NSW Extended Producer Responsibility

PRIORITY STATEMENT 2005-06

Department of **Environment and Conservation** NSW

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1 Introduction

1.1 Waste Avoidance and Resource Recovery Act 2001

Extended producer responsibility (EPR) policies aim to ensure that producers take physical or financial responsibility for the environmental impacts of their products throughout the products' life cycle. This includes both 'upstream' impacts from choice of materials and manufacturing processes and 'downstream' impacts associated with the use and disposal of products. International experience shows that EPR schemes have been successful in preventing waste generation at source, promoting more environmentally compatible product design, and facilitating efficient product or material recovery, reuse and recycling.[1]

EPR policy was introduced in NSW through Part 4 of the *Waste Avoidance and Resource Recovery Act 2001 (Waste Act)*. Section 15 defines an EPR scheme as one in which producers' responsibilities for their products (physical or financial) are extended to the post-consumer stage of the products' life cycle.[2]

Section 18 of the Act requires the Director-General of the Department of Environment and Conservation (DEC) to publish an annual priority statement on EPR schemes that the Director-General proposes to recommend for implementation under the Act.

1.2 EPR Priority Statement 2004

The first Priority Statement was published in March 2004. It listed 16 'wastes of concern', with nine to receive priority focus, namely,

- Computers
- Televisions
- Nickel cadmium (NiCad) batteries
- Used tyres
- Plastic bags
- Agricultural/veterinary (Agvet) chemicals
- Agvet chemical containers
- Mobile phones/batteries
- Packaging wastes

The other seven wastes of concern were:

- Cigarette litter
- Office paper
- Polyvinyl chloride (PVC)
- Other electrical products
- Treated timber
- End-of-life vehicle residuals
- Household hazardous and chemical wastes (including automotive chemicals, lead acid batteries, community sharps, domestic pesticides and cleaning products, solvents, lubricants and oils, paints and pharmaceuticals)

The 2004 Priority Statement did not recommend any regulatory action however it put industries on notice that action was required to reduce waste created by their sector.

In 2004 an Expert Reference Group (ERG) was established to advise the Minister for the Environment and the Director General of DEC on current and proposed EPR schemes and other industry action. The ERG provided its report to the Minister and Director General in September 2005.[3] The report contained analyses and recommendations on each waste of concern listed in the 2004 Priority Statement.

The Minister has since written to each industry sector seeking specific actions and reporting against these over the next 12 months. The ERG's analyses and the Minister's requests of each sector are reflected in this 2005 EPR Priority Statement.

1 Examples are available from numerous OECD reports (see www.oecd.org)

2 In the Act, 'producer' includes suppliers and brand owners and 'EPR schemes' include 'product stewardship' schemes.

3 *Report on the Implementation of the NSW Extended Producer Responsibility Priority Statement 2004* (Available at www.environment.nsw.gov.au/education/spd_epr_prodsteward.htm)

2 Framework

2.1 EPR Priority Statement 2005-06

This Priority Statement replaces EPR Priority Statement 2004. Each of the product sectors still has much work to do to deliver robust product stewardship programs and each product is at a different point along the continuum towards effective EPR.

Some sectors are still a long way from having a widespread workable scheme for companies within the sector; others have shown good progress but need to work hard to move into the implementation phase of their program. Even those sectors that have established national product stewardship schemes or agreements need to work harder to clearly demonstrate results and increase the uptake and participation in the scheme within their own sectors and by the community.

Following the evaluation and advice from the ERG, the DEC has determined that none of the 16 wastes of concern identified in the 2004 Priority Statement ought to be removed although some are recommended for revision.

The 'wastes of concern' listed in the EPR Priority Statement 2004 have been retained in this Priority Statement with the following changes:

- NiCad batteries are now treated under a broader category of 'batteries', which will include all forms of portable consumer batteries (both single use and rechargeable batteries) as well as lead acid batteries used in domestic applications (automotive and marine). Batteries used in industrial applications (forklifts, uninterruptible power systems for telecommunications, medical, aviation and defence applications) are not included in this category because they have formal replacement and disposal arrangements.
- 'Household hazardous and chemical wastes' has been removed as a broad category because it represented such a range of products that effective evaluation was not possible. Instead, key wastes from that category, namely, used paint and used oils and lubricants, have been specifically identified for further monitoring and action. These particular materials represent a significant proportion of the total volumes of household chemical wastes disposed of by the community in government-run household chemical collections. Another key waste from this stream, lead acid batteries, has been incorporated into the 'batteries' category.

2005-06 Priority wastes

The products targeted for specific industry action under the EPR Priority Statement 2005-06 are set out below. Specific actions have been identified for each of the sectors responsible for the products listed. These actions will contribute to improved performance to reduce the amount or impact of each product throughout its lifecycle.

The overall performance of each product sector and scheme will continue to be evaluated in terms of the specific requests made by the Minister for the Environment and against the evaluation criteria developed by the Expert Reference Group in 2004 in consultation with all of the product sectors (See **Appendix 1**).

No new waste of concern has been nominated for 2005-06. DEC wants to maintain the focus on the current priorities in order to ensure that tangible results are delivered by these sectors. No other product sector was identified during the year that was considered to have an equivalent or higher priority than those already listed. The assessment criteria to identify new wastes of concern, which was published in the 2004 Priority Statement, have been retained for future application (See **Appendix 2**).

Products targeted for specific industry action

- Agricultural/veterinary (Agvet) chemicals
- Agvet chemical containers
- Batteries
- Cigarette butts
- Computers
- End of life vehicle residuals
- Mobile Phones
- Office paper
- Other electrical products
- Packaging
- Paint
- Plastic bags
- Polyvinyl Chloride (PVC)
- Televisions
- Treated timber
- Tyres
- Used oils and lubricants

Sectors for priority focus

A number of the products listed in this Priority Statement have been identified for particular focus during 2006 either because the existing EPR scheme needs to more clearly demonstrate that it is delivering or because there is currently no EPR scheme and one is urgently needed due to high volumes of waste and/or current low levels of recycling once consumers have finished using them.

The priorities are:

- Computers
- Mobile phones
- Office paper
- Paint
- Plastic bags
- Televisions
- Tyres

It is recognised that many of these sectors are already involved in national initiatives to either develop or improve implementation of EPR schemes. 2006 will be the watershed year for these products to demonstrate that actions can be brought to fruition and deliver real results. If this cannot be demonstrated, other options for delivering action will be pursued.

Regulatory action

Under section 16 of the *Waste Act*, the Minister for the Environment may make regulations to implement EPR schemes.

Such regulation would apply to a whole product sector and could mandate outcomes to be achieved as well as, potentially, the mechanism to deliver the outcomes.

There are clear steps set out in the *Waste Act* that must be addressed before regulation could be implemented in NSW.

Under section 17(1) of the Act, the Minister is not to recommend the making of a regulation to implement an EPR scheme unless the Minister is satisfied that it is necessary to do so having regard to the following:

- the volume of waste requiring ultimate disposal or the toxicity of the waste generated;
- whether there is a national scheme in place that adequately addresses waste issues in NSW;
- whether there is an effective voluntary scheme in place (nationally or State based) that is able to achieve the desired outcomes and is being actively implemented, monitored and reported on;
- whether economic analysis supports the implementation of the scheme; and
- whether there are any constitutional or other impediments to NSW acting unilaterally in implementing the scheme.

Section 18 of the Act requires DEC to publicly advertise each year a Priority Statement that identifies any extended producer responsibility scheme that it proposes to recommend for implementation.

Preference for voluntary approaches

Whilst the *Waste Act* enables mandatory action, the Government has made a strong commitment to support national voluntary sector initiatives where possible, as this provides flexibility for industry and fosters innovation. Each of the sectors identified as wastes of concern has progressed voluntary steps to a certain degree.

Consistent with this policy of encouraging voluntary action by industry, the NSW Government supports a co-regulatory approach to producer responsibility where this is appropriate for a sector. This involves national voluntary product stewardship underpinned by government regulation of companies that refuse to participate (free riders) in industry schemes. This maintains a level playing field and ensures that those who work within a voluntary scheme are not disadvantaged in the market place.

Regulatory safety net for the National Packaging Covenant

The NSW Government will introduce regulations under the *Protection of the Environment Operations Act (POEO Act)* to implement the *Used Packaging Materials National Environment Protection Measure (NEPM)* in NSW. The regulations will replace the Industry Waste Reduction Plan that gave effect to the *NEPM* in NSW under the first Covenant.

The *NEPM* supports the new *National Packaging Covenant*, which is a voluntary agreement with specific targets and performance indicators. Environment Ministers approved the new Covenant and related *NEPM* nationally in July 2005 for a further five years.

The *NEPM* sets goals and guidelines that jurisdictions must follow in implementing their own regulatory mechanism to apply the *NEPM*. It sets minimum data and reporting requirements for companies caught by the *NEPM* as well as stipulating that a company must be responsible for collecting and recycling a specified percentage of the packaging that they put into the Australian market. The *NEPM* applies to companies that are not signatories to the voluntary National Packaging Covenant.[4]

Proposed sectors for EPR regulation

Section 18 of the *Waste Act* requires DEC to give notice of any producer responsibility scheme that it proposes to recommend to the Minister for the Environment for introduction.

Some progress has been made with the membership of the AIIA towards a voluntary scheme for recovery of end of life computer equipment. Because of the nature of the computer sector, such an agreement would leave a substantial proportion of the sector outside of a voluntary scheme. At a minimum, regulation will therefore be required to underpin such a voluntary scheme to capture "free riders". In the absence of satisfactory progress on the voluntary scheme, regulation will be required on a whole of sector basis.

Generic regulatory safety net for other voluntary EPR schemes

NSW is currently participating with the Australian, Victorian, South Australian and Western Australian Governments to prepare a new National Environment Protection Measure (NEPM) for Product Stewardship. The project is being undertaken under the auspices of the Waste Working Group of the Environment Protection and Heritage Council (EPHC).

The *National Environmental Protection (Product Stewardship Framework) Measure* will be developed to enable more national co regulatory approaches for other product sectors to be implemented.

The proposed product stewardship *NEPM* will provide the framework so that new product-specific schedules can be added to it each time a new sector-wide product stewardship approach is developed. This *NEPM* will be developed over the next 12 months.

4 For specific details, refer to the *National Environment Protection (Used Packaging Materials) Measure* varied July 2005 and available at www.ephc.gov.au

If this *NEPM* is approved by the EPHC, following whole of government processes and public consultation requirements, NSW will also use the *POEO Act* to develop a regulation to apply it to new product sectors. Initial product sectors for development of regulations under this *NEPM* are likely to include televisions, tyres and computers.

As a matter of principle, where a co regulatory approach is agreed with a sector, it is desirable that industry has a fully operational scheme in advance of the NEPM coming into force in NSW. Failing this, a scheme must be operational not later than three months after the commencement of the NEPM in NSW.

2.2 Public submissions

Under Section 18 of the *Waste Act*, the Director General of the DEC is required to publicly advertise this Priority Statement and invite written submissions on any relevant matter relating to the priority statement.

Submissions may be sent by post to:

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

Submissions can be also emailed to:

product.stewardship@environment.nsw.gov.au

or faxed to (02) 8837 6099.

The closing date for submissions is **30 June 2006.**

A report on all submissions received will be published by **30 September 2006**. All comments will be provided to the ERG and will be considered by DEC when assessing industry progress, in the selection of future priorities and in preparing future Priority Statements.

Important privacy information:
Unless otherwise indicated, submissions may be made public. Please indicate clearly in your submission if you do not wish your identity and/or contents of your submission to be made public.

2.3 Expert Reference Group

An Expert Reference Group (ERG) will continue to provide advice to DEC and the Minister for the Environment on the implementation of the NSW Government's EPR policy.

The membership and size of the ERG reflect its function as a specialist group with expertise or experience in extended producer responsibility and product stewardship and related areas. It has an independent chair and will receive secretariat support from the DEC. Membership details of the ERG will be published on the DEC's Internet website.

Terms of reference

The ERG will advise the DEC and the Minister for the Environment on:

1. The selection of products to be listed in NSW EPR Priority Statements.
2. The adequacy of EPR schemes proposed by industry sectors.
3. The effectiveness of the implementation of existing schemes or specific actions as required by this Statement.
4. The need for full regulation of any product to compel producer responsibility.

2.4 Evaluation and reporting

Evaluation criteria

Appendix 1 provides the full list of generic criteria and key performance indicators that the DEC and the ERG will use to evaluate proposed or existing industry actions and EPR schemes under this Priority Statement.

Not all of the criteria are applicable to all industry sectors. The DEC, with advice from the ERG, will negotiate and agree on variations to the evaluation criteria and key performance indicators with particular industry sectors.

Reports

The DEC will publish on its Internet website regular information sheets on the progress of the implementation of the EPR Priority Statement 2005-06.

The ERG will prepare a report on the implementation of the 2005-06 EPR Priority Statement for the Director General of the DEC and the Minister for the Environment within 12 months of the publication of this Statement.

The report will cover:

- Specific actions by industry and the DEC and an assessment of the level of success and reasons for both achievements and any under achievement.
- Recommendations for the next Priority Statement.

3 Action in 2006

In nominating specific wastes of concern for the 2005-06 Priority Statement and specific actions required during 2006 to progress EPR in NSW, the following factors were taken into account:

- The response of each sector to the evaluation criteria following meetings and discussion with the ERG;
- The conclusions of the ERG in its report to the Minister for the Environment and DEC about overall sector performance and the ERG's advice on key actions needed to progress EPR for each product;
- The Minister's response to each sector following consideration of the DEC's and the ERG's advice;
- The 45 submissions received on the 2004 Priority Statement;
- The development of EPR programs that are nationally based and the progress of their implementation; and
- Ongoing monitoring by DEC of international and national EPR priorities and initiatives.

This statement highlights some of the key facts and data that have contributed to the identification of each waste of concern.

For further background and details, refer to the following documents, which are available for download on the DEC Internet websites[5]:

- *EPR Priority Statement 2004*
- *Public Consultation Report on the EPR Priority Statement 2004*
- *Report on the Implementation of the NSW Extended Producer Responsibility Priority Statement 2004 by the Expert Reference Group*.

3.1 Computers

Computers are complex products made from non-renewable resources. The average computer contains more than 700 substances, including hazardous materials, such as, lead, cadmium, mercury, hexavalent chromium and brominated flame-retardants.

Australia is among the top 10 countries in the world for per capita computer use. More than nine million computers are now in use in Australia, with three million entering the market in 2004 alone (up 22% from 2003).

About a third of these are used in NSW, where over 70% of households have at least one computer and around one million computers (20,000 to 30,000 tonnes) reach end-of-life in NSW each year. Between 2,000 and 5,000 tonnes of computer waste are going to landfill in NSW each year.

An Australia wide survey of electrical products kept in households during 2005 [6], showed that miscellaneous personal computer items (including keyboards, mice, printers, modems, etc) together represented 29% of all equipment counted (or 26.11 million items), at an average of 6.3 items per household.

When considering all computer related equipment, including monitors, hard drives and laptops, this represented 42% of all surveyed equipment held in homes; an estimated 9.2 items per household, or 38.4 million items in total.

Around twice as many households had acquired TVs and computer screens as had disposed of them within the last 12 months, and almost three times as many computer box units. This study reinforces the critical importance of developing a scheme to deal with used information technology products.

5 www.environment.nsw.gov.au/education/spd_epr_prodsteward.htm

6 Household Electrical and Electronic waste benchmark survey 2005 (DEC 2005)

2004 Priority Statement feedback

Feedback received on computers following the 2004 Priority Statement stressed the importance of taking existing schemes, for example, those run by charities and the ReConnect.nsw Computer re-use program into consideration in developing more broad based collection and recovery systems.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

The computer sector has been trying to develop a voluntary scheme since 1998. The complexity of the computer sector has contributed to the difficulties faced by the sector in developing a workable voluntary scheme.

The sector has a high proportion of "white-boxes" (unbranded equipment), generally produced by small companies with very small market share but which collectively have 30% to 40% of the market. About seven major producers, who make up about 10% of companies in the sector, share the remaining 60% of the market.

The Australian Information Industry Association (AIIA) provided an updated proposal to EPHC in June 2005 and although it provided more detail than earlier proposals it still fell very short of a satisfactory plan.

The proposed scheme called for full government regulation of the sector to make the voluntary scheme work. It failed to cover historical or orphan waste from the commencement of the scheme and only provided a solution for AIIA members - the larger industry players who represent 10% of companies in the sector, with little incentive for others to participate. The focus on new equipment sold would not result in any large scale recycling for at least 5 years from commencement of the scheme.

National environment ministers, through the EPHC, concluded in October 2005 that co-regulatory approaches considered to date may not be suitable for computers and instructed officials to look at other options, including regulatory options. A report is due to the EPHC at its first meeting in 2006.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment requested the AIIA and its members to revise their proposed scheme to deal with, as a minimum, the historical wastes of AIIA members from the date of the scheme's commencement. The AIIA was asked to respond by 3 February 2006.

A response from AIIA members in December 2005 indicated that they would be prepared to collect their own historical equipment from the commencement of the EPR scheme. Further discussion will still need to occur on the detailed workings of the proposed scheme as well as ways to deal with orphan waste and ways that companies participating in computer take back might be recognised in government procurement processes.

The Minister has also instructed the DEC to review other options, including regulatory options for the sector if no satisfactory voluntary product stewardship scheme is developed by industry in a timely fashion.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for computers and the IT sector during 2006.

3.2 Mobile phones

The sale of mobile phones in Australia has proliferated exponentially since the late 1990s, with industry estimates placing the total number of mobile phones sold at 30 million. Of these, more than 7 million were sold in 2004. There are now about 16 million registered mobile phone users. The average life expectancy of a mobile phone is just 18 months, largely due to the rapid development of new technology and the nature of mobile phone contracts, which encourage regular replacement.

Although about 14 million mobile phones have reached end of life in Australia, the number going to landfill is unknown. Anecdotal evidence indicates that a large number is being stored in offices and houses and an unknown number has been exported for reuse in developing countries.

Some of the components in mobile phones and batteries are made from non-renewable resources. Heavy metals in mobile phones and batteries, such as nickel, copper and cadmium, may have an adverse impact on the environment if disposed of to landfills or energy-from-waste facilities. Mixed with other wastes, mobile phones could undermine the potential to recover useful materials from that waste stream.

Mobile phones are manufactured overseas and imported into Australia. Almost all brand owners and carriers/service providers are members of the peak industry organisation, the Australian Mobile Telecommunications Association (AMTA).

2004 Priority Statement feedback

Four submissions addressed mobile phones and batteries. Two pointed out that EPR action should go beyond recovery and recycling and deal with avoiding waste in the first place. There were also suggestions for trade-in or buy-back schemes to encourage resource recovery.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

AMTA commenced a Mobile Phone Industry Recycling Program (MPIRP) in 2000 and estimates that about 1.5 million phones have been recycled through this scheme. This still leaves a huge number of mobile phones unaccounted for, despite the fact that the majority of the companies in the mobile phone industry are members of the scheme.

Environment Ministers have expressed dissatisfaction with the levels of recovery and recycling of mobile phones. At the EPHC meeting in April 2005, Ministers directed their Waste Working Group to negotiate a voluntary agreement with the mobile phone industry with clear targets and deliverables.

In 2005, AMTA commissioned a major consumer research survey of 900 consumers, 200 businesses and 20 industry, environmental and government representatives. The survey showed that most people (60%) kept their old phones or gave them away. About 9% threw their phones away, lost them or reported them stolen. About 46% knew about the AMTA recycling program but only 4% recycled their old handsets and 2% donated their phones to a charity. The survey showed that 12.4 million used mobile phones were being kept in homes and offices; 1.5 million were thrown into rubbish bins and 900,000 were recycled.

Specific actions identified for monitoring and evaluation during 2006

The mobile phone sector has been strongly encouraged to actively participate in the EPHC process to develop a robust agreement for effective recovery and recycling of mobile telephones in Australia as a matter of priority. The Minister for the Environment has sought a report by 31 October 2006 on implementation of initiatives to increase recycling.

The Minister will request DEC to consider other options, including regulatory action, if no satisfactory voluntary product stewardship scheme is developed by industry to ensure effective end of life management of mobile telephones and batteries.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

3.3 Office paper

Printing and writing grade paper is made of high quality fibre which is highly recyclable, but collection of source separated paper or sorting after collection remains low.

In 2003, over 1.6 million tonnes of printing and writing paper were consumed in Australia, but only 211,000 tonnes were recovered for recycling, representing a recovery rate of about 13%. The remainder is either archived (6%) or is going into landfill.

Most printing and writing grade paper (referred to as 'office paper') is consumed in the commercial and industrial sector (1.1 million tonnes).

Consumption in NSW in 2003 was 620,000 tonnes, with about 83,000 tonnes or 13.4% recovered. In comparison, 17% of printing and writing paper is recovered in Victoria.

Office paper is manufactured in Australia as well as being imported. Australian Paper, the only domestic producer, supplies to about 25% of the market. The remainder is imported as base product or printed material, for example, exercise books, other finished stationery, reports, manuals, catalogues, envelopes and books.

While there are a number of larger importers, there are also a significant number of small offshore printers supplying the market, making it a fractured market.

There are a number of peak industry bodies that cover office paper. These include the National Paper Council of Australia, Independent Paper Group of Australia, Australian Plantation Products and Paper Industry Council, the Printing Industries Association of Australia (PIAA) and the Paper Recycling Action Group of Australia.

2004 Priority Statement feedback

Five submissions commented on office paper, with one of these providing the majority of the comments. This submission raised concern about the viability of EPR for office paper while large amounts of paper are imported. It stated that EPR needed to be national and that improved recovery would need major investment in recovery infrastructure, which was unlikely to come from the private sector unless a cost recovery fee could be levied on consumers.

Another submission noted that currently there is no onus on commercial premises to put in place systems for paper recycling or for Councils to provide this service and that a State-wide approach to improving paper recycling is required for consistency and market development.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

Prior to 2004, the office paper sector had not engaged in product stewardship waste management activities. However, two parallel initiatives have been undertaken by industry over the past 12 months to consider product stewardship options. These were by the Paper Industry Forum and the PIAA.

The Paper Industry Forum was established in February 2005 by a coalition of businesses, including manufacturers, importers, printers and converters of office paper products. Both the Paper Industry Forum and the PIAA are now examining product stewardship options.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has instructed the DEC to elevate 'office paper' to a high priority on the basis of its continued low recycling and high disposal rate which represents a significant waste of a high quality resource.

The Minister has sought from the office paper sector a draft product stewardship concept by 23 June 2006 and a detailed product stewardship plan by October 2006.

DEC will assist the office paper industry in discussing its product stewardship concept with other jurisdictions and sponsor the idea of a national product stewardship approach.

The office paper sector has also been requested to provide annual reports commencing from the end of FY2005-06, on the industry's initiatives to 'close the loop' through increased production or importation or use of paper with recycled content and the establishment and expansion of other markets for post consumer office paper.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

3.4 Paint

The inadvertent or deliberate discharge of paint into sewer or storm water systems and the propensity for liquid paint to leach from landfills are major environmental concerns. Paint disposed of with household garbage could undermine the recovery and treatment of organic wastes. Leftover paint is a useful resource that can be recycled and sold to consumers, as, for example, fence paint.

About 61 million litres of household paint is consumed in Australia annually. About 11% of the paint that is bought is unused and is disposed of or stored. The potential waste stream is therefore about 6.7 million litres (or 8,500 tonnes) per year.

Almost all paint producers or importers are members of the Australian Paint Manufacturers Federation (APMF). There are four major companies in the Australian market, namely, Orica, Wattyl, Barloworld and Akzo Nobel, with the last manufacturer focussing only on industrial coatings. Between them they have a combined market share of more than 50%.[7] The remaining 50% comprise several smaller paint manufacturers and importers, most of which are also members of the APMF.

2004 Priority Statement feedback

No specific comment was received on used paints.

Action to date

There is clear community desire for a mechanism to return unused paint. This is evident from the fact that paints comprised 45% (217 tonnes) of the material collected in the NSW Chemical Cleanout program in 2003-04. There is no industry contribution to this government-run scheme. The costs relating to collection and recovery of paints under the program is estimated to be more than $700,000 per year.

The industry's current focus is only on educating and encouraging consumers to return unused paint to existing waste transfer stations and landfills and through the NSW Chemical Cleanout program. The industry has stated that the cost of establishing and operating new infrastructure to recover leftover paints is prohibitive but the cost barrier has not been clearly demonstrated.

One or two progressive companies have conducted trials on paint collection and reprocessing but there is no whole of industry approach.

7 *Paint manufacturing in Australia*, IBISWorld Pty Ltd, January 2003

Trials have included:

- Collection of leftover household paint deposited at the Lucas Heights Landfill by Waste Service NSW (now WSN Environmental Solutions) and the APMF between November 2002 and May 2003.[8] About 2,500 kg of light-coloured water-based paint was collected but only about 100 kg was reusable. Of the 2,016 cans collected 92% were four-litre cans and under.
- A weekend paint collection trial by Orica (makers of Dulux paint), Bunnings, the APMF and EcoRecycle Victoria at a Bunnings store car park in Victoria in March 2003. About 1,800 litres of paint were collected and a portion was reconstituted and resold as fence paint.
- A second trial by Orica, Bunnings and EcoRecycle Victoria in conjunction with Chemsal and Blue Scope Steel. Leftover paint was collected over the counter in a Bunnings store over a one-month period in April 2004. About 42 tonnes of unused paint (including cans) were collected, of which 68% was water-based and 32% was solvent-based. From this, about 6,300 litres of quality water-based paint returned to the market as fence paint and 10 tonnes of metal cans were recovered for metal recovery.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has instructed the DEC to elevate 'paint' to a high priority on the basis of its prevalence in household chemical collections currently funded by the NSW community and the total absence of industry-wide contribution or broad scale initiative from the paint sector.

The Minister sought a product stewardship plan from the paint industry to either establish or financially support recovery systems for paint in NSW. The sector was asked to respond by 3 February 2006. Clear progress towards implementation of that plan must be demonstrated by October 2006.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

3.5 Plastic bags

About 1.6 billion lightweight plastic carry bags were made in Australia in 2004. Another 3.2 billion bags were imported. These bags accounted for 4% of litter recorded in the NSW Litter Survey and 6% of rubbish collected on Clean Up Australia Day.[9] The bags can also harm wildlife that ingest them or get tangled up in them.

Supermarkets supply about half of the plastic carry bags that are issued. Other retailers that supply plastic carry bags include food and liquor retailers, general merchandise and apparel retailers, fast food and convenience stores and service stations.

The Australian Retailers Association (ARA) developed a Code of Practice for the Management of Plastic Bags. The Code targeted supermarkets but non-supermarket retailers were encouraged to sign up. The ARA set a target of 25% sign up of the non-supermarket retailers by end-2005. Under the Code, supermarket members have to reduce the use of lightweight plastic bags by 25% by end-2004 and by 50% by end-2005.

2004 Priority Statement feedback

Seven submissions commented on plastic bags. Clarification was sought on definitions of degradable bags; there was also some support for the mandatory use of degradable bags.

8 WSN collects household quantities of paint at its transfer stations and landfills. These typically are about 600 tonnes per year. The paint is sent to Chemsal in Victoria for reprocessing, which processes about 1,000 tonnes of paint each year. The metal cans are sent for recycling and the liquid fraction is sent for energy recovery via the cement industry.

9 *NSW Litter Report 2004*, DEC, p. 15; *Clean Up Australia Rubbish Report 2004*, p.2

The approach of supporting and monitoring the Australian Retailers Association's actions was criticised as insufficient by some submissions, with immediate regulation to ban or levy plastic bags favoured by some.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

The ARA's mid year progress report to the EPHC in 2005 showed a reduction of 33.3% in plastic bag use mainly through action by major supermarkets. This figure is a small increase on the 26.9% they achieved at the end of 2004.

An independent survey of plastic bags imported and produced domestically had projected a reduction figure of 27.7% or 1.69 billion bags by December 2005.[10] Whether retailers reach the 50% target by end-2005 will depend, to an extent, on the participation of non-supermarket retailers. As at June 2005, only about 4% of this group had signed the Code.

Supermarkets have been promoting alternative reusable polypropylene bags, with more than 9 million having been sold since 2003. Although polypropylene bags can be reused a number of times, the recycling of these bags at the end of their life needs to be considered. Lightweight plastic bags can be recycled domestically but the technology to recycle polypropylene bags is currently not available in Australia.

The use of degradable plastic bags is a complex issue because the range of polymer types and additives used to make them could undermine the recycling of other plastic polymers when degradable bags are mixed with them. Current research suggests that degradable plastic bags may be best suited to niche applications (e.g. bags to carry fishing baits, so that they dissolve in water if they fall overboard).

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has instructed DEC to closely monitor the retail industry's progress in reaching the target of a 50% reduction in the number of lightweight plastic carry bags issued by end-2005. If this happens, NSW would continue to participate in the EPHC process to negotiate a further voluntary phase out agreement for lightweight plastic carry bags by the end of 2008. If not, NSW will consider regulatory options.

In addition, the Minister has sought a report from the retail industry by 31 October 2006 on efforts to implement systems to collect and recycle reusable bags, such as the common polypropylene bags sold in supermarkets and has also requested NSW-specific data as part of the ARA's reporting framework to assist NSW in evaluating progress.

The Minister has informed the ARA that NSW does not believe that lightweight degradable plastic carry bags are an acceptable alternative for lightweight plastic carry bags. NSW wants to see lightweight plastic carry bags totally phased out due to their impact as litter. Replacement with another lightweight substance, albeit degradable, will not substantially change this impact. This position only applies to lightweight plastic carry bags and not for bags such as degradable bin liners or composting bags.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance of plastic bags and the retail sector during 2006.

10 *Plastic Retail Carry Bag Use 2002-2005 Consumption*, DEH, p8. (Note that at the time of the publication of this Priority Statement, the ARA had not reported the actual reduction figures yet)

3.6 Televisions

Televisions are made from a large number of mainly non-renewable materials, including hazardous substances, such as, lead, cadmium, phosphors, brominated flame retardants, beryllium and mercury.

By product type, TVs are by far the largest single equipment type in households. TVs represented 11% of all equipment types included in the 2005 Household Electrical and Electronic waste benchmark survey and 2.3 per household on average.

Almost 99% of NSW households own at least one television and over 60% own more than one. Annually, over 1.4 million new televisions, with an average life span of 15 to 20 years, enter the Australian market. This number may increase soon with the move to digital television broadcasting. Up to 15,000 tonnes of televisions are being land filled in NSW each year.

2004 Priority Statement feedback

No feedback was received specifically on TVs.

Action to date

The Consumer Electronics Suppliers' Association (CESA) represents the television industry. CESA developed a national product stewardship strategic plan for televisions and in July 2004, the television industry established its Producer Responsibility Organisation, called Product Stewardship Australia Ltd (PSA), with 10 foundation companies[11] that represent about 70% of the cathode ray tube television market and over 50% of the total television market.

PSA is currently establishing strategic links with local government and infrastructure providers and working with NSW and other jurisdictions to establish base line data on the number of televisions being held in the community and current disposal rates and routes. This work is underpinning the development of a Product Stewardship Agreement that is being drafted for consideration by Environment Ministers nationally.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has requested Product Stewardship Australia Ltd to make substantial progress towards implementing its product stewardship scheme for televisions by October 2006. At the least, PSA should have negotiated with governments and the community a formal Product Stewardship Agreement; established strategic links and commitments with key infrastructure providers and developed a business plan with economic analyses.

The Minister has also instructed DEC to work to support the implementation of a television product stewardship plan and to work with other jurisdictions to develop a regulatory safety net in the form of a National Environment Protection Measure (NEPM) in line with continuing progress by the industry.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

3.7 Tyres

About 170,000 tonnes of tyres reach their end of life each year in Australia. This is equivalent to 18 million passenger car tyres. As NSW accounts for 30% of vehicle registrations, about 50,000 tonnes of waste tyres are generated each year in NSW. About half of these used tyres are disposed of to NSW landfills each year.

Dumped tyres provide habitat for weeds; impact on visual amenity and provide conditions for rodent and mosquito breeding. Data on the toxicity of tyre leachate is limited, but preliminary studies indicate that leachate from tyres in aquatic environments may, in certain circumstances, be toxic to aquatic organisms.

11 Castel, Dick Smith Wholesale, Hagemeyer, LG, NEC, Panasonic, Philips, Samsung, Sharp and Sony

Some local authorities have been left with large clean-up costs for abandoned stockpiles of used tyres. If tyre stockpiles catch fire, they are extremely difficult to extinguish and can cause severe air pollution. Emissions from any uncontrolled burning of tyres can include dioxins and furans as well as oxides of nitrogen and sulphur.[12]

In 2005, the DEC successfully prosecuted three offences involving 3,600 tonnes of illegally dumped or stored tyres. The prosecutions resulted in fines of almost $140,000.

2004 Priority Statement feedback

Three submissions commented on used tyres. The submissions encouraged a national approach with some kind of levy to fund the management of used tyres. They also cautioned against any national scheme concentrating on city areas and leaving out country areas, particularly regional centres.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

A peak organisation, the Joint Working Group on Tyres (JWGT), represents the Australian Tyre Manufacturers Association (ATMA) and the Australian Tyre Importers Group (ATIG) in negotiations with governments, industry and the community to develop a used tyre product stewardship scheme.

In August 2002, the JWGT proposed an industry-run product stewardship scheme based on an industry-initiated levy that would be used to drive markets for used tyres and in October 2002, the EPHC agreed that national action was required on end-of-life tyres.

In mid-2003, the Australian Tyre Recyclers Association was formed to represent the tyre recycling industry and is now working with the JWGT to develop a voluntary product stewardship scheme.

The industry has requested co-regulatory support to regulate companies that do not participate in its voluntary scheme. Although the tyre industry took the initiative to propose and develop a national voluntary, industry-funded product stewardship scheme through EPHC, industry momentum has slowed substantially, with little progress since September 2004.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment requested the industry to finalise its proposed voluntary scheme as a matter of priority. In addition, clarification was sought from the industry on the purpose and use of the tyre levy that is currently being charged to consumers in NSW at the point of sale. The sector was asked to respond to these issues by 3 February 2006.

The Minister has also instructed DEC to work to support the implementation of a tyre product stewardship plan and to work with other jurisdictions to develop a regulatory safety net in the form of a National Environment Protection Measure (NEPM) in line with continuing progress by the industry. A Product Stewardship NEPM is currently being drafted that could be used for tyres as well as other sectors.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

12 *A National Approach to Waste Tyres*, Commonwealth Department of the Environment and Heritage, 2001 (see www.deh.gov.au)

3.8 Agricultural and veterinary (Agvet) chemicals

ChemClear is an industry-funded EPR scheme for Agvet chemicals. It is the industry's agreed follow-up action to ChemCollect, which was a free collection and safe disposal scheme of unwanted and deregistered Agvet chemicals implemented by Australian governments at a cost of $27 million.[13]

The National Association for Crop Production and Animal Health (Avcare), the Veterinary Manufacturers and Distributors Association (VMDA) and the National Farmers Federation (NFF) initiated ChemClear. Agsafe, a subsidiary of Avcare, runs ChemClear on behalf of Avcare, VMDA and the NFF.

Under the scheme, participating organisations, which are not limited to members of the founding organisations, contribute 1 cent for every kilogram or litre of chemicals sold.

The scheme provides free collection and disposal services for chemicals sold by participating organisations (Group 1 chemicals), namely all Avcare and VMDA members. According to Agsafe, Group 1 chemicals cover 90% of pesticide sales in Australia.

'Unregistered' chemicals or Group 2 chemicals are collected but a fee is payable by the user. Group 2 chemicals are Agvet chemicals whose registration had expired more than two years ago and farm chemical products of non-Avcare or VMDA members companies that are either currently registered or whose registration or permit ceased since the last collection.

2004 Priority Statement feedback

One submission suggested that money currently spent on establishing particular collection sites should be redirected to training Council staff to conduct regular collection runs. The submission also suggested that an urban centre drop off could also be effective.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

When the EPR Priority Statement 2004 was released in March 2004, ChemClear had just commenced pilot trials in NSW and South Australia. By September 2004, ChemClear had collected 2,673 kg of registered (Group 1) chemicals and 919 kg of unregistered (Group 2) chemicals in NSW. Another 301 kg of Group 1 chemicals and 602 kg of Group 2 chemicals have been booked but not collected yet. ChemClear was officially launched in NSW in early 2005.

There is no collection target for ChemClear, but Agsafe expects to collect up to 50,000 kg of unwanted chemicals by end-2005. The total amount of chemicals actually being held by farmers is not known so there is insufficient data on the amount of unwanted Group 1 or Group 2 chemicals that could potentially be brought to ChemClear collections. This makes it difficult to assess the effectiveness of ChemClear. The challenge is not only to increase recovery of chemicals, but also to demonstrate that recovery rates are capturing a substantial percentage of unwanted chemicals from commercial pesticide users in NSW.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has requested that ChemClear provide reports, commencing from the end of FY2005-06, on the quantities of chemicals sold and collected (Group 1 and Group 2) in NSW and information on ways in which the effectiveness of the program and progress against targets will be improved and monitored in NSW.

13 Collections under the ChemCollect program were completed in December 2002, with the recovery of more than 1,700 tonnes of chemicals, of which 521 tonnes were collected in NSW.

The Minister has also requested that DEC seek the support of other State and Territory governments for a formal national arrangement for annual industry reporting of targets, collection data and promotional activities undertaken under the ChemClear scheme, both nationally and on a State/Territory basis, with reporting to commence from the end of FY2005-06.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product stewardship scheme during 2006.

3.9 Agvet chemical containers

In February 1999, industry established a voluntary national program called drumMUSTER for the collection and recycling of empty cleaned, non-returnable chemical containers.

The program is funded by a levy on users of 4 cents per litre or kilogram of chemical that is sold. The scheme was based on an agreement among the Australian Local Government Association (ALGA), Avcare, the NFF and VMDA.

Agsafe, a subsidiary of Avcare, has been contracted to implement drumMUSTER. All Avcare members (27) are obliged to participate as a condition of their membership. VMDA members (4) are encouraged to participate. There are 24 voluntary participating independent manufacturers (not members of Avcare or VMDA).

2004 Priority Statement feedback

Two submissions raised concerns over considerable costs involved in disposing of chemical drums as well as suggesting opportunities to improve drumMUSTER by including better training for personnel involved and introducing some kind of refundable deposit that would encourage greater recycling of drums.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

The drumMUSTER program covers all of NSW. There are service agreements with 67% of NSW Councils. The service agreements cover how the scheme will operate in each local Council area and entitle participating Councils to receive information on organising collections and running the scheme as well as support and funds from drumMUSTER. The costs of Councils' involvement are fully reimbursed by drumMUSTER. These agreements now cover most local Council areas in rural and farming communities where 99% of Agvet containers are sold.

Although the scheme is fully funded and widely available, it is not engaging users effectively. In 2003-04, 24.4% of previous year's sales of containers were collected in NSW. However, in the same period, about 9% of the estimated 40,000 users of farm chemicals in NSW returned used Agvet containers at drumMUSTER collections. End user participation therefore appears to be very low and needs to be substantially increased in NSW.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment requested a report from the drumMUSTER scheme that establishes performance targets that aim to significantly increase end-user participation and increase the recovery of Agvet chemical containers in NSW and describes ways in which these targets will be pursued. The Scheme was asked to respond by 3 February 2006.

DEC has also been requested to seek the support of other State and Territory governments for a formal national arrangement for annual industry reporting of targets, collection data and promotional activities undertaken under the drumMUSTER scheme, both nationally and on a State/Territory basis, with reporting to commence from the end of FY2005-06.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product stewardship scheme during 2006.

3.10 Batteries

Batteries have been identified as a specific priority waste for 2005-06 rather than being treated as part of a broad 'household chemicals' category.

This follows an evaluation of current production, management and recovery options for NiCad batteries as well as other types of batteries in use in NSW.

The battery types included are:

- Portable consumer batteries, typically single use alkaline or rechargeable, nickel cadmium (NiCad), nickel metal hydride (NiMH), lithium-ion and lithium-ion-polymer.
- Consumer automotive batteries or lead acid starter batteries.

Industrial batteries such as those used in fork lifts, submarines and other battery powered 'motive' power, uninterruptible power systems for telecommunications, medical, aviation and defence applications are not included in the "priority waste" category. These are usually purpose built to withstand extreme operating conditions or to provide a long shelf life/down time and it is recognised that they have formal replacement and disposal arrangements (usually tied to a maintenance schedule and can include the supplier taking away the spent units).

Information specifically on the portable consumer battery market in Australia is not available. However, information from the European Union indicates that single-use batteries make up over 90% of the European consumer market on a per unit basis. The majority of these are alkaline (51%) and zinc carbon (39%) batteries. The balance is comprised of portable rechargeable consumer batteries, all chemistry types, (8%) and button cells (2%). It is assumed that the Australian market would reflect a similar breakdown.

Miniaturisation and portability of electrical equipment have increased the use of a wide array of other different types of rechargeable batteries and NiCad batteries no longer predominate the rechargeable or secondary battery sector. Some batteries, particularly lead acid batteries, are also presenting a potential problem for emerging alternative waste treatment facilities so efforts are needed to recover more of these.

The main environmental concern with batteries is the hazardous materials contained in some battery types, such as the heavy metals: lead (found in lead acid batteries), cadmium (in NiCad batteries) and mercury (found in some button cells and in trace amounts in some alkaline batteries).

These can cause environmental and human health problems if the batteries become damaged or burnt during inappropriate disposal or during recycling. Potential impacts of more recent battery technologies such as NiMH and lithium-ion are not so well researched partly due to the fact that the technologies are still relatively new.

2004 Priority Statement feedback

Comments received suggested that alkaline batteries present an equally significant problem (as NiCads) due to the volumes disposed of and the lack of collection or drop off, recycling or education programs. An issue was also raised that despite a high recovery rate for lead acid batteries, the current practice of enabling export of used lead acid batteries limits the ability of Australian smelters to implement new technology to reduce residual wastes from the recycling of used lead acid batteries due to lack of available feedstock.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Nickel cadmium and other rechargeable batteries

The cadmium in NiCad batteries can adversely affect the environment and human health if disposed of inappropriately. If disposed off with other wastes, NiCad batteries can undermine the potential to recover useful materials from that waste stream.

The NiCad battery market is divided between consumer and industrial applications. The majority of batteries tend to be used by industrial applications where high performance and longevity are paramount.

For general consumer items such as mobile phones and digital cameras, metal hydride and lithium-based batteries are replacing NiCad batteries. There is evidence that the cheaper end of the domestic cordless tool market uses NiCad batteries in its products because alternative batteries are more expensive.

No NiCad battery is manufactured in Australia, although some assembly takes place domestically for industrial applications. In 2002, 8.5 million NiCad batteries (about 2,000 tonnes) were imported. There is no peak industry association for NiCad battery importers and suppliers. There are only associations that represent producers and importers of appliances powered by NiCad batteries. These are the Consumer Electronics Suppliers' Association (CESA), Australian Electrical and Electronics Manufacturers' Association (AEEMA), and Lighting Council Australia.

Action to date

Suppliers of NiCad batteries for commercial and industrial applications tend to take back the old battery when supplying a new one and return it to the overseas manufacturer. This has resulted in a well-established recovery system and a collection rate of 95%. However, any recovered NiCad battery currently has to be exported for recycling.

There is an economic incentive to recover the nickel and cadmium from NiCad batteries, provided there are sufficient quantities. For NiCad batteries that cannot be easily removed from the appliances or removable NiCad batteries that are not appropriately labelled, these can easily be lost even in an established recovery system.

In the case of electrical equipment suppliers, companies focus on the supply of integrated appliances and do not single out associated batteries.

Some after sales replacement battery units may be available to the domestic user but no collection scheme is offered. Some specialist battery retailers are now providing collection bins for consumers to drop off a wide range of used batteries when purchasing new ones.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment requested AEEMA and CESA to provide a report by 31 March 2006 that:

- outlines specific proposals or current actions to establish a recovery plan for end-of-life consumer electronics products that contain rechargeable batteries, with a further report on implementation by 31 October 2006.
- outlines specific proposals or current actions on improving the recovery and recycling of NiCad batteries from emergency lighting and exit signs, with a further report on implementation by 31 October 2006.
- includes measures to improve labelling to educate consumers on options to recycle or safely dispose of used NiCad batteries, with a progress report by 31 October 2006.

In the longer term, the industry has been encouraged to move to phase out the use of non-removable NiCad batteries in favour of less hazardous battery technologies.

The evaluation criteria outlined in **Appendix 1** will also used be to assess EPR performance for these products and sectors during 2006.

Lead acid batteries

Lead acid batteries contain hazardous materials, which can cause environmental and human health problems if disposed of inappropriately.

Inappropriate disposal of lead acid batteries with other wastes could also undermine resource recovery from that waste stream, especially when using alternative waste treatment technologies to produce stabilised organic matter. Lead acid batteries that are disposed of in landfills represent inefficient use of non-renewable resources.

The Australian Battery Industry Association (ABIA) membership includes the only two domestic manufacturers of automotive type lead acid batteries as well as distributors and wholesalers. ABIA members supply 90% of the 4.5 million automotive batteries in the Australian market.

Lead acid batteries have an average life of three to four years and batteries installed in new cars will either be retrieved by the dealer during servicing or via an auto-club (NRMA equivalent). These are likely to be supplied by ABIA members. The collected batteries are disassembled and recycled both domestically and overseas.

Action to date

ABIA members are active in the collection and recycling of used batteries from the distributors and retailers they supply. ABIA estimates that its members achieve a 95% recycling rate Australia wide.[14]

The Association advises that NSW represents 30% of the market, or 1,350,000 units. At a 95% recovery rate, ABIA NSW members would be collecting 1,282,500 units per annum.

The recovery system is largely driven by the value of the recovered material. High international commodity prices for lead are a further incentive for this process. The majority of companies operating in the sector are ABIA members.

Although ABIA members are active in recovering used automotive batteries, lead acid batteries continue to show up in the municipal waste stream. They also comprise about 15% (60 tonnes) of material collected under the government-run NSW Chemical Cleanout program. This costs the program at least $225,000 per year for the battery component.

This indicates a need for the ABIA and its members to target the 'Do-it-yourself' (DIY) consumer market[15], as the ongoing use of public funding to support the collection of lead acid batteries from private consumers is not sustainable.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has sought from the ABIA, an outline of proposed actions or details of current actions to engage suppliers of the DIY consumer markets and householders to divert lead acid batteries away from the municipal waste stream and the NSW Chemical Cleanout program towards more appropriate systems such as point of sale take-back. The sector was asked to respond by 3 February 2006, with a further report on implementation progress by 31 October 2006.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

14 ABIA submission to the ERG

15 That is, supplied by retail automotive shops and therefore non ABIA members

3.11 Cigarette butts

Cigarette butts comprise the largest component of litter in NSW, making up 39% by weight and 34% by volume.[16] They continue to be the most commonly found item during Clean Up Australia activities, totalling 15% in 2004.[17]

Cigarette butts can take up to 12 years to break down. They have the potential to release toxic emissions into water and soil as they decompose, and may kill aquatic life when ingested.

There are three major manufacturers of cigarettes. They are British American Tobacco Australia (BATA), Imperial Tobacco and Philip Morris. BATA's Australian market share in 2003 was 38.5%, Imperial had 21.8% and Philip Morris' market share was 39.7%.[18]

2004 Priority Statement feedback

Only one submission addressed cigarette butts. It argued that many Council and State government programs already exist to educate the community about the dangers of cigarette litter and the tobacco industry can do more than just provide funding for education campaigns. Instead, tobacco companies should direct funding towards the provision of more street ashtrays and provide portable ashtrays with every cigarette packets that is sold.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

In July 2003, BATA Established the Butt Littering Trust (BLT) with $1.4 million of funding for two years. This funding was extended for a further two years in May 2005. The BLT's focus has been on behaviour change rather than infrastructure. Primarily, the BLT funds community organisations nationwide that successfully submit community education proposals.

BATA has also provided seed funding to 'ButtsOut', a commercial provider of personal ashtrays.

Imperial Tobacco and Philip Morris have both supported activities of Keep South Australia Beautiful (KESAB), which has been active mainly in South Australia. In 2002-03, Philip Morris contributed $331,775 to KESAB. Imperial Tobacco has provided $50,000 over two years.

KESAB's activities focus on awareness and provision of adequate disposal facilities, including public education campaigns, infrastructure, information sharing and research. KESAB's environmental solutions arm coordinates interstate initiatives, which to-date have been limited in NSW to the Sydney Festival and for the length of the Hume Highway for a few weeks during school holidays.

Cigarette manufacturers have largely limited their product stewardship activities to funding community education. They appear to consider that such funding fulfils their product stewardship obligations. However, the activities and projects funded have not translated into widespread reduction of cigarette butt litter. The impact of current activities funded by cigarette manufacturers has not delivered a reduction in butt littering.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has sought a plan and timeline from cigarette manufacturers for a whole of NSW approach to reduce cigarette butt litter. Manufacturers were asked to respond by 31 March 2006. NSW Government litter survey results will be used to measure performance.

16 *NSW Litter Report*, DEC 2004, p. 1 (Cigarette litter was found at 59 of the 60 sample sites)

17 *Clean Up Australia Rubbish Report 2004*

18 *Tobacco Product Manufacturing in Australia*, IBISWorld, November 2004

The Minister has also requested advice from DEC on national and international regulatory measures that may be suitable for application in NSW or nationally to reduce cigarette butt litter or its impact on the environment.

The evaluation criteria outlined in **Appendix 1** will also used to assess EPR performance for this product and sector during 2006.

3.12 End of life vehicle residuals

ELV residuals or 'shredder floc' is a major waste stream that is disposed of to landfills.

Shredder floc is a by-product of the metal shredding process and usually includes materials derived from the mechanical shredding of white goods and other metallic products, not just from the shredding of vehicles. It consists mainly of non-ferrous material, and could include rubber, glass, plastic, lead, other heavy metals, oils and other automotive fluids. More than 100,000 tonnes of shredder floc are generated in NSW each year, with about 65% originating from vehicles.

The key environmental impact is the potential leaching of materials in shredder floc into the ground at landfill sites. Materials with potential negative environmental consequences in ELVs include, oil, coolant, fuel, brake and other fluids, air-conditioning gases, and heavy metals including lead, hexavalent chromium, cadmium and mercury. Other materials such as rubber, plastic and glass that could potentially be recycled are also lost once these materials enter the shredding process.

2004 Priority Statement feedback

Six submissions addressed shredder floc and these were evenly divided about whether this material should be a waste of concern.

Those opposed to inclusion argued that the overall recycling rate for vehicles is in excess of 80% of its mass and that recovery of this residual material is not economically viable anywhere in the world.

Those in favour of inclusion pointed to the need to improve technologies to recover the increasing amounts of plastics used in vehicles and for a national approach to this issue.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

Australia's vehicle manufacturers and importers are well organised under the Federal Chamber of Automotive Industries (FCAI), whose members include the four passenger motor vehicle manufacturers (Toyota, Ford, Holden and Mitsubishi) and importers of all major passenger, light commercial and four-wheel drive vehicles and motor cycles. There is also a peak industry organisation for automotive products, namely the Federation of Automotive Product Manufacturers (FAPM).

There is an industry for the reuse of second-hand vehicle parts and components. It is well organised and is represented by the Auto Parts Recyclers Association of Australia (APRAA), the members of which now undertake some of the tasks that assist in minimising shredder floc volumes.

Increased support from vehicle manufacturers and importers for authorised vehicle treatment stations to conduct fluid removal and dismantling processes prior to metal shredding could have a substantial impact on reducing shredder floc.

A new two-year partnership from 2005 between EcoRecycle Victoria and the Plastics and Chemical Industries Association (PACIA) is targeting the increased recovery and recycling of plastics in the automotive industry. According to PACIA, potentially more than 80,000 tonnes of material that end up in landfill in Victoria could be put to better use.

Some of the planned outputs from the partnership, which could potentially reduce the amount of shredder floc that ends up in landfills, are as follows:

- Focus and resource for product stewardship in automotive plastics management.
- Design for recycling for improved recovery of plastics.
- Identifying barriers to recovery and reprocessing of automotive plastics and developing industry networks to overcome these barriers.
- Developing end-market options for plastic recyclate.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has sought a report by April 2006 from the FCAI on behalf of vehicle manufacturers and importers on proposals to reduce the amount of shredder floc generated during the metal recycling process in NSW. It was suggested that this could, for example, be by supporting or establishing authorised vehicle treatment stations to conduct fluid removal and dismantling processes prior to metal shredding. A further report on implementation progress has been requested by 31 October 2006.

In addition, DEC has been asked to provide advice on regulatory and other options to reduce the amount of shredder floc that is disposed of in NSW.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this material during 2006.

3.13 Other electrical products

This category covers a wide range of products, including whitegoods (e.g. washing machines, refrigerators, air-conditioners, microwaves, dishwashers), consumer electronics (e.g. DVD players, stereos, portable music players), small appliances (e.g. kettles, vacuum cleaners, power tools, toys) and lighting products (e.g. fluorescent tubes, emergency lighting).

A recent ABS survey found that almost every NSW household has a refrigerator; over 95% have a vacuum cleaner and almost 90% have a video recorder.

High ownership rates were found for many other electrical products. Over 71 million fluorescent tubes are in service nationally in the commercial sector.

About 70% of white goods are collected for recycling, mainly because of the value of the ferrous metals in these products. However, a significant amount of shredder floc, which contains a number of hazardous substances and glass, plastics, foam, rubber, circuit boards and other materials, is left over from the recycling process. Shredder floc is disposed of in landfills.

Very few consumer electronics and lighting products are recovered for recycling. Some consumer electronics contain a number of hazardous substances, including lead, mercury and cadmium. Some electronic products, such as cordless phones, shavers, handheld vacuums, power tools and toys are a significant source of Nickel Cadmium (NiCad) batteries. Lighting products may contain toxic substances, such as mercury, polychlorinated biphenyls (PCBs) and phosphors. An average fluorescent tube contains 30mg of mercury. Emergency lighting products use NiCad batteries. (**See Section 3.10**)

About half of the whitegoods and about 25% of consumer electronics and small appliances are manufactured domestically. Cheaper imports of non-established brands make up a significant part of some consumer electronics sub-sectors.

The major industry association for this category of products is the Australian Electrical and Electronic Equipment Manufacturers' Association (AEEMA). Some organisations that are connected to AEEMA represent certain sub-sectors, for example, the Consumer Electronics Suppliers' Association (CESA) and Lighting Council Australia.

2004 Priority Statement feedback

Five submissions addressed the issue of electrical products. One questioned the inclusion of white goods residuals as a waste of concern seeking a risk analysis on the relative contribution of white goods residuals to toxic emissions. Another submission suggested the need to link white good residuals with end of life vehicle residuals as the metal shredding industry generally processes these products together producing residuals that are commingled.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

Industry initiatives for electrical products have focused on televisions to date. The consumer electronics sector accepts in-principle responsibility for all consumer electronic products, but the industry wants to concentrate on establishing an effective product stewardship scheme for televisions before it tackles other product types.

Product stewardship for whitegoods has been restricted to individual company initiatives, for example Fisher & Paykel and Electrolux, but their initiatives have focused mostly on research. The lighting industry had not considered product stewardship prior to the publication of the EPR Priority Statement 2004. Currently, the focus of the lighting industry is on the use of NiCad batteries in emergency lighting and their recovery during building decommissioning and refits.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment requested AEEMA and CESA to report by 31 March 2006 on:

- initiatives to improve or establish systems for collection and recycling and to reduce hazardous substances in whitegoods, consumer electronic and lighting products.
- specific proposals or current actions to reduce the amount of shredder floc going to landfill from end-of-life whitegoods, with a further report on implementation by 31 October 2006. Proposals or actions could include dismantling non-metallic components prior to shredding, developing ways to separate materials from shredder floc or developing end markets for shredder floc.
- specific proposals or current actions to establish a recovery plan for end-of-life consumer electronics products that contain rechargeable batteries, with a further report on implementation by 31 October 2006.
- specific proposals or current actions on focussing the attention of the commercial sector on improving the recovery and recycling of fluorescent tubes and other vapour lamps, with a further report on implementation by 31 October 2006.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for these products and sectors during 2006.

3.14 Packaging

The *National Packaging Covenant* is a voluntary agreement between governments and the packaging supply chain to reduce packaging and improve the recycling of packaging waste. More than 600 signatories signed up to the first Covenant that ran from 1999 to June 2005.

Signatories included raw material suppliers, packaging manufacturers and users (brand owners and retailers), packaging designers and consultants. Kerbside audits have shown that more than 80% of brand owners are signatories.

Packaging that is consumed in Australia is manufactured locally and imported. Imports come in as raw material, empty packaging and filled packaging. Consumption figures do not currently include packaging entering as filled product.

Around half of all packaging is consumed in households and the other 50% is consumed away from home. Current recovery rate for packaging is about 48%.

2004 Priority Statement feedback

The issue of packaging wastes attracted a range of comments from 11 submissions, driven partly by the fact that the Covenant was being renegotiated during that period. Some were critical of the *National Packaging Covenant*. Others submissions also made specific suggestions to improve industry performance.

Comments ranged from calls for container deposit legislation, new Covenant targets and for a reduction in non-recyclable packaging. Other submissions stressed the importance of ensuring that the full costs of disposal and recycling were considered when identifying priority packaging materials for action under the Covenant.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

Action to date

The EPHC approved a revised Covenant and an associated safety net (*National Environment Protection (Used Packaging Materials) Measure*) for implementation from 14 July 2005 to July 2010.

Key features of the strengthened Covenant compared to the previous Covenant include quantified targets and key performance indicators, stronger provisions for enforcement of the safety net against non-signatory brand owners and underperforming signatories, and a new focus on away-from-home packaging waste.

The overarching target under the new Covenant is to increase the amount of packaging recycled from the current 48% to 65%.

Packaging made from specific materials will make a contribution to the overarching target as follows:

- paper and cardboard – 70% to 80% (currently 64%)
- glass – 50% to 60% (currently 35%)
- steel – 60% to 65% (currently 44%)
- aluminium – 70% to 75% (currently 64%)
- plastics – 30% to 35% (currently 20%)

There is also a target to increase the recovery of non-recyclable packaging, currently defined as plastic 4 to plastic 7 and some cardboards, from current 10% to 25% and a target for no increase in packaging waste to landfill.

There will be a mid-term review of the Covenant at the end of 2008. If the Covenant is found to be not performing at this point, EPHC or individual jurisdictions may introduce systems to replace it as soon as it expires.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has instructed the DEC to support the implementation of key actions and processes necessary to ensure that the strengthened Covenant is effective.

This includes:

- Promoting the Covenant to potential signatories and others who can assist to achieve Covenant outcomes, particularly in the away-from-home sector.
- Continued monitoring of the effectiveness of other approaches to whole of lifecycle management of packaging nationally and internationally.
- Assistance with the development of improved NSW data on packaging.
- Implementation of the NEPM to tackle free riders in a timely and effective manner.

The Minister will request DEC to commence action to replace the National Packaging Covenant if the mid term review at the end of 2008 demonstrates that it is not performing satisfactorily.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for packaging during 2006.

3.15 Polyvinyl Chloride

In November 2002, the Australian PVC industry, represented by the Vinyl Council of Australia (VCA), made a voluntary 'Product Stewardship Commitment' to promote improved environmental practices.

A total of 33 signatories committed to reducing the toxicity of stabilisers and plasticisers by phasing out the use of cadmium stabilisers, initially limiting the use of lead stabilisers and later phasing out its use altogether, and monitoring the environmental and health impacts of phthalate plasticisers and, if necessary, ceasing its use.

There was also a commitment to manage PVC waste by devising programs to recycle PVC pipe off-cuts from construction sites and monitoring overseas developments in the recovery and recycling of PVC products.

2004 Priority Statement feedback

No comment was received specifically on PVC.

Action to date

The industry reported[19] that signatories to its Product Stewardship Commitment achieved the following in 2003-04:

- Phased out use of cadmium stabilisers
- Established timetable for phase out of lead stabilisers by 2010
- Ensured that all signatories involved in PVC packaging signed up to the *National Packaging Covenant* and submitted action plans and progress reports
- Established a pilot recycling schemes for pipe off cuts on construction sites
- Commissioned independent audit of PVC wastes to assist in developing appropriate waste recovery and management responses.

Some of the planned actions of the signatories in 2005-06 include:[20]

- Keeping vinyl chloride monomer (VCM) in manufactured resin and VCM emissions at levels that are well below internationally accepted industry practice.
- Implementing the Code of Practice for the use of cadmium pigments and lead stabilisers in PVC products, including annual reporting of use by signatories.
- Requiring new signatories still using cadmium stabilisers to agree to specific phase out dates.
- Phasing out use of lead stabilisers by 2008 for pipes and 2010 for other uses.
- A report in 2006 on the use of cadmium pigments by signatories, including technical and commercial constraints for replacement.
- Sharing relevant information with the National Industrial Chemicals Notification and Assessment Scheme (NICNAS) to assist its review of phthalates.

The industry's actions are positive moves toward extended producer responsibility. A number of questions remain regarding some of the additives.

For example, while the industry scheme involves the phase out of cadmium stabilisers, it does not address the issue of cadmium-containing PVC products or recycling cadmium-containing products. The same applies to lead containing PVC products.

Another key issue is the lack of data on the amount and source of PVC wastes generated and the accuracy of recovery and recycling rates.

19 Report dated 18 October 2004 submitted by the VCA to the ERG in response to the ERG's questions.

20 *Draft Review and Progress Report on the PVC industry Product Stewardship Commitment*, Vinyl Council of Australia, May 2005

The VCA commissioned consultants to perform a waste audit between December 2004 and March 2005 and has reported that it will develop an action plan to address priority end-of-life PVC issues identified in the waste audit.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has requested the VCA to finalise its action plan and provide it to the DEC by the end of April 2006.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product during 2006.

3.16 Treated timber

Treated timber contains preservatives (fungicides and insecticides) with substances like copper, chromium and arsenic (CCA).

Other chemicals in preservatives are creosote and tributyl-tin naphthenate (TBTN). These preservatives extend the life of timber but chromium and arsenic are also well known human carcinogens and copper is toxic to aquatic organisms. TBTN is known to have endocrine-disrupting potential[21]. Creosote contains 150 different chemical compounds, mostly polycyclic aromatic hydrocarbons, which are known carcinogens.

Humans and the environment can be put at risk if exposed to these chemicals at high enough levels. Timber preservatives may also contaminate mulches and composts and they can create environmental problems if burned without appropriate emission control equipment.

The inappropriate disposal of treated timber can cause localised air emissions, leachate problems in unlined landfills or low-level land contamination if applied as mulch.

About 350,000 tonnes of wood waste is disposed of to landfills in the Sydney Metropolitan Area annually.

The quantity of CCA treated timber being land filled is unknown, but it is expected to grow significantly over the coming years as structures built with CCA treated timber are demolished.

Currently, it is difficult to identify treated timber at the end of its life (it may have been painted). This makes it hard to separate and recover non-treated timber from mixed timber wastes. Furthermore, there is currently no practical recycling opportunity for treated timber.

Currently, there are four suppliers of timber preservative chemicals with two companies supplying the bulk of the market. More companies are involved in the application of chemical treatment. There are 32 timber treatment plants in NSW. DEC regulates 12 plants and local government regulates the remaining 20. Imported treated timber accounts for up to 35% of the market. Vineyards are the largest market for CCA treated timber, followed by the construction sector.

2004 Priority Statement feedback

Four submissions commented on treated timber. The submissions were mixed. Some said that there was no evidence of risk to public health from the substances used to treat timber and others argued that treated timber should be banned.

Comments were also made about the inherent difficulties of an EPR scheme dealing with products such as treated timber that have such along lifespan and will therefore undergo changes in market share and companies within the market. Responsibility for treated timber is further complicated by the addition, by others of paint, fastenings and concrete, which affect its recyclability.

Further detail on comments received is contained in the *Public Consultation Report on the EPR Priority Statement 2004*.

21 Chemicals that can interfere with hormones and which may increase the risk of cancer, malformations, infertility and sterility

Action to date

The industry continues to sponsor research into thermal processing of CCA treated timber for energy recovery and environmental protection as well as an investigation of a range of technologies to detect chemical treatments.

In response to restrictions on chemical treatments and buyer demands, the timber industry is currently researching chemical free wood preservation techniques for radiata pine (e.g. thermal modification).

In March 2005, the Australian Pesticides and Veterinary Medicines Authority (APVMA) announced a phase out (over 12 months) of CCA treatment for timber used to make picnic tables, outdoor seating, play equipment, patio, domestic decking and handrails. All CCA treated timber will have to be clearly identified under strict new labelling requirements.

While the introduction of more benign alternatives to treated timber is a high priority, these materials will remain in use and in the waste stream for many years to come.

Other key issues therefore relate to development of technology to identify treated timber in mixed timber, development of markets for recycled treated timber and increased education of consumers about proper disposal.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment requested the treated timber industry to provide specific proposals or current actions by 31 March 2006 and a further progress report on implementation by 31 October 2006 on:

- Development of processes to identify and separate treated timber from mixed timber wastes.
- Programs to educate consumers on proper disposal of treated timber.
- Assessment of options for the use of more benign alternatives to treat and preserve timber.
- Action to develop end-market uses for recovered treated timber.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product and sector during 2006.

3.17 Used oil and lubricants

The Commonwealth runs the Product Stewardship for Oil (PSO) program under the *Product Stewardship (Oil) Act 2000*.

The key action by industry is the payment of a statutory levy by producers and importers for petroleum-based oils and their synthetic equivalents under the program. The current levy is 5.449 cents per litre (or kilogram for greases). It is used by the Commonwealth to pay benefits to oil recyclers. Benefits range from 3 cents to 50 cents a litre, based on the level and type of use of the recycled oil.

The member companies of the Australian Institute of Petroleum (AIP) account for about 80% of lubricants sold in Australia. These companies are: BP, Caltex, Mobil Oil, Shell and Valvoline.

According to the AIP, some 520 million litres of lubricants and greases are sold in Australia every year, but only 270 million litres is recoverable. The rest is burnt in the process of use. Of the recoverable amount, about 80% is collected through the PSO program. A large part of the uncollected oil is reused, typically as burner fuel in small power generators or in some industries (e.g. hydroponics).

2004 Priority Statement feedback

No comment was received specifically on used oil and lubricants.

Action to date

An independent review in 2004 of the Product Stewardship (Oil) Act 2000 (Cth)[22] confirmed the AIP's report on collection figures and concluded that the PSO program should be retained.

It made specific recommendations to improve the scheme.[23] A separate report into the PSO program[24] noted that 72% of the recoverable used oil in NSW and ACT was collected in 2002, against a national average of 53%, Only Tasmania and South Australia performed better, returning collection figures of 96% and 74% respectively of the available oil.

While the PSO program captures a large proportion of the recoverable lubricants and oil, these materials also contributed a significant portion (17%; 84 tonnes) to the government-run NSW Chemical Cleanout program in 2003-04 at a cost of almost $270,000 per annum for the oil component.

The ongoing use of public funding to collect this used oil is not acceptable, given that the infrastructure to recover used oil is available under the PSO program.

Specific actions identified for monitoring and evaluation during 2006

The Minister for the Environment has instructed DEC to continue to monitor the progress of product stewardship for used oil through the review mechanisms in place for the *Product Stewardship (Oil) Act 2000*, with particular emphasis on the percentage of recoverable oil that is actually recovered and the recovery from the home oil change market.

DEC will also work with the Commonwealth and the AIP to improve consumer awareness in NSW to divert used oil that is now being returned through the NSW Chemical Cleanout program to oil collection facilities operating under the PSO program.

The evaluation criteria outlined in **Appendix 1** will also be used to assess EPR performance for this product during 2006.

22 *Independent Review of the Product Stewardship (oil) Act 2000 – Final Report*, The Allen Consulting Group, May 2004

23 Eleven recommendations covering data collection, benefits for recycling, recycling processes, governance, consultative processes and consumer awareness

24 *Independent Review of the Transitional Assistance Element of the Product Stewardship for Oil (PSO) Program*, Australian Academy of Technological Sciences and Engineering, March 2004

Appendix 1

Evaluation criteria and key performance indicators

Criteria	Key performance indicators (KPIs)	
	Existing schemes	New schemes
1. Scope and coverage	Are all products produced/imported by that sector covered by the scheme? Are historical and/or orphan products covered? What percentage of NSW does the scheme cover? What percentage of NSW population has access to the scheme?	Which products does the scheme propose to cover? Will historical and/or orphan products be covered? If so, how many? What percentage of NSW (geography) will the scheme cover? What percentage of NSW (population) will have access to the scheme? What will be the coverage (geography & population) after 3 years?
2. Targets and timeframes	This section relates to performance indicators that have been established for the scheme. Please provide details of targets and milestones for delivery in respect of: ▪ The coverage of the scheme (geography & population) ▪ Collection (quantity and weight) of end-of-life products ▪ Reuse/recycling of end-of-life products, materials or components as a percentage of the products sold ▪ Industry participation as a percentage of market share ▪ End-user participation as a percentage of population ▪ Product redesign based on design for the environment ▪ Reduction/control of littering or illegal dumping ▪ Any other target not covered above	What targets and timeframes have been set for the proposed scheme in respect of the following? ▪ Coverage of the scheme (geography and population) ▪ Collection of end-of-life products – number and weight ▪ Reuse/recycling of end-of-life products, materials or components as a percentage of the products sold ▪ Industry participation as a percentage of market share ▪ End-user participation as a percentage of population ▪ Product redesign based on design for the environment ▪ Reduction/control of littering or illegal dumping ▪ Any other target not covered above

Criteria	Key performance indicators (KPIs)	
	Existing schemes	New schemes
3. Design for the environment	What design for the environment improvements have been made to improve the end-of-life performance of the product? This could include one or more of the following: ▪ Dematerialisation – level of reduction in product weight or size ▪ Extended life-span –increase in producer warranty periods or any other indicator ▪ Improved recyclability/disassembly etc – percentage increase in recyclable components or percentage increase in components that are easily disassembled for repair or reuse. ▪ Use of recycled content – percentage increase in recycled content in products ▪ Demonstration that the product has been manufactured to international environmental best practice standards	What design for the environment (DfE) improvements are proposed to improve the end-of-life performance of the product? This could include one or more of the following: ▪ Dematerialisation – planned reduction in product weight or size ▪ Extended life-span – planned increase in producer warranty periods or other indicators of product life extension ▪ Improved recyclability/disassembly etc – planned percentage increase in recyclable components or percentage increase in components that are easily disassembled for repair or reuse. ▪ Use of recycled content – planned percentage increase in recycled content in products ▪ Are products being manufactured to international environmental best practice standards? If not, what measures are being taken to do so?
4. Collection results	The number/weight of products captured by the scheme as demonstrated by the number/weight of products/parts collected as a percentage of number/weight sold.	How many products will be captured by the scheme? ▪ This can be demonstrated by the number/weight of end-of-life products (or parts or components) to be collected as a percentage of the number/weight of products sold.
5. Reuse and recycling – quantity and quality	QUANTITY - How many/much of what is collected is reused or its constituent material recycled? ▪ Amount reused (number/weight) as a percentage of total collected ▪ Amount sent for recycling (number/weight) as a percentage of total collected ▪ Amount of materials recovered in recycling process (weight) ▪ Amount of materials rejected due to contamination ...continued over page	QUANTITY - How many/much of what is collected will be reused or its constituent material recycled? ▪ Amount to be reused (number/weight) as a percentage of the total that is expected to be collected ▪ Amount to be sent for recycling (number/weight) as a percentage of the total that is expected to be collected ▪ Amount of materials planned for recovery in recycling process (weight) ▪ Planned measures to reduce contamination of collected end-of-life products, parts or components ...continued over page

Criteria	Key performance indicators (KPIs)	
	Existing schemes	New schemes
5. Reuse and recycling – quantity and quality **(continued)**	QUALITY – of reuse/recycling as demonstrated by: ▪ Percentage reused as whole product ▪ Percentage reused as components in same product or other product types ▪ Percentage material recovered for same or similar use ▪ Percentage material recovered as lower quality material ▪ The amount of energy recovered Where are the recovered products/materials used? ▪ Domestic markets (%) ▪ Export market (%)	QUALITY – of planned reuse/recycling as demonstrated by: ▪ Percentage planned for reuse as whole product ▪ Percentage planned for reuse as components in same product or other product types ▪ Percentage of material planned for recovery for same or similar use ▪ Percentage of material planned for recovery as lower quality material ▪ Plans for energy recovery Where are the recovered products/materials proposed to be used? ▪ Percentage planned for use in domestic markets ▪ Percentage planned for use in export market
6. End-user participation	Level of end-user awareness of and participation in the scheme: ▪ Rate of end-user participation (%) ▪ Extent of end-user knowledge/awareness of scheme (%) ▪ Availability/access of collection points (number/ease of access) ▪ Any restriction (e.g., fee) for participation	Plans to ensure end-user awareness of and participation in scheme: ▪ Projected rate of end-user participation (%) ▪ Plans to ensure/increase end-user knowledge/awareness of scheme ▪ Plans to enable easy access to collection points ▪ Plans to minimise restrictions/fees for participation, if any restrictions or fees are envisaged
7. Industry participation	Number of producers/importers actively participating, as demonstrated by: ▪ Number of producers/importers in the scheme ▪ Percentage of market (sales) represented by participants Was there any negative impact on participants' domestic or international competitiveness?	Projected number of producers/importers to participate in scheme: ▪ Number of producers/importers that will participate in the scheme ▪ Percentage of market (sales) that will be represented by participants Is participation expected to impact negatively on domestic or international competitiveness of participants? If yes, please quantify impact, or at least describe likely impact.

Criteria	Key performance indicators (KPIs)	
	Existing schemes	New schemes
8. Funding	How is the scheme funded? How secure/long-term is the funding? How will future orphaned products be funded?	How will the scheme be funded? How secure/long-term is the funding? How will future orphaned products be funded?
9. Data collection	How much data is being collected? How robust is the data? How is the data verified?	What data will be collected? How robust will the data be? How will the data be verified?
10. Litter or illegal dumping	No data needs to be provided. Evaluation will be with information from DEC. Industry will have opportunity to comment on the KPIs to be used for this criterion.	What actions have been planned for under the scheme to reduce littering or illegal dumping of the products or its component parts?
11. Level of community concern	No data needs to be provided. It will be evaluated with DEC information (e.g. results of the DEC's "Who cares about the environment" surveys.	No data needs to be provided. It will be evaluated with DEC information (e.g. results of the DEC's "Who cares about the environment" surveys.
12. Toxicity levels	Have toxic substances in products/materials been removed? If not, have the levels of toxicity been reduced? Please provide details.	Planned removal/reduction in toxic substances in component parts. Please provide details of the substances and quantify the planned removal or reduction.

Appendix 2

Assessment criteria to identify new wastes of concern

The following assessment criteria have been developed for identifying wastes of concern suited to management by EPR schemes.

- Detrimental environmental and/or public health impacts resulting from the recovery and/or disposal of the product.
- Total volume of the waste requiring disposal and/or the percentage of the waste stream it comprises.
- Potential for waste avoidance, reuse or beneficial resource recovery.
- Potential to contaminate waste streams and limit opportunities for resource recovery.
- Likelihood of illegal disposal through dumping or littering.
- Level of community concern about the waste.
- Extent to which EPR is the appropriate tool for managing the waste.

Assessment of the detrimental environmental/public health effects from the recovery or disposal of a product needs to consider impacts throughout the product's life cycle, including in the long term.

This includes ensuring that any measures taken to reduce impacts from the product's recovery and/or disposal do not have negative consequences upstream.

When determining the extent to which EPR is the appropriate tool for managing the waste, consideration is generally given to whether:

- There are clearly identifiable producers
- The producers have a reasonable capacity to take action
- There is a well-structured or organised industry sector
- There is a capacity to influence the whole supply chain.

However these should not be essential requirements. Other relevant considerations could include whether there is experience of product stewardship or EPR schemes locally or overseas to manage the waste or if more effective tools are available, such as licensing or education.