land, air, water and groundwater is not adversely affected”.

4. General Requirements

Risk management (4.1) to be tightened. Examples of alternative wording have been provided by DSEWPaC (page 31 of Consolidated Stakeholder Comments) and Apple.

Legal Compliance (Clause 4.2) must identify the Hazardous Waste Act as a primary issue rather than a subsidiary one. See also DSEWPaC (page 32 - 33).

Emergency Response (Clause 4.3) to be expanded to provide better guidance on the requirements e.g.:

- It should clearly set out the issues to be covered in an Emergency Response Plan.

    - flood
    - fire
    - spillage
    - accident.

- Action to be taken (including notifications required by law).

- Notifications to be made to the arrangement administrator.

- Requirements for a Disaster Recovery Plan e.g.

    - Alternative collection or notice of suspension
    - Alternative storage
    - Alternative transport

    - Recovery timeline

    - Requirements for training all/responsible staff

        - Documentation to be available
        - Review of documentation
        - Periodic testing by drills.

Data Security (Clause 4.5) is deemed to be the responsibility of the owner. Not only does this need to be clear at the point of collection, it must be in <u>all</u> communications and educational information about the Television and Computer Scheme arrangements. There is little the consumer can do about it at a council depot.

A new clause should be inserted covering Import and Export requirements, generalising information now found in part 5 where it only applies to transporters. Possible wording has been provided by DSEWPaC at page 33.

Reporting (Clause 4.6) appears to try and cover more than one scheme and then requires supplementary coverage. Suggest that here it deals with reporting of issues e.g.

- operators must advise the arrangement administrator as soon as possible and not later than within 5 days of:

    - fines
    - regulatory orders
    - etc

- with appropriate reporting requirements under each category.

A separate clause should deal with data reporting.

Records management (Clause 4.7) should apply to all functions not just recyclers and would logically lead to a statement on auditing either within a retitled clause or as one to follow. Such a requirement should clearly place responsibility on each organisation to retain collection, transport and disposal/transfer records as well as other documentation covering compliance. It would also be appropriate to specify who will audit or how it will be done.

The wording of the 3 year retention period should be expressed as a minimum and reference made to longer periods where required.

5. Collection Locations

Attention should be drawn to the checklist at Appendix 5 which might otherwise be missed. This is a critical piece of guidance for operators and it is preferable that it appears earlier in the Appendices, logically following an expanded Appendix 1.

Some of the issues under Clause 5.1 – Clause 5.4 might not translate to a final standard or be applicable to other collections e.g. fees but it would be preferable to retain them here for clarity in the DIIS as an interim document.

Rewording of Clause 5.4 to indicate that “there will be no charge to members of the public to deposit televisions and computers at a collection centre under the Television and Computer Scheme” would eliminate the need for the note and reaffirm the intent of the decision made by EPHC on 5 November 2009.

A clause covering the collection data reporting should be inserted after Clause 5.4. That clause should clearly state preferred data collection units and any segregated data required. Clause 4.6 currently allows weight or item counts as agreed “with the PSO”. Will item counts be required for all or only those without weighbridges? Are televisions and computers required to be counted/weighed separately?

Clause 5.5, currently numbered Clause 5.2, requires that material only be forwarded to a recycler “certified” as complying with the DIIS. It needs to explain who will certify and how certification will be checked. Will it be the arrangement administrator who arranges/checks this? The clause also requires material to be prepared “in accordance with instruction from the recycler”. There are possible conflicts between this, Clause 4.4 and Appendix 5.

6. Transport Requirements

This area should be reorganised:

The last paragraph (The provider must …) is general in nature and should be above Clause 6.1. The “provider” is not specific – is it the transport operator or someone else?

An insurance provision is required to ensure that appropriate cover is in place for this part of the operations.

For domestic transport material should be transported in accordance with national and state transport and applicable waste and/or dangerous goods regulation including the maintenance of any necessary documentation.

The reference to the *Hazardous Waste Act 1989* should be relocated to Section 4 as a general issue for all parties.

The requirements need to be expressed more clearly with reference to Australian requirements for shipping. For example, the Australian Dangerous Goods Code is harmonised with the recommendations of the UN Committee of Experts but applies in Australia. If other requirements arise from Maritime legislation they should be made specific.

It is not clear whether the requirement expressed in the sentence commencing “In order to…” is a general requirement for the transporter to hold appropriate licences generally or a specific requirement for transport to shipping. If general, then it is not related to export only and if specific licences are required a reference should be inserted.

It may be that the distinction between Clause 6.1 and Clause 6.2 could be eliminated.

7. Requirements for Recyclers

Goods Receiving and Storage (Clause 7.3) would be expected to apply on receipt at a recycler. In the DIIS it is about giving advice to the collection depot. This process should be consolidated in section 4 with appropriate guidance in Appendix 5. The DIIS should set out the basic principles to apply then allow the parties including the arrangement administrator, to arrange other details contractually.

Processing and Handling (Clause 7.4) allows for manual, mechanical, chemical or heat treatment processes. It then deals with “mechanical material processing or separation activities” in more detail. Given the importance of risk management and occupational health and safety to these operations, it would be worthwhile to stress the requirements of Risk Management (Clause 4.1) and the need to comply with legislative requirements for all

recycling operations. Note also the earlier comments about more directive wording.

The need to cater for and encourage good practice for mechanical processing was raised in relation to mechanical processing of CRT displays. The DIIS has a “deeming” process for risk but then precludes specific items from mechanical processing. The reasons for exclusion should be clear, whether it is a health and safety risk unable to be controlled or some other reason e.g. mixing of hazardous material which cannot be subsequently recovered. As presently drafted the clause does not allow the mechanical processing of components once removed from the whole unit. Inconsistently, Table 1 does allow the mechanical processing of batteries and mercury containing lamps and switches which have been separated.

The proper storage of material is a requirement applied only to fractions from mechanical treatment from which hazardous substances might disperse rather than the more general requirement that all material be stored to prevent dispersal.

The restrictions on the use of landfill, energy recovery and incineration are based on the recycler being able to show that it is the most environmentally sound solution or there is no “economically viable” recycling technology available. Without detailed performance monitoring or external audit these criteria do not provide good benchmarks. The example of local energy recovery is not appropriate for a scheme designed to remove equipment from remote landfills and given the difficulties of BFR contaminated plastics it would be beneficial if the criteria could be tightened. (Some changes proposed below may also assist).

The discussion of refurbished equipment should be in the preface.

Table 1 contains the requirements for dealing with products and materials. There are two issues which arise across almost all “Not Acceptable” categories.

1. Manual processing using prison labour is not permitted unless the requirements of ISO 26001 are met. Including this in the table carries the implication that this is normal and expected practice. Furthermore, Apple has pointed out that it and other companies have agreed not to utilise prison labour. Unless the widespread use of prison labour is actually contemplated in Australia, this might be better deleted or dealt with as a footnote in a more positive form e.g. If prison labour is to be used, it must comply with ISO 26000 and be disclosed as part of any proposal/tender. The arrangement administrator will determine whether this use is appropriate and reserves the right to reject its use.

2. Exporting to non OECD countries etc has been used generally. This does not represent the position in Australia and the comment should be replaced with one which reflects the general position under the *Hazardous Waste Act 1989* or reflects the position for each category.

Table 1 should be amended as follows:

End of Life Computers and TVs	Landfilling should not be acceptable as there are whole units
Circuit Boards	Incineration should not be acceptable
Cables and wires	Incineration should not be acceptable
Batteries and mercury containing lamps	Minimum application – extract from whole units Not acceptable - incineration

Note 3 should be amended to note the effect of the Stockholm Convention and the potential for a time limited exemption together with a statement that the schedule will be updated in the light of further advice. Early adoption of technologies to identify and separate material containing BFRs should be encouraged. The rest of the discussion should move to Appendix 2.

The provisions for Traceability (Clause 7.5) and Downstream Processors (Clause 7.7) need to be considered together. The KPIs for the Television and Computer Scheme are yet to be set and currently sit outside the DIIS. There should be better tracking than proposed both to provide assurance of proper recycling and drive better performance.

Every effort should be made to establish the level of recovery at each step of the process. Many of the downstream processors will be able to provide details of recovery from downstream processing. The process of selecting downstream processors should include a bias toward the selection of those who have high levels of recovery, can provide the required detail and are prepared to have independent verification of the outcomes. Therefore the evaluation and selection process for downstream processors should seek operators who are able to provide traceability of all parts of the processing stream to final disposition with traceability of substances of concern being the minimum requirement rather than the determinant.

The requirement should be imposed on subsequent processors by each contracting party. The selection criteria should be documented, open to examination and the downstream processors subject to independent audit.

Data Security (Clause 7.6) might be reviewed in the light of any cost/benefit review.

8. Definitions

8.1 At several points commentary suggests a better description of audit arrangements is needed. It is suggested that the DIIS should be specific in detailing the qualifications for auditors under ISO 14001 and the qualifications of other auditors, if any, for non ISO work.

8.2 & 8.16 Should clarify whether a collection facility can also disassemble, either under the same heading or a new one.

8.4 The last dot point should reflect the fact that the contracted party, like a downstream processor, may act on behalf of other than the first recycler. The wording does not fit the lead paragraph and should start at “handles”.

Appendix 1

While this deals with materials it could also provide some guidance on systems needed for OH&S and environmental management, similar to Appendix 5. The extent of this would be dependent on the nature of changes to Clauses 4.1, 4.2 and 4.3 and the need for further explanation/checklists.

Appendix 2

The table appears incomplete and is missing the discussion of the time limited exemption. Discussion of the Stockholm Convention and the BFR sorting to be moved here from body of document.

Appendix 5

This might be brought forward (e.g. Appendix 2) to give more prominence and should be referenced in the body of the DIIS.

The content is basic and should be supplemented following the edit of the body of the DIIS and the Risk Analysis.

Additional Material for DIIS

The role of and guidance for disassemblers should be considered and addressed both from the perspective of their operations and their possible role as collectors.

APPENDIX A

National Television and Computer Product Stewardship Scheme Stakeholder Reference Group

Name	Position	Group
Mr Nick Harford		Independent Chair
Ms Kelly Pearce (Alternate Chair)	Assistant Secretary, Waste Policy Branch, Department of Sustainability, Environment, Water, Population and Communities (DSEWPAC)	Australian Government
Ms Emily Harris	Assistant Director, National Pollutant Inventory and Hazardous Waste Section, DSEWPAC	Australian Government
Mr Patrick McInerey	Director, Ozone & Synthetic Gas Team, DSEWPAC	Australian Government
Ms Christine Blanchard	Environment and Health Policy Adviser, Local Government Association of Queensland	Local government
Mr Ben Morris	Policy Adviser Energy and Waste, Victorian Municipal Association	Local government
Ms Rebecca Brown	Manager Waste and Recycling, Western Australian Local Government Association	Local government
Mr Robert Verhey	Strategy Manager Environment, Local Government and Shire Association of New South Wales	Local government
Mr Ben Mooney	Program Coordinator, ChemSafe Homes Tasmania, Local Government Association of Tasmania	
Ms Cathy Bray	Chief Executive Officer, Smith Family Commercial Enterprise (representing National Association of Charitable Recycling Organisations)	Community NGO
Mr Jeff Angel	Executive Director, Total Environment Centre	Environmental NGO
Mr Brad Gray	Campaigns Manager, Planet Ark	Environmental NGO
Mr Marco Pantano	Corporate Affairs Manager, Intel	Computer manufacturer/ importer
Mr Kee Ong	Chief Executive Officer, Synnex Australia	Computer manufacturer/ importer
Mr Daniel Todd	Managing Director, Bush Australia	Television industry
Mr Ian McAllister	Executive Director, Consumer Electronics Suppliers Association	Electrical suppliers
Mr Derek Balmer	Executive Director, Business Imaging Association of Australia Ltd	Business community
Ms Rose Read	Manager Recycling, Australian Mobile Telecommunications Association	Business community
Ms Michelle Morton	Managing Director, E-Cycle Recovery and CRT Recycling Australia	Recyclers
Ms Helen Jarman	Managing Director, Infoactiv Group	E-waste Management & Supply Chain
Mr Kane Siegel	General Manager, TIC Group	Recycler / Reverse Logistics
Mr Kumar Radhakrishnan	Senior Vice President – APAC Sims Recycling Solutions	Recycler / Reverse Logistics
Mr Peter Stephens	NSW Manager, CMA Ecocycle (representing	Recycler / Reverse Logistics

	Australian Council of Recyclers)	
Mr Peter Shmigel	General Manager, Sustainability and Strategy, Veolia Environmental Services	Waste management industry
Ms Emma Young	Director, Policy and Programs Environment Protection and Sustainability, Environment, Heritage and the Arts, Department of Natural Resources, Environment, the Arts and Sport, Northern Territory	Territory Government
Mr Bernard Ryan	Manager, Waste management Branch, ZeroWaste Western Australia	State government
Mr John Mollison	Deputy General Manager, Environment, Tasmanian Department of Primary Industries, Parks, Water and Environment	State government
Mr Rob Middlin	Senior Project Officer, Environment Protection Authority, South Australia	State government

APPENDIX B

National Television and Computer Product Stewardship Scheme

Consolidated Stakeholder Comments on the Draft Interim Industry Standard for the collection, storage, handling, transport and treatment of end-of-life televisions and computers in Australia

Prepared by DSEWPaC, 7 December 2010



Consolidated Stakeholder Comments on the draft Interim Industry Standard for the collection, storage, handing, transport and treatment of end-of-life televisions and computers in Australia

Sector	Comment
Question 1: Has best practice performance been promoted, rather than minimum requirements, for the collection, storage, handling, transport and treatment of end-of-life televisions, computers and computer peripherals?	
Local Government	**Leichhardt Council** – • Education on End of Life vs Reuse - for best practice to be promoted an overarching education/communication message must be that the Scheme is for 'scrap and end of life' only. The community in general, does not differentiate between reuse and recycling. Monitoring of downstream processes is limited. This is of concern in general and particularly in relation to eg Brominated Flame Retardants (BFR). If there is no acceptable way of separating BFR – then ban it in the manufacturing process. • Greater emphasis needs to be placed on design to ban substances that cannot be appropriately recycled without environmental and health consequences
Industry Association	**AMTA** - • The document outlines the minimum requirements that AMTA would expect from their collectors, transporters and recyclers except perhaps in the traceability and downstream recycling part. • It is not just the substances of concern that need to be traced through to point of final disposition but all materials, likewise it needs to be traced beyond the next downstream processor as in some instances there will be a second or even third downstream processor. With an emphasis on the resources recovered – even if they loose track of the individual item verification that the materials have arrived and gone through a process with a particular outcome should be reported • It is difficult to say if they are best practice but what has been included is quite thorough.

	• There perhaps a lack of detail on the type of containers that items need to be stored and transported in and also in clause 4.7 page 11 records management = shouldn't this apply to the collectors and transporters as well??And in regard to 4.6 on same page I would expect the transporter would need to advise the PRO or its client of any incidents?
NGO	**<u>Community Recycling Network (CRN)</u>** – No • The DIIS and National Program needs to be in alignment with the National Waste Policy and put reuse ahead of recycling to ensure the highest environmental outcome. • The DIIS provides no guidance on who will determine whether equipment received for recycling is in fact at 'end-of-life'. Consumers and Businesses wanting to recycle their 'end-of-life' equipment may do so for many reasons not just because the equipment is at its end-of-life. For example it could be unwanted but still have a good second life. • Although the DIIS only deals with 'end-of-life' equipment, the reality is that equipment which is suitable for refurbishment / reuse will be received as part of the National Program. This needs to be addressed as part of the DIIS. • The DIIS mentions that industry will be working with other stakeholders to ensure that there are mechanisms to remove product that still has value from the waste stream before it is collected through the National Program, no details of how this will work have been communicated, it needs to be a part of the DIIS. • The DIIS needs to promote reuse and provide guidance on how items are collected, handled, transported i.e. items should be collected / handled / transported so they are not damaged before they are assessed for reuse possibilities. • The DIIS states that there are existing avenues available for refurbishment and reuse but doesn't give any guidance on how collectors / recyclers should deal with equipment that is suitable for refurbishment / reuse or how they connect and work with the existing refurbishment and reuse avenues. • Also, most major recyclers have their own reuse arm and are all in the reuse market. They refurbish, remarket/sell and export so can easily determine what equipment can be reused. This brings with it another issue, how will the PRO know if a recycler has received equipment suitable for reuse under the scheme. What is stopping a recycler from claiming a recycling fee for the equipment but instead of recycling it they refurbish it and sell it offshore therefore making profit twice - firstly for the so called "recycling" and secondly for the resale of refurbished equipment.

	• The DIIS should ensure that as part of the reporting process recyclers are to keep records / data on the amount of equipment received that is suitable for reuse. • Although the DIIS doesn't consider refurbishment / reuse at present, down the track the data collected from recyclers can be reviewed in order to improve standards, performance, social and environmental outcomes of the National Program if the data collected indicates there is a need (a high percentage of equipment suitable for reuse was received for recycling). • Refurbishment / reuse shouldn't be ruled out from being included further down the track i.e. as part of the Australia Standard particularly after careful consideration and review of refurbishment / reuse data. • Many charity groups and community recyclers have long been involved in the refurbishment and reuse of computer equipment in order to address the growing tide of e-waste, provide employment and training opportunities for disadvantaged Australians and enable marginalised individuals and community groups access to technology. The DIIS could have a major (negative) impact on the supply of computer equipment to existing charitable refurbishment and reuse programs thereby creating adverse social and environmental outcomes if refurbishment / reuse isn't included. • As per the attached Hyder Report "The Role of Not-For-Profits in Managing E-Waste": The federal government needs to acknowledge that the participation of NFP agencies in e-waste management, in particular in the refurbishment of computers, leads to a better environmental outcome and has immense social benefits. To that end, the federal government needs to ensure that the product stewardship scheme does not create the perverse outcome of a reduction in the refurbishment of equipment, or a diminution in the involvement of NFP agencies in e-waste management. • The DIIS should specify what an acceptable level option is before landfill becomes the only remaining option. Note that the option will vary between businesses and undermine the industry if a minimum criteria level is not specified. • The DIIS is not supporting best practice performance through the use of statements that allow recyclers to use their own discretion and interpretation on what they think is an environmentally sound solution i.e. • Recyclers shall not use landfill, energy recovery or incineration as standard practice for disposal, unless the practice can be shown to be the most environmentally sound solution (pg 15) • The DIIS should stipulate what is acceptable and the most environmentally sound solution not leave it open to others to misconstrue and abuse.

	<u>Total Environment Centre (TEC) / National Toxic Network (NTN)</u> - • The DIIS has not promoted best practice performance. Worse, it barely achieves minimum requirements for the collection, storage, handling, transport and treatment of end-of-life televisions, computers and computer peripherals. • The Draft Interim Industry Standard (DIIS) is one of the most critical elements in the delivery of the Australian Government's National Television and Recycling Scheme. The choice modelling study in the Regulatory Impact Statement that underpins the rationale for the Scheme clearly shows that consumers are willing to pay for recycling. Consumers were not asked, however, if they would be willing to pay for recycling if it was going to be well below best practice. It is unlikely that consumers would be willing to pay for 'recycling' if it contravened the principles of international laws on the treatment of hazardous materials; if it sent contaminated materials back into their homes as 'recycled' products; if it allowed end-of-life products to go to landfill; or if it allowed a resurgence of incineration. If either the DIIS or the future Australian Standard approve less than best practice, the justification for the Scheme will be undermined. • The importance of the DIIS is further reinforced by the fact that it may operate as part of commercial-in-confidence contractual arrangements between Producer Responsibility Organisations (PROs) and recyclers, rendering recycling practices and outcomes non-transparent and resistant to public scrutiny. For this reason, it is critical that the DIIS is able to withstand distortion and provides television and computer consumers and the broader community with assurance that their expectations are being met. A recycling standard that allows for less than best practice could rightly be accused of 'greenwash'. • The view expressed by some that the standard cannot take account of current international agreements because Australia has not yet ratified the 9 new POPs is a moot argument. Australia will ratify the 9 new POPs and will take account of the work of the POPs Review Committee. For the Australian industry standard to be accepted by the community it must be seen as progressive, best practice and in line with the rest of the developed world. Anything less risks community scepticism and loss of confidence in recycling in Australia. • The current DIIS does not promote best environmental practice performance for the recycling of televisions and computers. Of particular concern are: o Major loopholes for landfilling of materials o Major loopholes for the incineration of materials o No prevention of down-scaling of materials

	o No mechanism to ensure reuse options are not compromised o Allows the recycling of hazardous materials back into new products o No requirements for the separation and proper treatment of hazardous wastes o No minimum recycling rate • 1.1 Principle of Ensuring Highest Resource Use - The DIIS guiding principle of 'Ensuring that the highest resource value is maintained' (p. 8) is excellent in theory however it is not applied in practice in the body of the document. Instead, a range of contradictory approaches allow recyclers to adopt well below best practice standards. The directive for recyclers to 'use Guiding Principle 4 in assessing the most suitable recycling option' is completely misleading as the two drivers for recycler behaviour will be commercial realities and the minimum standards to apply in the Interim Standard and the future Australian Standard. This can be rectified by: o deleting this statement o requiring certain highest use practices, set out in the Material Processing and End Use Acceptability Table o applying an initial minimum 90% recycling rate for televisions and computers (excluding contaminated plastics), rising to 95% after 5 years. • 1.2 Principle of Minimising Carbon emissions - The guiding principle of 'Carbon emissions are minimised' (p. 8) is excellent in theory however it is not applied in practice in the DIIS. To put this principle into practice would require a series of life-cycle analyses to determine the best outcome. We recommend that the DIIS acknowledges this and outlines potential future work that could be undertaken to inform the Australian Standard on E-waste Recycling. • 1.3 Principle of Landfill as a Last Choice Destination - The guiding principle of 'Landfill is a last choice destination only – all other options must be exhausted before disposition to landfill' (p.8) inappropriately creates loopholes by allowing unconstrained disposal to landfill. There is no means by which to evaluate the circumstances in which 'all other options have been exhausted', leaving it open to individual recyclers to decide whether and how much material they landfill. This can be rectified by deleting this statement and applying a minimum 90% recycling rate to the Material Processing and End Use Acceptability Table. • 2. Treatment of Hazardous Materials - Electronic waste contains a range of chemicals and materials which can be toxic, corrosive and/ or bio-accumulative. Therefore, it is essential that hazardous materials be identified and separated from the general recycling stream to ensure it is properly treated. This reflects the intention in the

National Waste Policy that:

> *…by 2020…Australia manages its products, materials and chemicals that contain potentially hazardous substances, in particular those that are persistent, bio-accumulative and toxic, consistent with its international obligations and using best available evidence, techniques and technologies*…(p.7)
>
> *Reduction of potentially hazardous content of wastes with consistent, safe and accountable waste recovery, handling and disposal*. (p.8)
>
> *Strategy 12 Product stewardship schemes address specific products that contain potentially hazardous materials.'* (p.13)

The Television and Computer Recycling Scheme will generate large amounts of such hazardous waste that must, legally and morally, be treated in Australia. The DIIS, however, does not provide any guidance on the identification, separation and treatment of hazardous substances. Worse, it allows the landfilling, incineration, recycling and even export of these substances. Hazardous materials are contained in the following components:

- cathode ray tubes
- lead solder
- leaded plasma display glass
- other leaded glass
- mercury-bearing lamps & switches
- printed circuit boards
- batteries (eg: from remote controls)
- brominated flame retardant (BFR) contaminated plastics

The hazardous substances must be treated as such, at the very least in accordance with Australia's international obligations.

- 2.1 BFR contaminated plastics must not be recycled - Article 6 of the Stockholm Convention, of which Australia is a ratifying party, requires ratifying countries to:

  a) Develop and implement appropriate strategies for identifying stockpiles, products and articles in use that contain or are contaminated with POPs;

b) Manage stockpiles and wastes in an environmentally sound manner;

c) Dispose of waste so that the POPs content is destroyed or irreversibly transformed;

d) Not permit the recycling, recovery, reclamation, direct reuse or alternative use of the POPs;

e) Endeavour to develop strategies for identifying contaminated sites and perform eventual remediation in an environmentally sound manner.

Further, Strategy 13 of the National Waste Policy states that:

> *The Australian Government…will adopt a system that aligns with international approaches, to reduce hazardous substances in products and articles sold in Australia that present a potential risk during and at end of life to human health, safety or the environment*. (p.14)

Two BFRs (the commercial mixtures of brominated diphenyl ethers, Penta and OctaBDE are referred to as POP-BDEs), along with 8 other new persistent organic pollutants (POPs), were recently banned under the Stockholm Convention. Australia supported the listing of these new POPs and is likely to ratify the changes in the near future. While a temporary exemption allows the recycling of BFRs, this is likely to come to an abrupt end within two years as the POPs Review Committee has recently recommended that recycling of articles containing listed POP-BDEs should only be performed if the articles are first treated and the POP-BDE are removed. Otherwise recycling of articles containing POP-BDE should be stopped as soon as possible. It is therefore unacceptable for the recycling of BFRs to be knowingly sanctioned by the DIIS under these circumstances.

International best practice for BFR contaminated plastics from e-waste now includes identification and separation. Standard commercial GC/MS analysis of PBDE in plastic and other materials is widely available in developed countries. This is largely because of the demand that has arisen over the past few years due to the requirements of Restriction of Hazardous Substances (RoHS) compliance and other national laws. Currently, the practical method for screening and separating PBDE-containing materials is the separation of all BFR-containing materials by online screening of the bromine content. Three technologies for bromine screening are applicable in practice:

A) Sliding Spark Spectra analysis (SSS) (hand held method)

B) X-ray Fluorescence (XRF) (hand held method);

C) X-ray Transmission (XRT) (for automated separation plants)

- 2.2 BFR contaminated plastics must not be landfilled - PBDEs in articles deposited in landfills are slowly released in leachates and into the atmosphere with further contamination of ground and surface water and

	sediments and soil. The toxicity of the PBDE mixtures can be substantially increased by debromination of the higher brominated PBDE (which are normally present in much higher concentrations) to the more toxic lower brominated congeners by the anaerobic processes in the landfill site. Importantly, when the persistence of PBDE in landfills is compared with the limited life-time of the engineered protection and management systems in landfills it can be seen that the landfilling of PBDE-containing articles can not be considered as a safe or sustainable solution, and it is inconsistent with the obligations of the Stockholm Convention. • 2.3 BFR contaminated plastics must not be incinerated - Incineration of BFR contaminated plastics result in the formation of polybrominated dibenzo-p-dioxins and dibenzofurans (PBDD/DFs), and increasingly also polychlorinated/brominated dioxins and benzofuran (PXDDs/DFs) which can be released as air emissions or captured to some extent by pollution control devices and/or be deposited in ash. Both then require permanent storage. Enormous levels of PBDD/DF, PXDD/DF and PCDD/DF are formed in the incinerator's primary combustion zone when high levels of electronic waste are added. While in BAT incinerators some of these unintentionally formed POPs (UPOPs) can be destroyed in the secondary combustion zone, PBDEs and PBDD/DF are found at high levels in the bottom ash. This highly toxic ash then requires permanent disposal in hazardous waste landfill, defeating the original purpose of incineration and risking further releases to the environment. • 2.4 Human health impacts of BFR contaminated plastics - The recycling of BFR contaminated plastics is set to contravene the Stockholm Convention within two years. Worse, however, is that the recycling of this material into new products will directly damage the health of Australians. In this respect, the DIIS statement on p. 28 is incorrect: *Nearly all of the substances of concern in EOLE are no cause for concern for human exposure or release into the environment during ordinary use and handling. None of these substances will be released through normal contact, including transportation and manual disassembly.* BFRs are released and/or volatilized from products during 'normal contact' in the use and waste phase. In 2007, the Australian government released studies on PBDEs. One study involved the testing of nine indoor air samples, two outdoor air samples, nine dust samples and ten surface wipes from South East Queensland. PBDEs were detected in all air and dust samples and nine of the ten surface wipe samples. PBDEs were detected in: o all samples of indoor and outdoor air - indoor air had a range of 0.5 -179 pg/m3 for homes and 15 – 487 pg/m3 for offices o all dust samples with a concentration ranged from 87 – 3070 ng/g dust

	o 9 out of 10 surfaces sampled. The surfaces sampled represented televisions, refrigerators, stereos and DVD players. Blood samples show that human blood with the highest levels was found in young children. The report acknowledges that Australians have twice the level of PBDEs in their blood (6.7 – 18 ng g-1 lipid) as their European counterparts with the highest concentrations in children under four. • 2.5 Impacts of recycling of BFR contaminated plastics on recyclers and Scheme targets - It is unreasonable for the Interim Standard or the future Australian Standard to allow the recycling of BFR contaminated plastics when they will soon be banned. This would send the wrong signals to recyclers. It would attract investment in worst practice, soon to be redundant infrastructure and encourage misinformed business models for new entrants while entrenching business as usual for existing recyclers. Allowing recycling of BFR contaminated plastics will also distort the Scheme targets. Indeed, the methodology for determining recycling targets needs to be cognisant that 22% - 30% of a computer is composed of (largely contaminated) plastics.2 Unless there is explicit guidance on the identification and separation of contaminated plastics in the Interim Standard and the future Australian Standard from early on, planning for the target of 80% recycling by 2020 and interim targets will be distorted. It is therefore essential for the DIIS, the Australian Standard, the Scheme KPIs, Regulations and Targets to acknowledge this issue and adjust accordingly. For this reason, the Interim Standard recycling rate of 90%, rising to 95% after 5 years, should exclude contaminated plastics. • 2.6 Treatment of BFR contaminated plastics - A core National Waste Policy Objective is: *A comprehensive nationally integrated system for the identification, classification, collection, treatment, disposal and monitoring of hazardous substances and waste that aligns with international obligations.* To reflect this objective the landfilling, incineration, recycling or export of BFR contaminated plastics should be prohibited by the DIIS. Instead, recyclers must be required to identify, separate and store BFR contaminated plastics. This could be implemented in a staged process over two years to allow current recyclers to adapt. To deal with the resulting hazardous waste, Australian destruction facilities must be established in tandem with the National Television and Computer Recycling Scheme. This responsibility should be shouldered by Federal and State Governments and may involve storage of contaminated materials for longer than 12 months. • 2.7 Classification and transport of hazardous wastes - According to international and national definitions, once

televisions and computers have reached end-of-life, major portions of them (eg, leaded glass, printed circuit boards, contaminated plastics) will have become hazardous waste and should be treated as such. The classification, management, transport and storage requirements for hazardous substances are defined by the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, and its technical guidelines as well as State and National requirements. These should be adhered to.

In 2010, negotiations started for a mercury treaty, due to be completed in 2013, which will include further obligations on countries relating to export and trade, use, treatment, storage and disposal.

- 3.1 Loopholes for landfilling - The DIIS allows far worse than best practice performance through the use of statements that provide loop-holes for unconstrained landfill including:

  Recyclers shall not use landfill, energy recovery or incineration as standard practice for disposal, unless the practice can be shown to be the most environmentally sound solution… (p.15)

Here the DIIS provides no guidance or requirements on how landfill, energy recovery or incineration can be demonstrated to be the 'most environmentally sound solution', again leaving it open to misuse. As it is doubtful whether the demonstration of robust decision making and robust oversight of that decision making can be undertaken without adding significant costs, this statement should be deleted in favour of referencing specific requirements in the Table. Another statement from the DIIS that inappropriately allows loop-holes for recycling is:

Components and materials arising from the processing of EOL Televisions and Computers shall only go to landfill where no economically viable recycling technology is available. (p.15)

The DIIS provides no means of evaluating what 'economically viable' means. Standard practice would require a cost-benefit analysis to establish the meaning of 'economically viable'. Without explicit guidance and reporting requirements on what constitutes 'economically viable', the decision to landfill will be left to individual recyclers and PROs in commercial-in-confidence contracts. This could result in the potential disposal of any amount of materials without substantiation and without the knowledge of the consumers who are paying for it. This statement should therefore be deleted.

In the Table (pp. 16-17), landfill is rightly excluded as an option in most categories however it provides inappropriate loopholes in the following case:

End of life Computers and Televisions…Not Acceptable: Landfill where components and materials are recoverable. (Row 1)

The statement could be used to justify inappropriate landfilling as there is no guidance on how 'recoverable' is

	to be determined. The Interim Standard should therefore instead specify what materials may be landfilled. According to current recyclers, this includes materials such as sticky labels, leather phone covers and blister packs. • 3.2 Landfilling of BFR contaminated plastics - The DIIS currently allows for the landfilling of contaminated plastics through the absence of a 'Not Acceptable' listing in Row 8 of the Table. It also notes that 'Any waste that is disposed of to landfill must be disposed of at a waste facility that is appropriately licensed under State or Local government legislation or regulations' (p.11, 4.8). As noted above, disposal of contaminated plastics to landfill is unacceptable and well below best practice. A main recommendation of the Stockholm Convention's POPs Review Committee is to reduce releases of PBDE from landfills by avoiding the landfilling of PBDE-containing materials. • 3.3 Packaging waste - The main packaging components are cardboard, polystyrene and various plastics which can all be readily be recycled. This must be a minimum requirement of the Interim Standard. Almost all consumers would have confronted a confusing set of choices and while the residential sector can perform reasonably well this is not the case for the commercial sector. Nationally there is a high level of cardboard recycling but much less so for plastic. The Interim Standard and the future Australian Standard should seek to standardise material types to maximise recyclability in Australia including application of sustainability guidelines under the Australian Packaging Covenant. • 3.4 Disposal to Landfill - The DIIS states that 'Any waste that is disposed of to landfill must be disposed of at a waste facility that is appropriately licensed under State or Local government legislation or regulations'. The Stockholm Convention's POPs Review Committee has specifically recommended against any disposal to landfill of electronic waste containing BFRs and this should be recognized within the standard. • 4. Incineration - Australia does not have incineration capacity for hazardous waste, and incineration for municipal waste has not been practiced since the 1970s. Community opposition to the establishment of incinerators remains strong. In assessing community priorities, WA communities rated incineration, alongside landfill, the worst practice disposal. • 4.1 Loop-holes for incineration - The DIIS inappropriately allows for well below best practice by allowing incineration. As noted above for landfill, the statement that 'Recyclers shall not use landfill, energy recovery or incineration as standard practice for disposal, unless the practice can be shown to be the most environmentally sound solution…' (p.15) leaves open the option for unconstrained amounts of incineration as there is no guidance or requirements on how incineration can be demonstrated to be the 'most environmentally sound solution'. As it is doubtful whether the demonstration of robust decision making and oversight of such decision

	making can be undertaken without adding significant costs, this statement should be deleted. Further, the Table contains internal contradictions on incineration. It appears that incineration for whole end-of-life televisions and computers is 'Not Acceptable' however the absence of mention of incineration as 'Not Acceptable' for individual components (except for Ink and Toner Cartridges – Row 7) leaves it unclear whether incineration is allowed or not under the DIIS. Incineration should be clearly marked as 'Not Acceptable' for all components in the Table. • 4.2 Incineration of Plastics - The DIIS Table explicitly – and inappropriately – allows the incineration of plastics (Row 8) on condition that such incineration has 'proper controls to ensure Persistent Organic Pollutants (POPs) are within regulated limits'. Australia does not have high temperature incineration for hazardous waste and is highly unlikely to have them in the future. It is also unlikely to be successful in exporting hazardous waste for final disposal, which is only allowed in exceptional circumstances under Australia's Hazardous Waste Act and only to developed countries. Attempts at exporting POPs have already resulted in political stalemate. Acknowledgement of incineration as an option under the standard would prove to be impractical and counter productive to community support for the collection, recycling and sound management of electronic waste. As noted above, best practice for BFR contaminated plastic now includes identification, separation and treatment. • 4.3 'Waste to Energy' - It is inappropriate for the DIIS to allow for 'waste to energy' technologies. 'Waste to energy' projects for electronic waste are based on the incineration of BFR contaminated plastics. They result in the same formation and release of toxic emissions of polybrominated dibenzo-p-dioxins and dibenzofurans (PBDD/DFs) as does primary incineration. They produce similar profiles in toxic ash and are viewed by many in the community as a form of greenwash. In assessing PBDD/DF releases and worker exposure, researchers listed pyrolysis for fuel and Gasification, typical of waste to energy proposal as high emitters of these toxic emissions. • 5. Pyrometallurgy and hydrometallurgy - It is unacceptable to approve pyrometallurgical and hydrometallurgical processes without stipulating a minimum recovery rate of treated materials and minimum pollutant controls. A handful of best available technology (BAT) and best environmental practice (BEP) smelters may be able to achieve close to 90% recovery but most don't, and some achieve as low as 30% recovery. Their effectiveness is impacted by numerous factors, including whether e-waste has been initially sorted by hand or machine. For a range of metal industries (primary and secondary iron industry, copper and aluminium smelters) PBDE and PBDD/DF releases have been reported in the literature. As there have been no investigations to fully assess the composition of the input materials, it is not possible to model the mass balances or to calculate destruction efficiencies. In dedicated tests for treatment of PBDE/BFR containing printed wire boards in smelters, PCDD/DF levels were reported but there are no data on releases of PBDE/BFRs and PBDD/DF and mixed

brominated-chlorinated PXDD/DF in the public domain. In assessing PBDD/DF exposure, researchers listed Copper Smelters (PWB), Antimony Smelters, Electric Arc, and Secondary Aluminium as high emitters. We note here the Stockholm Convention's POPs RC recommendation that: "Medium-term activities should include further assessment and the production of BAT/BEP guidance by the Convention's expert bodies including consideration of PBDE and PBDD/DF releases from smelters and other thermal recovery technologies including secondary metal industries, cement kilns, and feedstock recycling technologies."

- 6. Ensuring highest resource use - As noted above, the DIIS guiding principle of 'Ensuring that the highest resource value is maintained' is good in theory but not applied in practice.
- 6.1 Shredding of whole computers and televisions in not acceptable - Current BAT Australian recycling achieves above 95% recovery through various levels of manual disassembly followed by mechanical processing.3, 4 By comparison, processing e-waste through a simple metal shredder can only deliver around 80% recovery, with a significant contaminated residue of hazardous waste ('shredder floc') being dumped in landfill. It is therefore inappropriate to allow lower than a 90% recovery rate (excluding contaminated plastics).
- 6.2 Re-use and remanufacturing of computers for Australia - As the European Commission has recently noted, re-use provides significantly greater environmental and social benefits than recycling and has given effect to this through its proposal for a 5% re-use requirement in the Directive on Waste Electrical and Electronic Equipment (WEEE). Although the Interim Standard and the future Australian Standard are not tasked with setting this outcome, it is critical that they do not impede current re-use operations.

  National Waste Policy goals also clearly and repeatedly state that re-use is a desirable outcome, including:

  > *The aims of the National Waste Policy will be to*:
  >
  > *avoid the generation of waste, reduce the amount of waste (including hazardous waste) for disposal, manage waste as a resource and ensure that waste treatment, disposal, recovery and* ***re-use*** *is undertaken in a safe, scientific and environmentally sound manner…(*bold added)
  >
  > *Objective: Support waste avoidance, reduction, recovery* ***and re-use*** *by addressing market impediments and removing red tape.* (bold added)

  Stated government legislation and policy is also clear in the objective to promote re-use and refurbishment, for example:

	o Tasmania: Environmental Management and Pollution Control Act,1994 o South Australia: Environment Protection Act 1993 o New South Wales: Protection of the Environment Operations Act 1997 o New South Wales: Waste Avoidance and Resource Recovery Act 2001 Policy objectives for the Television and Computer Product Stewardship Scheme which are aided by re-use and refurbishment include: o Conservation of non-renewable resources o Environmental impacts of landfill These objectives are in line with the broader objectives of the 1992 COAG endorsed National Strategy for Ecologically Sustainable Development strategy, which include: o Improve the efficiency with which resources are used o Reduce the environmental impact of waste disposal These also reflect two of the National Waste Policy's six key areas: 1. Taking responsibility - Shared responsibility for reducing the environmental, health and safety footprint of products and materials across the manufacture-supply-consumption chain and at end-of-life. and 3. Pursuing sustainability - Less waste and improved use of waste to achieve broader environmental, social and economic benefits. Re-use and refurbishment contribute to the meeting of the above objectives by conserving resources, through: - Reducing the energy required for recycling - Reducing the use of water required for recycling - Reducing the loss of materials through recycling - Reducing greenhouse gas emission and other pollutants resulting from recycling The DIIS, however, takes no position on the refurbishment or re-use of computers or computer component parts on the grounds that it only addresses 'end-of-life' equipment. This presents a risk that the DIIS and the future Australian Standard will adversely affect the potential to refurbish and re-use computer equipment by

	inadvertently collecting and processing these computers. This would result in the significant loss of embodied energy, embodied greenhouse emissions and other pollutants, materials and water resources. It is therefore necessary that the DIIS and the Australian Standard do not in any way impede the potential for re-use. As Hyder Consulting recently pointed out in relation to the Scheme's impact on not-for-profit (NFP) refurbishers: *The federal government needs to acknowledge that the participation of NFP agencies in e-waste management, in particular in the refurbishment of computers, leads to a better environmental outcome and has immense social benefits. To that end, the federal government needs to ensure that the product stewardship scheme does not create the perverse outcome of a reduction in the refurbishment of equipment, or a diminution in the involvement of NFP agencies in e-waste management.* A primary problem with the DIIS in this respect is that it presents no process by which to determine whether computers are in fact at 'end-of-life'. While consumers may be the first decision makers about whether they no longer have a use for a product, they are not necessarily in the best position to determine whether or not it is actually at 'end-of-life'. They should therefore not be the final decision makers on whether a computer is 'end-of-life' or not. A further problem with the DIIS is that it provides no guidance on how collectors should best handle computers that may potentially be re-used or refurbished. One option would be for the DIIS to require collectors to store equipment in a way that does not diminish the potential for refurbishment or re-use of computers, and to allow NFP operators access to these sites. • 6.3 Re-use for export - The export of used electronic goods has gained considerable attention from governments of developing countries in recent years. E-waste is the fastest growing waste stream in the world and is estimated to soon reach 50 million tons per year. E-waste was identified as an emerging issue for the International Conference on Chemical Management (ICCM2). In 2009-2010, African countries supported by the Asia Pacific and Central and Eastern European countries called on the global community to address the export of near end of life products, which in reality quickly become toxic wastes, which they are ill equipped to handle. While the domestic re-use of electronic goods may be a useful management option in some circumstances, export of these goods is not environmentally sound and should cease. • 6.4 Separation of leaded and unleaded glass - As it is current best practice in Australia, separation of leaded and unleaded glass should become a requirement of the Interim Standard in order to operationalise the principle of 'Ensuring that the highest resource value is maintained'. • 6.5 Glass to glass recycling for CRTs - Glass to glass recycling for CRTs is another clear way in which the Interim Standard could operationalise the principle of 'Ensuring that the highest resource value is maintained'. To do this lead smelting of CRTs should be 'Not Acceptable' process. Recycling through lead smelting currently

achieves around 12% recovery. This is in contrast to processes which recycle CRTs into either new CRTs or glass for other uses that achieve an 84% recycling rate. It is clear that glass to glass recycling delivers significantly greater environmental benefit and should become a minimum requirement of the Interim Standard.

- 7. Targets and the Material Processing and End Use Acceptability Table (p.16-17) - The materials based approach taken provides a solid conceptual foundation for the recycling standard. However, to ensure recycler compliance and avoid the unnecessary downscaling of resources, an overall initial minimum recovery rate of 90% of received materials, excluding contaminated plastics and rising to 95% after 5 years, must also be applied. The modified Table on the following page further clarifies the issues raised above and our recommendations are shown as track changes.

Product / Material	Minimum Acceptable Application	Acceptable Process	Not Acceptable
End of Life Computers and Televisions	90% recovery rate, rising to 95% after 5 years. Material recovery Metals recovery	Manual dismantling and sorting into major material categories Mechanical processing for dismantling and/or material separation with required dust collection & operator protection	Landfill Incineration Shredding of whole computers or televisions Dismantling using prison labour (note 1) Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act
CRT Tubes, Leaded Plasma Display Glass, and Other Leaded Glass	Glass product manufacturing[5] Separation of un-leaded and leaded glass[6]	Mechanical cutting and crushing with required dust collection & operator protection.	Landfill Incineration Lead smelting Use as sand substitute in smelter fluxing[7]

					Manual processing using prison labour (note 1) Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act	
		Circuit Boards	Separation (manual or mechanical) Metal recovery Smelting	Manual processing Mechanical processing with dust collection and operator protection. Smelting complete boards	Landfill Incineration Manual processing using prison labour (note 1) Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act	
		Cable and Wires	Metal recovery Smelting	Manual or mechanical processing Smelting	Landfill Incineration	
		Batteries	Extract from whole units Metal recovery	Manual or mechanical processing Smelting	Landfill Incineration Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act	
		Mercury Containing Lamps and Switches	Mercury recovery Extract from whole units	Mechanical processing Mercury distillation	Landfill Incineration Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act	

		BFR Contaminated Ink and Toner Cartridges (Note 2)	Extract from whole units Remanufacture Materials recovery for a period of no more than 2 years from the date of approval of this Standard	Identification, separation and storage Manual or mechanical processing only with proven extraction of BFRs	Recycling after 2 years from the date of approval of this Standard Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act Hazardous waste incineration Landfill Incineration	
		BFR Contaminated Plastics	Plastic recovery for a period of no more than 2 years from the date of approval of this Standard Depolymerization without fully proven and documented reduction of BFR content Pelletizing without fully proven and documented reduction of BFR content	Identification, separation and storage Manual or mechanical processing only with proven extraction of BFRs	Recycling after 2 years from the date of approval of this Standard Landfilling Incineration Export to non OECD countries without the appropriate permit under the Hazardous Waste (Regulation of Exports and Imports) Act	
		Non-contaminated plastics	Plastic recovery Depolymerization Pelletizing	Manual or mechanical processing Waste to energy incineration	Landfilling Incineration	
		Ferrous and Non-ferrous Metals	Metal recovery[8]	Manual or mechanical processing Foundry	Landfill	
		Packaging	Material Recovery Recovery of cardboard, plastics and polystyrene	Mechanical or chemical processing	Landfill where materials are recoverable	
Recycler	**VES** - acknowledges the interim industry standard as largely appropriate for its purpose. With caveats noted below, it puts appropriate emphasis on driving performance, as well as ensuring required environmental, and occupational health					

	and safety aspects are met. **Mai-Wel E-Cycling Services** - With the appropriate mix of education, promotion, accessibility & community involvement it is possible to achieve very high recycling rates in a relatively short period. For instance • Free collection and/or drop off days • Free collection points at Council waste management facilities • Online and print advertising • Not for profit Disability Service Providers managing local and comprehensive disassembly • 24 full time jobs (20 of which are people with a disability) • Over 385 tonnes recycled in first 18 months of operation.
Question 2: Are the required occupational health and safety and environmental performance appropriately incorporated, including as defined by Commonwealth, state and territory laws, including the Hazardous Waste (Regulation of Exports and Imports) Act 1989 (Cth), and as identified in relevant international standards?	
Industry Association	**AMTA** - It is comprehensive – there does not appear to be any gaps, however, the reality is that until the sites are audited it is difficult to confirm if they comply with all performance standards and regulations.
Local Government	**Leichhardt Council** - As above. There is also a gap between current substances used in some electronic equipment and new chemicals added under the Stockholm convention. If this is not addressed then OH & S / environmental performance would not be in accordance with relevant international standards.
NGO	**CRN** - The concern is that the definition within the document of a recycler specifies this role being involved in the reprocessing of materials. A pre-processor / dismantler simply takes a product apart into component parts without disturbing the material; this has implementation around the level of OH&S controls; i.e. air monitoring, risk assessments and the control measures to ensure a safe workplace. The clear definition of a pre-processor / dismantler should be included outlining the tasks involved within this role. **TEC/NTN** - No. The DIIS requires 'Monitoring of worker exposure or air emissions if potential exposure above the safe exposure limits or potential for emissions to atmosphere have been identified as a potential risk.' (p. 9, 4.1.d) This is well below standards, as it is only through adequate monitoring that exposures will be identified. All recycling facilities and workers must therefore be subject to exposure monitoring.

Recycler	**VES** -Yes. In the context of Australian provisions, the interim industry standard puts appropriate emphases with regard to OHS and environmental performance aspects on to different segments of the EOL TV and computer supply chain. VES is not in a position to comment on international provisions. **SITA** - Yes, for an Interim Industry Standard. **Mai-Wel E-Cycling Services** - A key understanding needs to be achieved that disassembly at local/regional level is critical to reducing logistical costs and environmental impact. However, disassembly and the sale of commodity components is very different to the complete on-site recycling of items. Lower hazards, infrastructure and environmental impacts can be achieved by utilising, local/regional disassembly in conjunction with the downstream recyclers, including those that send components for off-shore processing. Importantly this demonstrates that local disassembly such as that provided by Mai-Wel E-Cycling Services (in partnership with Hunter Resource Recovery) can work in parallel to and add value to downstream recyclers.
Question 3: Does the interim industry standard provide for adequate auditing and validation requirements in any contracts between the industry-led Scheme and service providers? Do these arrangements align with international best practice?	
Industry Association	**AMTA** - Yes it sets a good framework for the PRO to audit and validate performance by a collector, transporter and Recycler. They may choose to go into more detail in some areas – eg storage bins used
Local Government	**Leichhardt Council** - Whilst there are requirements in place for reporting processes within the Interim Standard, it is not clear who is actually responsible for tracking and how this information will be publicly reported, so the public has confidence that materials are being appropriately handled. Matching mass inputs to mass outputs would be a challenging task Without physical audits there is no accountability apart from on paper, between processors down the chain. Clause 7.7 refers to 'periodic auditing' but what % of locations are going to be randomly audited who by and how often and what resources are available to physically and financially fund this?
NGO	**CRN** - The DIIS needs to provide further details of the "auditing regime" for collection locations. The DIIS requests "periodic" second and third party audits of downstream recyclers, what does the DIIS consider "periodic" once a year, twice a year etc **TEC/NTN** - No. The DIIS adopts poor standards for the tracking of materials from first recyclers to their final destination. This is well below WEEE requirements that enable proper understanding of whether the Scheme is meeting its targets. Such data is necessary to ensure that the Scheme is delivering on its goals and to maintain consumer

	confidence that the Scheme is not 'greenwash'. It is therefore essential that all materials, not just 'substances of concern' are tracked – and auditable - to their final destination. In addition, the DIIS states that 'If relevant information on the hazardous nature of the material or components submitted for recycling is not known, information should be sought from the manufacturer directly or from the National Television and Computer Product Stewardship Program'. (p. 9, 3) Information should not be limited to the PRO but be sought from research and international bodies such as the POPs Review Committee reports, UNEP documentation, NGOs, etc.
Recycler	**VES** - While it is understood what records and data needs to be collected and retained, it is unclear from the interim industry standard what the specific auditing and validation requirements will be. This should be clarified to increase the rigour of the interim standard. **Recovery TAS** - The standards are sufficient, how ever emphasis should be placed on ensuring existing 2nd life outcomes remain and can continue to grow with out undue hindrance. **SITA** - the inclusion of date of destruction in the reporting would add significantly to the data recorded and strengthen payment structures whilst enforcing recycling and avoiding stockpiling. Refer to the comment relating to Page 18 / 7.5 Traceability. This is based on experience and advice from SITA's WEEE facility in France. SITA Australia would be happy to discuss this further if needed. **Mai-Wel E-Cycling Services** - Overall, this is correct. However it must be noted once again that the system should encourage and support local delivery of service by local organisations, rather than allow large corporations to dominate, without regard for local communities and organisations. Alignment with ISO 14001 should ensure the highest standards are maintained.
Question 4: Is the standard appropriate for an Australian context, including consideration of regional and remote areas and demographic spread?	
Local Government	**Leichhardt Council** - Standards to ensure OH & S and environmental obligations are met should be the same in remote locations, as for other locations. The TV & computer products will contain the same hazardous materials and must be fully funded by the industry for their management. **WALGA** - As the standard does not appear to specifically mention regional and remote areas. The considerations discussed in the Consultation Report Part 1 appear to focus on the storage difficulties for the regional areas. With regard to the difficulties the non-metro area will have these will probably be related to longer transport distances and consequently higher likelihood of product breakage. Depending on the extent of the scheme application, the non-metro

	areas collection facilities will also have lower staffing levels and consequent greater difficulty in taking part in an administratively complex scheme.
NGO	**CRN** - • The DIIS needs to acknowledge that all communities create waste, in this case e-waste, and that they have a responsibility to dispose of it in a responsible manner. Waste is a multimillion dollar business so for the local community to take responsibility for its e-waste a case should be stated on how it can benefit from such an initiative. Such initiatives create local jobs and add to the economic development of an area. There are many such viable projects around Australia where a small town of about 8,000 to 10,000 population have created their own community solution to reuse. • The DIIS should demonstrate such examples rather than take it for granted that large volumes of e-waste will be transported out of Australia's regional areas to be dismantled in capital cities. It is a cost on the environment to transport these materials in bulk rather than dismantling them at the local source. • The DIIS needs to be encouraging of reuse rather than just recycle as each community needs to extract the greatest benefit out of disused product as they would be missing out on possible economic development.
Recycler	**VES** - acknowledges the interim industry standard as largely appropriate for its purpose. With caveats noted below, it puts appropriate emphasis on driving performance, as well as ensuring required environmental, and occupational health and safety aspects are met. **Recovery TAS** - no, eWaste to meet the terms of the Basel convention must be managed in country and preferably regionally. **SITA** - Until the digital switchover is completed and the initial spike in e-waste is realised for regional and remote areas, it is difficult to forecast and understand if this standard is appropriate. **Mai-Wel E-Cycling Services** - A city, regional and remote context is appropriate. Communities should be encourage and supported to establish a locally delivered program. Here in the Hunter, our organisation n partnership with Hunter Resource Recovery (owned by Maitland, Cessnock and Lake Macquarie Councils), currently service six Local Government Areas with room for expansion into 3 more in the Hunter Region. We are also exploring opportunities in the New England, Central Coast and Mid North Coast due to our central location.

Question 5: Are Australia's international obligations met, including requirements under the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal and the Stockholm Convention on Persistent Organic Pollutants?	
Industry Association	**AMTA** - They have been included in the standard as something that has to be complied with by the various stakeholders. As to whether the collectors, transporters and recyclers meet these requirements will depend on the audits/site visits.
Local Government	**Leichhardt Council** - No. There is no acceptable way of separating Brominated Flame Retardants (BFR) and therefore no way of carrying out recycling in an 'environmentally sound manner'. This is highlighted in Clause 7.4 that states that practices for disposal can include incineration in some circumstances.
NGO	**CRN** - The Basel convention is mentioned once in the document in a section discussing material separation. This should have a higher profile in the document clearly identifying the objective of the Basel Convention on Transboundary movements of e-waste. **TEC/NTN** - • As noted above, the view expressed by some that the Interim Standard cannot take account of current international agreements because Australia has not yet ratified the 9 new POPs is a moot argument. Australia will ratify the 9 new POPs and will take account of the work of the POPs Review Committee. For the Australian industry standard to be accepted by the community it must be seen as progressive, best practice and in line with the rest of the developed world. Anything less risks community scepticism and loss of confidence in recycling in Australia. • Article 6 of the Stockholm Convention, of which Australia is a ratifying party, requires ratifying countries to: a) Develop and implement appropriate strategies for identifying stockpiles, products and articles in use that contain or are contaminated with POPs; b) Manage stockpiles and wastes in an environmentally sound manner; c) Dispose of waste so that the POPs content is destroyed or irreversibly transformed; d) Not permit the recycling, recovery, reclamation, direct reuse or alternative use of the POPs; e) Endeavour to develop strategies for identifying contaminated sites and perform eventual remediation in an environmentally sound manner.

	• Further, Strategy 13 of the National Waste Policy states that: *The Australian Government…will adopt a system that aligns with international approaches, to reduce hazardous substances in products and articles sold in Australia that present a potential risk during and at end of life to human health, safety or the environment.* (p.14) • Two BFRs (the commercial mixtures of brominated diphenyl ethers, Penta and OctaBDE are referred to as POP-BDEs), along with 8 other new persistent organic pollutants (POPs), were recently banned under the Stockholm Convention. Australia supported the listing of these new POPs and is likely to ratify the changes in the near future. While a temporary exemption allows the recycling of BFRs, this is likely to come to an abrupt end within two years as the POPs Review Committee has recently recommended that recycling of articles containing listed POP-BDEs should only be performed if the articles are first treated and the POP-BDE are removed. Otherwise recycling of articles containing POP-BDE should be stopped as soon as possible. It is therefore unacceptable for the recycling of BFRs to be knowingly sanctioned by the DIIS under these circumstances. • International best practice for BFR contaminated plastics from e-waste now includes identification and separation. Standard commercial GC/MS analysis of PBDE in plastic and other materials is widely available in developed countries. This is largely because of the demand that has arisen over the past few years due to the requirements of Restriction of Hazardous Substances (RoHS) compliance and other national laws. Currently, the practical method for screening and separating PBDE-containing materials is the separation of all BFR-containing materials by online screening of the bromine content.
Recycler	**Recovery TAS** - no. Exportation continues of material that can be effectively managed in country and regionally in Australia. **Eco Products Agency** (plastics recycler) - • Under the draft interim standard, possible future requirements under the Stockholm Convention on Persistent Organic Pollutants are not met. • This relates specifically to the recent listing of certain polybrominated diphenyl ethers (PBDEs) in Annex A, and perfluorooctane sulfonate (PFOS) in Annex B of the Stockholm Convention. PBDEs have been extensively used in TV and computer casings, while PFOS is used in some electronic components. • As stated in Table 1, Note 3 (pg 17), the Federal Government is involved in addressing the issue of the policy response needed, and the future result of deliberations is not known. • Therefore, while the interim standard might reasonably defer updating advice on the treatment of components

	containing PBDEs until the Federal Government has completed its assessments, the interim draft should already highlight the likely impact of changes on the treatment of waste plastics from casings and other components, including export. **SITA** - Yes, however, it is believed that illegal exporting of e-waste is still occurring and the government should be encouraged to publish the information on the individuals and/or companies charged with illegally exporting. Unless this happens, people and/or companies will continue to do it. **Mai-Wel E-Cycling Services** - All recyclers are required to meet these and the draft scheme reflects this principle. ISO 14001 encompasses the requirements under the Basel Convention
Question 6: Are costs associated with implementing the interim industry standard, including estimated cost burdens identified? Including; *a. the cost to the television and computer industry or a third party to certify recyclers or other parties involved in the collection, handling, storage, transport and treatment of the items; and* *b. costs to recyclers or other parties to comply with the industry interim guidelines.*	
Industry Association	**AMTA** - Not clearly, but it is implied, in part it comes back to good commercial practise by individual businesses. I don't believe what is being asked is a particular burden to the collectors, transporters and recyclers or the PRO's as they will need to audit their
Local Government	**Leichhardt Council** - No. It is unclear in the Standard and the Scheme of which part of the whole process is being managed and funded by the industry? Who actually is funding the various activities required from collection, transporting and so on down the processing line? There are a plethora of costs involved from the start of the process. At the Collection Point these include eg risk assessments; emergency response; data reporting; training and auditing, in addition to activities of traffic management, signage, advertising and administration. What is the proposal to cover these costs and other costs downstream, particularly for smaller / social enterprises? **WALGA** - The issues Local Government raised regarding cost of collection and ability to charge for e-waste collection have clearly been considered and some clarification provided, however the issue is not resolved and will need to be incorporated into the overall scheme design.
NGO	**CRN** - • The costs of implementing the DIIS for community recyclers and charitable organisations will be great, these organisations do not have large financial budgets. This will cause many community recyclers and charitable organisations to be forced out of the market if the rigor of the standard is not tailored to meet the operational requirements of these organisations. This does not attempt to lower OH&S standards; the task performed must

	be within that accepted by the OH&S standards. • Even if there are some community recyclers and charitable organisations that are able to get support to financially meet the costs associated with implementing the DIIS there is no guarantee that they will be awarded contracts under the PSO scheme therefore making it a very risky investment. • The cost of alternative sites in the event of Disaster Recovery would be a major expense for community recyclers and charitable organisations. A better solution is to provide better logistics planning in the event of a disaster. i.e. don't accept any further material. Meeting the cost to minimise carbon emissions are unclear. Which technologies are carbon efficient and at what cost? **TEC/NTN** - the cost to the television and computer industry or a third party to certify recyclers or other parties involved in the collection, handling, storage, transport and treatment of the items; and costs to recyclers or other parties to comply with the industry interim guidelines.
Recycler	**VES** - no, costs burdens associated with implementing the interim industry standard are not identified. VES understands that an independent consultancy is currently reviewing this aspect. It would in this regard be worthwhile to assess and balance the benefits of compliance to the standard (presumably environmental best practice) against compliance costs. **Recovery TAS** - yes, smaller emerging organisations, often highly innovative must be consulted extensively as the means to influence policy are not as great as larger companies. This will reduce competition in Australia. **SITA** - In some cases, yes, but in some cases, we don't believe so. • Computer & TV Industry – No, volumes have been estimated, but are not fully known. • Certification of recyclers – Yes, this can be estimated. • Collection, handling, storage, transport and treatment of the items – No. Again, volumes are only estimated and the extent to how much is dropped off in the initial spike of the scheme is not fully known. Approved sites under the Scheme will more than likely need to undergo some modifications to cater for the safety of the general public in the drop-off areas. Consolidation and storage of e-waste may require additional costs to establish. • Recyclers complying - This should be relatively low cost to conforming with the industry interim standard, however, additional reporting and auditing requirements may incur some associated costs. **Mai-Wel E-Cycling Services** - No clear direction on business/industry generating waste has been given in the standard. A clear understanding of who and what organisations involved would be paid for has not been identified. Ownership of commodities and the associated responsibilities are not clear. Costs may be significantly higher than necessary for

	compliance/reporting requiring an input breakdown by type (TV, VCR, Computer, etc) and or manufacturer.
Additional Issues/Concerns	
Local Government	**<u>Leichhardt Council</u>** – • Pgs 9-12 - Collection Points - Where are the collection points to date and what organisations are providing these? If these are being provided by local governments, are all of the individual collection points aware of the Interim Standards comprehensive set of requirements and responsibilities and who will be funding these? Further to the above a consistent set of materials needs to be developed by the industry for any non-industry participants to ensure consistency across the Scheme in all locations and compliance with the Standards, including training, risk management and template reporting documents for management of a 'collection' facility. Are there additional requirements by state and territory jurisdictions in relation to the Standard in addition to the Federal Government Scheme and if so what are these? • Pg 12 - Fees – the community has the right to know that the collection, transporting, reprocessing/recycling has a large cost to those along the product stewardship chain, that this is not FREE and that the consumer is paying. Otherwise there is no understanding of the full costs involved in management of waste, particularly hazardous waste and will result in overall waste increases, as demonstrated in general overall waste increases, despite recycling. Related to this is the exclusion of reuse or refurbishment within the Interim Standard and Rollout with no information on how upgrading, reuse, refurbishment will be managed and by who and how they fit into the Scheme. Once recycling collection points are set up there will be little incentive to do anything else bar recycle. • Pg 12 - Social enterprise - what mechanisms are there to ensure social enterprises can meet the Interim Standards – are they going to be competitive? As noted in the response letter to the Australian Information Industry Association from Ramsay Moodie there are issues relating to the preclusion of smaller or start up / existing social enterprises being able to meet the standards and be competitive. The standard needs to include options for this type of enterprise and how they can participate and be funded. • Pg 11 - Duplication of reporting - how does the Interim Standard reporting requirements fit with existing reporting requirements at Federal and State government level so that there is not duplication and inefficiencies with organisations having to record and monitor additional data? Working on a 'template (s)' for this purpose with government (s) would be useful to ensure consistency and avoid overlaps. **<u>NSW LGSA</u>** – • The Associations appreciate the opportunity to provide comments and input to the Draft Interim Industry

	Standard for the Collection, Transport and Recycling of End of Life (EOL) Televisions and Computers • The Associations' comments relate mainly to the requirements which will apply to collection facilities, as this will be the main area of involvement for councils wishing to engage in the scheme. It should be noted however that these standards will equally apply to community groups and retailers who participate in the scheme, and there is likely to be a great deal of variety in the degree of "upskilling" and upgrading which is necessary. • For collection facilities (page 12), the standards themselves, while appropriate, are somewhat "open ended". What for example, does "clean and tidy, secure and free from hazards" mean? What does "a warning stating that it is the responsibility of the equipment owner to remove of any confidential or private data before the equipment is left at the collection location" look like? These requirements are open to interpretation. • In order to ensure some level of consistency and to ensure that the Program can have sufficient geographical coverage, particularly in rural and regional communities, the following additional principles are being proposed: • Page 8: Additional Guiding Principles: o Where existing, non-industry facilities which are proposed to be used for collection of e-waste require upgrading or modification to meet the standards, funding can be made available from the National Television and Computer Product Stewardship Program (the Program) to facilitate those upgrades / modifications. Where personnel training for non-industry participants is required in order to meet the standards (to meet OH&S requirements, Risk Management requirements or correct handling procedures), funding can also be made available from the Program for this purpose. Such funding will be subject to negotiation and agreement between the Program and the non-industry participant, and will be provided on an "at cost" basis. o The Program will develop generic guidance materials for use by non-industry participants to assist in the preparation of: Personnel training programs including facility management Collection facility design and construction guidelines including signage OH&S procedures Environmental Compliance Risk Management Systems Reporting / documentation

	Emergency response Other matters as are considered appropriate or necessary • As a general comment, the Draft Interim Standards seem to reflect an attitude that once the scheme is on offer, potential collection facilities will simply come forward seeking to be established. While this may in fact happen, the Program Managers will find themselves dealing with a wide variety of levels of expertise, suitability of sites etc. • Recent experience with the Australian Government's Roof Insulation Rebate scheme has, however, demonstrated that a much more proactive approach is needed to ensure that participants (be they councils, community groups, retailers etc), are able to comply with standards. Simply "setting the standards" and leaving it to participants to comply is not enough. • Aspects such as training programs, consistent signage templates, infrastructure upgrades, community advertising (through website or similar) are all better provided and funded by the scheme. It is a worthwhile up-front investment to ensure that the scheme operates efficiently and consistently across Australia. • The DrumMuster program which operates nationally to recover farm chemical containers has already navigated this path, and found that it was overwhelmingly beneficial to invest "up front" in ensuring that training, facilities and signage are all of a consistent standard. Managing and funding these centrally has saved a great deal of time and money because individual monitoring of compliance is not necessary. • The television and computer industry are absorbing the cost of running the recycling scheme into the current cost of new products, without any discrete or identified levy on the consumer (as operates in DrumMuster, the waste oil levy and the tyre industry). It is clear (and entirely understandable) that in light of this, they would seek to minimize the financial impact of delivering the scheme on consumers. Nevertheless, in the Associations' view, they are leaving far too much to other stakeholders to sort out (especially at the pre-collection phase), without sufficient guidance or hands-on management. • In the Associations' view, the industry should be taking a much more proactive role and greater financial responsibility for ensuring the quality and effectiveness of the 'pre-collection' phase of the program. Councils are well placed to assist and participate in the program, but there is a clear need for consistency, ongoing quality control and maintenance of standards of the program. There are "up front" and ongoing costs associated with this. These are clearly the responsibility of the industry. • The Associations re-state their view that a document with standardized "terms of engagement" for councils wishing to participate in the program, is advisable. It will result in a more effective, efficient, safer and

ultimately more cost-effective program.

WALGA -

- General Requirements –
  - Risk Management - As was previously identified the requirements for the collection locations, transporters and recyclers will vary in terms of risk management and it is potentially confusing to have all of the risk management issues together.

    Suggested amendment:

    If the different risk management requirements of collection locations, transporters and recyclers are not going to be separated out it is suggested that it be clarified that

    a) not all requirements will apply to collection locations, transporters and recyclers; and

    b) Note that some collection locations, such as Local Government collection locations, are likely to have risk management practices in place already. These will be related to their existing operations, as landfills, transfer stations etc. Therefore they will not need new risk management plans.
  - Reporting - Similar to Risk Management the inclusion of collection locations and recyclers in this section is still slightly confusing due to the inclusion of both collection locations and recyclers.
  - Suggested amendment: *Separate out what are the reporting requirement for collection locations (e.g. tonnes collected) from those of recyclers.*
- Definitions –
  - Collection Location/Facility - The definition is supported, however as comment has been made in the draft Interim Industry Standard about the 'designated' collection points (pg 12) and that contracts will be established with Collection Locations (pg 11), it may be useful to add to the definition that these are actually accredited/authorised sites with specific requirements associated with their operation.
  - Waste Hierarchy (pg 26)– see previous comments on this definition

    As all the States have different legislation / different definitions of the Waste Hierarchy would it be possible to either use a consolidated definition or an international one?

    For example the WA Waste Avoidance and Resource Recovery Act defines avoidance as "avoidance of unnecessary resource consumption".

	• Check list for collection locations - Supportive of this approach to minimise the administrative burden on collection locations. Specific comments on the check list as follows: o Storage - 'Are there spillage collection facilities for all uncovered storage areas' – as it is seems the intent that the products are not stored in uncovered areas, a change in wording to indicate that this is not a preferred option would be advisable. o 'Are there facilities to ensure that the EOL televisions and computers are not mixed with other types of waste' – as previously indicated Local Government is currently collecting a range of end-of-life electronic goods. It is highly likely that these goods will be mixed with TV's and Computers on their way to the recycler. At that point the recycler will segregate the materials and costs will be apportions according to the arrangements with the PRO and Local Government. This is currently in operation as the WA State Government is providing some funding to Local Government for only the TV's and Computers collected.
NGO	**CRN** - • 7.5 Traceability - Transparency systems need to be standardised with some level of uniformity. The reports are part of the administrative process and overhead costs of maintaining the level of data required in tracking should be efficient and cost effective. Software systems that provide user access for transparency reporting between recyclers in the recycling chain, need to meet some basic common requirements. The DIIS should specify minimum recovery and recycling rates. • 6.2 Export Transport Requirements - Shouldn't the DIIS be restricting the export of e-waste given that it has the potential to be dumped in third world countries by unscrupulous operators? There are some components / materials that need to be processed offshore as Australia doesn't have the technology. The DIIS should provide more detailed information around what components / materials are acceptable for export and seek to ensure that as much as possible is processed on Australian shores rather than give an open license to export whole items that could be processed here. The DIIS needs to ensure that exporting is restricted / controlled to avoid the National Program coming into disrepute which would undermine the communities' confidence in the National Program
Recycler	**Recovery TAS** - there are emergent technologies that once delivered to market will ensure Australia's ability to deliver in country. It is important to ensure the standard recognises that change will occur in the production management and post consumer life of product. **Eco Products Agency** -

	• Section 3, "Guiding Principles" states: '4. Decisions regarding treatment of EOL Televisions and Computers shall be informed by the waste management hierarchy and the principles of ecologically sustainable development including: o Ensuring that the highest resource value is maintained; o Carbon emissions are minimized; and o Landfill is a last-choice destination only – all other options must be exhausted before disposition to landfill.' From a life cycle perspective the carbon emissions associated with EOL treatment of TVs and computers are small in comparison to the carbon emissions due to the production and use of the items. The primary environmental problem of unsound EOL waste management of the items under discussion is dispersal of heavy metals and persistent organic pollutants into the environment. We suggest that the guiding principle 4, dot point 2 should be along the lines of "emissions of pollutants to soil, air and water are minimized" • There is some inconsistency between Guiding Principle 4 and recyclers obligations in Clause 7.4. Guiding Principle 4 states 'landfill is a last-choice destination only-all other options must be exhausted before disposition to landfill'. Clause 7.4 requires assessment of options according to Guiding Principle 4, but then indicates that landfill is acceptable if it can be shown to be the most environmentally sound solution. It goes on to indicate that landfill of materials is acceptable if there is no economically viable recycling technology available. We recommend that Clause 7.4 makes clear that landfilling of materials is acceptable only if it is shown to be environmentally sound (against stated criteria or guidance) and there is no economically viable recycling technology or other disposal option available. • Clause 7.4 will need to be re-visited by an expert committee in the future to clarify: o how 'environmental soundness' will be assessed o how a 'lack of economically viable recycling processes' will be confirmed • Table 1 lists several acceptable and unacceptable options for recycling and disposal of plastics from TVs and computers. However, it is silent on the two currently most likely disposal methods: landfill and export to non-OECD countries. We recommend that Table 1 includes landfill and export options to clarify whether these are acceptable or unacceptable. This may need to be qualified as an interim measure subject to technical reviews.

There is the difficulty that "Plastics" consists of a range of materials, some containing brominated flame retardants (BFRs) or other POPs and others that do not.

Plastics containing BFRs are already classified as hazardous under Hazardous Waste (Regulation of Exports and Imports) Act and exporting to non-OECD countries for the purpose of recycling and/or disposal without the appropriate permit should be "Not Acceptable".

Given the likely implementation of additional requirements due to the additional POPs added to the Stockholm Convention, we recommend that Table 1 should split Plastics that contain regulated POPs, and those that do not, allowing for Acceptable Processes and Not Acceptable Processes to be set with more clarity.

As a pre-cautionary principle, when testing is not feasible for identification of additives, that best practice should be that plastics from TVs and computers be treated as if containing regulated POPs and handled accordingly.

SITA –

- 4.1 Risk Management - Collection Locations, transporters and Recyclers shall have conducted a risk assessment to identify health, safety and environmental (HSE) hazards and risks associated with the products and activities included in the operation and have effective processes in place to mitigate the risks in accordance with the Health and Safety Hierarchy of Control and the Waste Hierarchy. We suggest that under this scheme, these parties should be given a timeframe in which to conduct this risk assessment (ie within first 1 month or as part of application to become collection location, transporter and recycler) and also a frequency for ongoing risk assessments to be conducted and reported.
- 4.6 Reporting - b. The quantity and origin of EOL Televisions and Computers collected through the National Television and Computer Product Stewardship Program and also quantities collected through processes not connected to the National Program such as manufacturer-run recycling programs or direct contracts with end users or other parties. The amount shall be reported in units or weight as prescribed in the contract with the Product Stewardship Organisation. We require clarification on the definition of 'origin' for reporting – is it collection point, brand of item, consumer drop-off vs other collection?
- 4.6 Reporting - c. The amount of each category of resource recovered from recycling processes (if applicable) and any waste consigned to disposal. We require clarification on the measurement required for 'any waste consigned to disposal' – by weight?
- 4.8 Disposal to Landfill - Any waste that is disposed of to landfill must be disposed of at a waste facility that is appropriately licensed under State or Local government legislation or regulations. Will this 'disposal to landfill' be reported? If yes, how? By weight? With details of the waste being disposed?

	• 5.2 Signage - Clear signage shall be provided including: a. instructions to the public b. access times c. details of equipment that is/isn‘t included in the collection; and d. a warning stating that it is the responsibility of the equipment owner to remove of any confidential or private data before the equipment is left at the collection location. We suggest that it is specified in this document that ‘Clear signage shall be provided by the site occupant including’ otherwise the expectation might be that signage will be provided by the Scheme. We also suggest that ‘Signage guidelines’ are developed by the Scheme / government for recommended wording of A to D points listed above; correct use of Scheme ‘logo’ & confirmation as approved Collection Location under Scheme. • 5.3 Storage - Areas used for the receipt of EOL Televisions and Computers shall be a clearly marked and segregated from other activities. There was discussion in the Stakeholder groups that Televisions and Computers may need to be separated at Collection Locations. Clarification requested as to whether this is required. We understand that this point addresses that the products under the Scheme require segregation from other waste types being collected at same site. • 6.2 Export Transport Requirements - In order to move the waste from its “location” to the destination Port, the exporter must use a transporter that is licensed under the relevant Road and Rail Transport Acts. We suggest that this paragraph be changed to: *In order to move the waste from its “location” to the destination Port, the exporter must adhere to Domestic Transport Requirements stated in 6.1.* Similarly, the words ‘Road and Rail Transport Acts’ should be added into the wording in 6.1 Domestic Transport Requirements. • 7. Requirements for Recyclers - Have exceptions to the Draft Standard been considered in the event of a new technology / processing capability being introduced and established in Australia – before the Standard is implemented? • 7. Requirements for Recyclers o Table 1 o Packaging

	○ Mechanical or chemical processing Under Acceptable Process, we suggest it should be recycling rather than processing. For plastics packaging, we suggest adding 'Pelletising' • 7.5 Traceability - We suggest that under Traceability, there is an addition of text: *"Inclusive of date of destruction or each batch / item delivered from collection to recycler for processing"*. Dates of destruction could trigger the payment for recycling and avoid recyclers being paid while e-waste being stockpiled and not recycled. • Definitions - Definitions are listed towards the back of the document, and with the exception of 'Definitions' listed in the table of contents, there is no reference to the definitions available. We suggest that the first use of each defined word also includes: (Refer to Definitions) - For example, Substances of Concern (Refer to Definitions) • 8.1 Accredited Certification Body - An organisation that conducts conformity assessments and third party certification of organizations against designated management system standards in the fields of quality, environment, occupational health and safety etc in accordance with the requirements of ISO/IEC 17021 as confirmed and accredited by a national accreditation body which is a member of the lnternational Accreditation Forum (IAF). Audits are impartial and conducted by competent professional auditors, meeting international guidelines for management systems auditing as specified in ISO 9011. We query if ISO 9011 should be ISO 9001? • 8.4 Downstream Processor (6th bullet point) - Any other contracted party that handles, processes or disposes of materials on behalf of the first recycler. It was discussed in the Industry Consultation Workshop to change the word materials here to componentry. We agree as it reflects the definitions. • 8.10 Computers - This should be moved back to be 8.4 not 8.10 and therefore, alphabetically listed. This definition was previously IT products, so has retained that alphabetical position. • 8.13 Point of Final Disposition - Means a point in the downstream flow of materials where the separated materials generated from the processing of EOL Televisions and Computers become commodities used to produce new products or become a bye product waste for appropriate disposal. This includes: ○ Use as a raw material in the production process of new products;

	o Recovery of metal, energy and/or other resources; o Pelletization of plastics; o Landfill and incineration disposal. 'Bye product' should be by-product. At the Industry Consultation Workshop, it was discussed that references to Incineration would be removed. • 8.16 Recycler - A facility that undertakes recycling. We suggest that this be expanded to add: including manual dismantling and processing. It was discussed at the Industry Consultation Workshop that once any dismantling commenced, this moved the Collector to the Recycler category. Collector will collect and consolidate. Recycler will manually dismantle and / or process. • 8.18 Substances of Concern - Means substances or components making up EOL Televisions and Computers that in their normal state and under normal conditions of handling by a consumer pose little or no risk to human health or the environment but when handled, processed or transformed in large volumes at a recycling facility may be subject to specific regulatory requirements such as hazardous designation. These substances or components include mercury-containing devices, PCB capacitors, leaded glass, batteries, etc. We suggest that the last sentence of this definition be changed to reflect the substances of concern specifically outlined in Appendix 1: *These substances or components include circuit boards; batteries; cathode ray tubes (CRTs), leaded plasma display glass, and other leaded glass; lamps, bulbs and switches; insulated wire; plastics.* We also suggest the addition of ink and toner cartridges to this list and details added to Appendix 1. • 8. Definitions - We highlight the absence of the definition for Waste and as it is referred to throughout the standard (as a standalone word and not part of another definition) suggest that it is once again included in this list. • Appendix 2 Australia's Obligations under the Stockholm Convention on Persistent Organic Pollutants Table 1 - Under each "Effect of Listing", there is reference to a Footnote indicated as 1, however the actual Footnote cannot be located. • Appendix 5 Checklist for Collection Locations - Legal Compliance - We suggest that asking if licenses are available and up to date should be changed to providing copies of licenses in process of becoming an approved Collection Location.

	Appendix 5 Checklist for Collection Locations - Records and Monitoring - As per Traceability, suggest that date is added to the reporting – for Collection Locations, this would be date sent to Recycler. **<u>SIMS</u>** – • p6, Note 1 - The check list approach may be adequate for the initial introduction period, but an auditing authority needs to be identified (ie EPA/LGA/PSO?). Will stakeholders be able to raise issues with collection points or transport providers formally for the auditing authority for action – ie competitors reporting incorrect process or non-compliance? Suggest to set a target for collection location to be audited in their year 2 to 5 operation (base line audits)? • p8, point 3 - Note to include, that also downstream partners need ISO 14001 accreditation or an equivalent self declaration to state details of materials use/disposition and the percentage recovery (aim at 95%?). • p8, point 5 - This shall be an activity and cost for the governing body to audit, as more than tier two, three … to tier xxx processors may be involved, and also secondary traders of materials? Is this also a 'self declaration process' by tier providers and reportable to the dismantler/recycler of the originating materials from the secondary and third tier processor/handing agent? Suggest, a copy of the ISO 14001 accreditation provided by down stream processors be sufficient to settle this requirement? • p10 - *The provider shall….legal breaches or incidents* - Need to include explicitly stating the reporting of medically treatable injuries (MTI) and lost time injuries (LTI) …. See p11, 4.6(a) • p10, 4.4, b. - Collection points may not have any protection for this EoL equipment (is there a provision for the introduction period)? Transport providers to shield the equipment from exposure to the elements? It is difficult in a commercial environment to always operate under-cover or not store equipment in temporary areas that may be exposed to the elements with the flux in supply; Suggest clarifying that no processed equipment or resulting 'materials of concern' shall be exposed to the weather. • p10, last para - There shall be no 'uncontrolled tipping' **from height, say >30cm**, which may adversely affect the equipment. • p11, 4.6 (b) - …*reported in units or weight* - May need to read units **and/or** weight as prescribed • p11, 4.6 (c) - …*and any waste* - Waste service providers currently do not issue a weight decoration, as far as I know, and report on volume of 'bin' lifts…is this acceptable for the scheme as each recycler needs to weigh potentially their own waste (open to a loop hole)? • p11, 4.6 (d) - Add: Information provided will not be accessible by third parties and accepted as 'commercial in

	confidence' by the PSO. • p12, 5.2 - Add: signage to deter theft (theft is a criminal offence and scavenging not permitted) • p15, 7.4 - *Recyclers shall undertake…monitoring* - Suggest to define minimum substances for compulsory monitoring (ie Pb, Cd, C, Br etc) at a preset intervals. Work surface contamination monitoring required on a periodic bases; … how often shall monitoring take place? … to whom are records submitted? It is imperative that all recyclers are explicitly operating 'on a level playing field' to ensure competitive parity of the industry. • p15, 7.4 - PPE requirement determined by the specific processes employed for transportation, handling and recycling, and air and surface contamination/ monitoring. • p15, 7.4 - …*shall only go to landfill where no commercial viable recycling technology is available.* - This statement may create a loop hole to dispose of EoL equipment and needs to clarify the 'no economic' value proposition. How would this be monitored? Suggest to include consideration of 'travel distance' to the nearest recycling facility, and if the local landfill is 'lined' or not, and possibly if leachate is already high in heavy metals (?); Options would be to store equipment for 'at call' pickup or return via the nearest electrical retail outlet (ie. for back loading) in sea containers (easy, cheap, secure and readily available). Cost benefit analysis to be completed for areas where EoL ends in landfill? • Target omitted - Recycling targets are omitted fro stated reasons, but suggest a value of some 95% recovery and diversion from landfill; Collection target omitted, but would be accepted as nominated by the PSO. But, unless a local ban on e-waste to landfill will accompany the national roll-out within the designated geographical areas, only a collection target explicitly stated may offer an incentive to divert EoL from landfill; else, a success factor may not be quantified; • Enforcement - How will the standards be enforced, and escalation of disagreements handled? What percentage of equipment to landfill will be acceptable if transfer stations can not channel the equipment into the scheme in roll-out areas? Even if all data on reportable volumes collected by recyclers is reported, the shrinkage or leakage volume may not be measurable, that is, if a ban to landfill can not be enforced; • Health hazard to landfill - Manufacturers to include a WEEE type directive for the proper disposal of EoL TV and Computer equipment in their respective user manuals. This may need to be included in commercial instruction books/ installation and service manuals.

– If you see this symbol –

Information on Disposal for Users of Waste Electrical & Electronic Equipment (private households)

This symbol on the products and/or accompanying documents means that used electrical and electronic products should not be mixed with general household waste.

For proper treatment, recovery and recycling, please take these products to designated collection points, where they will be accepted on a free of charge basis. Alternatively, in some countries you may be able to return your products to your local retailer upon the purchase of an equivalent new product.

Disposing of this product correctly will help to save valuable resources and prevent any potential negative effects on human health and the environment which could otherwise arise from inappropriate waste handling. Please contact your local authority for further details of your nearest designated collection point.

Penalties may be applicable for incorrect disposal of this waste, in accordance with national legislation.

For business users in the European Union

If you wish to discard electrical and electronic equipment, please contact your dealer or supplier for further information.

Information on Disposal in other Countries outside the European Union

This symbol is only valid in the European Union.

If you wish to discard this product, please contact your local authorities or dealer and ask for the correct method of disposal.

- p16 – ISO 26001 - Dismantling using prison labour may become a contentious issue once public – why the need to include it in the standard? Concerns of data security, and a 'drafted' labour force may be exploited by the media; A state subsidised prison labour force would need to provide a transparent operation with the identical OHS&E guidelines en force; and providing a quality service not aimed at monopolising markets or adversely affecting market offering for commercial e-waste recycling services in the same area; ISO26001 may not be regarded as sufficient to include this option here?
- p16 – EoL whole equipment export - The export of whole equipment for recycling to non-OECD countries is not an option if the scheme is to entice and promote the development or investment for the expansion of state-of-the-art e-waste processing facilities in Australia Export permits if available must be issued unilaterally in the public interest and shall not be unfairly applied, or awarded as an instrument for price competition, or be awarded on selected EoL equipment only (ie for computer products only)

	• p16 – Cables - The processing plants for cables are in China, but do not require a permit for export. • p16 – Batteries - Batteries to be segregated by type, and secured against discharge prior to road transport. Non-Rechargeable Batteries have at present a local solution (at a relatively high cost for current volumes); • p17 – CCFL - Recycling option available (but, relatively high cost for current volumes) • p17 – BFR - BFR identification currently is complex and the required equipment expensive. Without the ratification of the Stockholm convention unlikely to be implemented by industry at current costs. BFR plastics may not be able to be incinerated in all states to prevent emission of POPs… Alternatively, is lined landfill an acceptable option if BFR identification can be provided? • p18 – 7.5 – Targets - Without targets, no measurement of the efficiency in collections and recycling can be improved on. While the target measures and detail currently is not ideal, aiming 'too low' or 'no target' will provide little benefit of the scheme. • p19 – 7.7 - …*second and third party audits* - It is suggested, to maintain the integrity of the framework, to seek for the PSO to appoint and carry costs of audits of the processors through to the point of final disposition. As the PSO will be informed by recyclers, who will identify a suggested 'compliant' down stream processor, for the tractability of disposition, the cost to individual recyclers auditing independently the same potential downstream partners to the final disposition is ineffective. However, the PSO may 'audit' the material trial for multiple recyclers once this info is available as a one step process and maintain the economic integrity of the system most efficiently (individual recyclers will not know who is and who is not using the same down stream processors (Black box?), but will be informed by the PSO of any non-compliance.

APPENDIX C

Comments provided by Victorian EPA on 21.12.10

Preface

The word 'toxic' is mentioned, however the bulk of the document uses the word 'hazardous'. Unless there's a clear distinction between the two, it may be more consistent to use the word 'hazardous' throughout the document.

Part 3

Several guiding principles refer to protecting the environment, but it could be more strongly emphasised, for example:
All activities, including collection, transport, storage, dismantling and recycling, must be managed to ensure the environment - including land, air, water and groundwater - is not adversely affected.

NB: Environmental protection could also be more strongly emphasised in each section relating to collection (5), transport (6), recyclers (7) etc.

Part 5.3

This section could be elaborated slightly, for example, with requirements for cover and bunding of collected (stored) materials. This would complement the environmental protection objective.

Part 7.4

This section mentions 'manual, mechanical, chemical or heat treated' processing, and then goes on to mention requirements for recyclers with mechanical processing. It is not 100% clear which requirements apply to which processing method. Perhaps a sub heading containing requirements relating to each processing method may provide more clarity.

Also, the section mentions monitoring for air quality and noise; as per previous comments, we think it would be useful to include:
land and water (no contamination as a result of recycling activities)
additional requirements of States / Territories.

Stockholm Convention & BFRs

We understand there is the potential for BFRs to be in components including wires, ink & toner cartridge casing etc, (as well as of course, plastics). Details of the Stockholm convention are included (part 7 and appendix) but we're wondering if there's a complete list of products containing (or likely to contain) BFRs?

Part 8.20

The waste hierarchy provided is brief. FYI, Victoria has just released a new guideline 'Applying the environment protection principles in waste management regulation', which contains more details around the hierarchy and other guiding principles for waste management. It may be of interest to the reader.