



Australian Government

Department of the Environment

Regulation Impact Statement

National Television and Computer Recycling Scheme:

Enhancements Arising from the Operational Review

22 June 2015

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INTRODUCTION

An operational review of the National Television and Computer Recycling Scheme (the scheme) was initiated in September 2014 by Minister for the Environment, the Hon Greg Hunt MP, in response to stakeholder concerns that the scheme was having an adverse impact and was not on a sustainable footing.

In November 2014 the Department of the Environment released a review paper, and a national consultation process was commenced. The review paper is available on the [Department's website](#).

Through consultation, a package of proposed amendments to the scheme's regulations has been developed and refined, with the aim of enhancing the scheme's operation and placing it on a sustainable footing. This regulation impact statement presents these proposals and their costs and benefits, to support a final decision.

The base case considered in this RIS is to maintain existing regulatory settings; the operational review has not considered whether or not the scheme should continue or fundamental policy settings such as the co-regulatory approach. These may be matters for consideration in the statutory review of the *Product Stewardship Act 2011*, which is scheduled to commence in 2016.

The *Product Stewardship Act 2011* establishes the criteria for a class of products to be subject to regulation, which include:

- The products in the class are in a national market.
- The products contain hazardous substances.
- There is the potential to significantly increase the recovery of materials from the products.
- There is the potential to significantly reduce the impact that the products have on the environment or on the health or safety of human beings.

Televisions and computers continue to meet these criteria and comprise a growing waste stream. They may contain lead, mercury and other hazardous substances, which can leach from unlined or poorly managed landfills into groundwater and causing health and safety and environmental impacts. The relatively high cost of managing them has also led to a substantial risk of illegal dumping, by both consumers and, on a larger scale, waste management companies, particularly where landfill bans are in place and/or where parties face significant costs for legal disposal options.

The scheme addresses the risk of illegal dumping by providing consumers with free access to recycling and providing for efficient oversight of the recycling process, including its health and safety and environmental outcomes. This is a necessary departure from the principle of good policy that users should pay directly for the costs of purchasing a service that they demand. Analysis of the benefit of recycling of televisions and computers, undertaken during development of the scheme, indicated that the scheme would deliver a significant benefit to the community. The success of the scheme to date indicates that where recycling services are provided at no cost to the consumer and that are reasonably accessible, they will be well

utilised. Analysis included in this RIS indicates that the societal value of recycling computers exceeds the cost of doing so under the scheme.

BACKGROUND

The National Television and Computer Recycling Scheme

The National Television and Computer Recycling Scheme is the largest producer responsibility scheme to be rolled out in Australia and was the first to be established under the Australian Government's *Product Stewardship Act 2011* (the Act). The Act came into effect on 8 August 2011 and provides a framework to effectively manage the environmental, health and safety impacts of products, including those impacts associated with the disposal of products. The Product Stewardship (Televisions and Computers) Regulations 2011 (the Regulations) underpin the scheme and came into effect on 8 November 2011.

Under the scheme, the television and computer industries are required to fund collection and recycling of a proportion of the televisions and computers disposed of in Australia each year. The aim of the scheme is to deliver a staged increase in the rate of recycling of televisions and computers in Australia from an estimated 17 per cent in 2010–11 to 80 per cent by 2021–22. The remaining waste televisions and computers, along with all other e-waste, remains the constitutional responsibility of state and territory governments and through them, local governments. Table 1 below shows the proportional responsibility for e-waste by financial year to 2021–22.

The Regulations do not prescribe any requirements for state and territory governments managing e-waste outside the scheme, and this proportion of e-waste may be dealt with as is deemed appropriate in each jurisdiction. Indeed, the policy assumption behind the scheme is that the scheme will supplant state and territory recycling over time. The intent of the scheme is to lift the total television and computer recycling rate in Australia to 80 per cent, which is the scheme target in 2021–22.

Table 1: Proportional responsibility for e-waste by financial year of state and territory governments and the National Television and Computer Recycling Scheme

	11–12	12–13	13–14	14–15	15–16	16–17	17–18	18–19	19–20	20–21	21–22
States/ territories	100%	70%	67%	65%	63%	60%	52%	44%	36%	28%	20%
The scheme	0%	30%	33%	35%	37%	40%	48%	56%	64%	72%	80%

The major impact of the Regulations is that they require that industry's share of the waste stream must be recycled, free of any financial cost to a person who drops off their waste for recycling (which would have the unintended consequence of promoting illegal dumping). The Regulations thus ensure that users of recycling pay for that service *when they purchase the product*, rather than when the product reaches end of life. By embedding the end-of-life costs for the product in the purchase price, allocative efficiency is enhanced because consumer purchase decisions are influenced by a more accurate reflection of the 'true' cost of that purchase (purchasing a product in Australia is correlated very strongly with the need

for disposal of that product in Australia at some future date, since used product export is rare).

The initial recycling target of 30 per cent, which required a near-doubling of recycling in the scheme's first year, was intended to meet community expectations of increased access to recycling once the scheme commenced.

The scheme also includes a material recovery target, which commenced on 1 July 2014. This requires that 90 per cent, by weight, of the materials derived from products recycled under the scheme in any given year are made available for reuse. This underpins the scheme's environmental outcome, by ensuring that hazardous and difficult to process materials such as leaded glass from cathode ray tubes and mercury-containing lamps from LCD screens are processed appropriately.

Television and computer companies fund collection, recycling and material recovery by paying membership fees to a co-regulatory arrangement. There are five co-regulatory arrangements, which compete for members (i.e. TV and computer companies). Co-regulatory arrangements are responsible for meeting regulatory obligations in relation to collection, recycling and material recovery.

The scheme does not regulate the e-waste recycling sector. Rather, approved co-regulatory arrangements are required to assess the adequacy of health and safety policies and procedures in relation to recycling and other operations occurring under the arrangement, and to meet other requirements such as record keeping and reporting. Recyclers are subject to state and territory health and safety and environmental regulation.

Performance of the scheme to date

Over its first two years of operation, the scheme has exceeded its outcomes. Data on the scheme's achievement against its recycling targets is given in Table 2 below.

In the first target year of 2012–13, an estimated 137,756 tonnes of televisions and computers reached end of life in Australia. The television and computer industries were required to fund the collection and recycling of 30 per cent of this amount, or 41,327 tonnes. A total of 40,813 tonnes of recycling was achieved, equivalent to 98.8 per cent of the scheme target and almost double the estimated level of recycling prior to the scheme's introduction.

Table 2: Achievement against scheme recycling targets

	2012–13	2013–14	Total
Recycling target (tonnes)	41,327	43,430	84,757
Recycling achieved (tonnes)	40,813	52,735	93,548
Percentage of target achieved	98.8%	121.4%	110.4%

In the second target year of 2013–14, the total weight of televisions and computers reaching end-of-life was approximately 131,600 tonnes. The target for the television and computer industries was 33 per cent of this amount – around 43,430 tonnes. The television and computer industries exceeded this target in 2013–14, collecting and recycling in excess of 52,735 tonnes. National data is not available on the amount of e-waste recycling undertaken outside of the scheme in 2012–13 and 2013–14.

Concerns about adverse impacts of the scheme

The operational review of the scheme was initiated in response to concerns expressed by stakeholders that the scheme, despite having successfully achieved the outcomes specified by the Regulations, was not meeting community expectations, was having adverse impacts on some industry participants, local governments and the community and did not appear sustainable over the longer term.

In particular, concerns were expressed that:

- Due to technological changes, particularly the import of lighter-weight products, the scheme's settings for calculating liability and recycling targets were leading to inequitable and inefficient outcomes for television and computer importers. The scheme aims to allocate costs according to each importer's contribution to the future waste stream, whereas existing policy settings reflect historical, rather than current, product weights.
- Despite an overall expansion in the market for their services, some e-waste recyclers were experiencing more difficult market conditions, arising from an inconsistent and unpredictable flow of feedstock as the scheme's co-regulatory arrangements, faced with high and increasing public demand for free e-waste recycling, tried to avoid over-achieving against their recycling targets.
- Fluctuations in throughput were impacting on the employment of disadvantaged workers through social and disability employers, including Australian Disability Enterprises and other firms, which have traditionally played a key role in e-waste recycling in Australia. Three Australian Disability Enterprises had closed e-waste businesses since 2013–14 due to fluctuations in throughput, and others were reporting that the jobs of many disadvantaged workers were at risk due to unstable market conditions.
- Some communities had received little or no access to recycling services under the scheme, while some local governments that had hosted collection services in the first year or two of the scheme had those services withdrawn at short notice, creating problems with funding ongoing e-waste management and meeting community expectations of free recycling that had been increased by the scheme.

Following initial consultation with stakeholders, these issues were elaborated, along with proposed solutions, in the operational review paper, available on the [Environment website](#). Further consultation was conducted, and these issues are now further elaborated under *Assessing the problem* below.

ASSESSING THE PROBLEM

This section of the RIS outlines problems with the scheme's regulatory design, which were identified through the operational review initiated in September 2014. Background on the problems that the scheme was established to address is also given. These problems were previously elaborated in the 2009 decision RIS that informed the establishment of the scheme.

Problems arising from current regulatory design

The operational review initiated in September 2014 identified that some elements of the scheme's Regulation are leading to shortcomings in the degree to which the scheme is meeting each of the four objectives outlined in the explanatory statement that accompanied the scheme's Regulations in 2011 (these objectives are elaborated under *Background - The problems the Regulations were created to address* below).

There are four problems:

A. Regulatory settings established to enable calculation of the weights of imported televisions and computers are out of date and do not accurately reflect the relative contributions of different importers of televisions, computers and computer parts and accessories to the future waste stream.

B. The scheme's established trajectory for increasing recycling from an estimated 17 per cent of the available waste prior to the scheme's introduction, to 80 per cent in 2021–22, is contributing to instability in the e-waste recycling sector that is impacting disproportionately on disadvantaged workers. A number of Australian Disability Enterprises identify e-waste recycling as work suitable for people with disability, and were operating e-waste recycling businesses before the scheme was established. Around 50 supported positions were lost in Australian Disability Enterprises in 2014 due to the closure of 3 e-waste businesses, and several of the remaining businesses are reporting difficulty under current market conditions.

C. Stakeholder concern about the adequacy of current provisions underpinning health and safety and environmental performance. Stakeholders have expressed concern that the absence of a clear, minimum standard is contributing to risk of poor health and safety and environmental outcomes, and leaving recyclers and co-regulators that have invested in higher quality health and safety and environmental policies and procedures vulnerable to price disadvantage compared to competitors that are performing to lower standards.

D. Calculation of recycling targets under the scheme relies on import data derived from import declarations, which can be subject to amendments. Amendments to import declarations result in changes to recycling targets, and therefore repeated billing of liable parties, which is inefficient.

These four problems are elaborated below. These problems are primarily due to the design of the legislation, although problems B and C also relate to the market response to the introduction of scheme.

Problem A appears to be entirely attributable to the design of the scheme. There is no evidence that the introduction of the scheme has contributed to the development or import of lighter televisions and computers.

Problem B is the result of regulatory design. Other factors have also contributed to instability in the e-waste sector, but these are not within the influence of the Australian Government. The existing target trajectory is driving a boom-and-bust environment. Additional investment and employment was required to meet the scheme's requirement to double the rate of recycling in the scheme's first two years. Much of the additional labour and industry capacity created is now no longer needed, and will not be required again until 2017–18. The resultant downturn in the sector is disproportionately affecting disadvantaged workers in social and disability employers, including Australian Disability Enterprises. Other factors that may have contributed to instability include an unexpected decline in the weight of imports over the early years of the scheme, higher than anticipated public demand for recycling and the response of the recycling industry to the rapid increase in business opportunity created by the scheme.

Problem C is attributable partly to regulatory design, but is also linked to the response of the market to the introduction of the scheme and the different roles of the Australian and state and territory governments. It is evident that the market conditions affected by the scheme create a significant incentive for recyclers and co-regulatory arrangement administrators to undertake recycling that may not meet the required health and safety and environmental standards. In the absence of a clear standard against which the health and safety capabilities of recyclers can be assessed and in existing circumstances of imperfect information and strong incentive to reduce cost to gain competitive advantage, the current provisions requiring co-regulatory arrangements to assess the adequacy of health and safety policies and procedures provides for relatively weak control. This has contributed to increased health and safety risk and, in some cases, poor environmental performance. Regulation of the recycling industry, including in relation to state and territory health and safety and environment legislation, is the responsibility of state and territory governments.

Problem D is solely the result of regulatory design.

Problem A: Inequitable outcomes for TV and computer importers

Outcomes for TV and computer importers are now inequitable due to regulatory settings not keeping up with technological development in the TV and IT sectors.

Changes to technology and disposal patterns mean that some of the numerical settings in the Regulations used to calculate weights of products to be recycled are no longer accurate, leading to unfair outcomes for some importers. Fairness is important on grounds of both equity and efficiency: since end-of-life costs are a potential externality of product purchase which society would have to bear, it is important that producers and consumers face a price signal which accurately reflects their contribution to that waste externality. Revision of the conversion and scaling factors is necessary to be consistent with the original policy intent of the scheme that the recycling burden on industry should reflect a reasonable estimate of current import volumes and is not intended to exceed those volumes, which would mean that industry was shouldering the burden of legacy recycling.

Problem A1: Product codes and conversion factors

The liability of importers and manufacturers in a financial year is determined by the number of television and computer products they imported or manufactured in the previous financial year. Television and computer products are defined, for the purposes of the scheme, as

products which have a product code listed in Schedule 1B to the Regulations. These were developed during 2012 and apply to products imported or manufactured from 1 July 2012.

The scheme's product codes align with the tariff and statistical codes in the *Combined Australian Customs Tariff Nomenclature and Statistical Classification*, commonly known as the Working Tariff, which is used by Customs and the Australian Bureau of Statistics (ABS) to identify imported products.

Each product code has an associated conversion factor, which is an estimated weighted average weight of products imported under that product code. The purpose of this conversion factor is to enable the data collected by Customs, which records the number of units imported in each shipment, to be converted into an estimated weight of these products. This is necessary because waste management and recycling processes necessarily work in weights rather than units of products. The conversion factors were established following consultation with the television and computer industries, based on information provided on the weight of products imported under each product code.

Although the product codes and conversion factors have been updated since the scheme's commencement, continually changing technologies and product weights mean that some conversion factors no longer accurately reflect the average weight of products imported under the relevant product code.

Problem A2: Waste arising scaling factor for computers

'Waste arising' represents the amount of additional waste television and computer products that are expected to be generated in Australia in any financial year. The Regulations provide a formula to calculate waste arising, based on the average weight of imports over the past three years and a scaling factor of 0.9.

The formula for waste arising is:

$$\text{Waste arising} = \frac{\text{Total weight of imports over past three years}}{3} \times 0.9$$

The logic of the waste arising formula is that when a product is imported it usually replaces another product, which then becomes waste. Taking the average converted weights of imports over the past three years reduces the impact of annual fluctuations in imports. The scaling factor of 0.9 takes into account that some imported products are subsequently exported, and that not all imported products replace existing products. Modelling undertaken during development of the scheme indicated that this formula was a good proxy for the amount of waste entering the waste stream each year.

It has been suggested that the waste arising formula may no longer fully account for all factors affecting the entry of computer products, notably computers, and to a lesser extent printers and computer parts and peripherals, into the waste stream in Australia. In particular, some stakeholders have expressed the view that exports of used computers for reuse means that fewer computers enter the waste stream in Australia relative to other products covered by the scheme (e.g. televisions), and that this should be taken into consideration

when calculating the amount of available waste and therefore the share of scheme recycling targets attributable to those products.

Problem B: Recycling target trajectory is contributing to instability in the e-waste recycling sector that is impacting disproportionately on disadvantaged workers

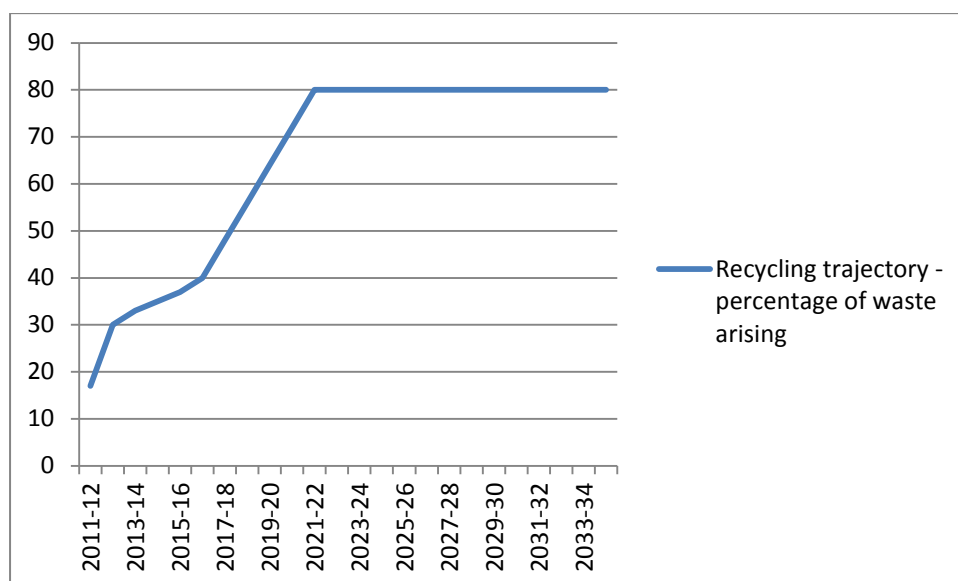
The recycling target trajectory set in the Regulations in 2011 is contributing to instability in the e-waste recycling sector. The variable rate of increase in the rate of recycling from the estimated 17 per cent of available waste prior to the scheme’s commencement, to 80 per cent in 2021–22, has contributed to conditions of boom-and-bust capacity and employment growth in the e-waste sector. Given that Australian Disability Enterprises make up a large proportion of the e-waste sector, this instability is impacting disproportionately on disadvantaged workers. As already noted, other factors have contributed to instability in the e-waste sector, but these are not within the influence of the Australian Government.

Recycling target trajectory

As noted above, the amount of recycling to be undertaken each year under the scheme is determined by annual recycling targets, expressed as a percentage of the available television and computer waste arising in Australia each year.

The rate of television and computer recycling prior to commencement of the scheme was estimated at 17 per cent of available waste, or 21,200 tonnes. The scheme’s target trajectory required an initial doubling of recycling in the first two years. The trajectory then provides for a period of gradual increase, reaching 40 per cent in 2016–17, before increasing rapidly again to reach 80 per cent of available waste in 2021–22. This is illustrated in Figure 1 below.

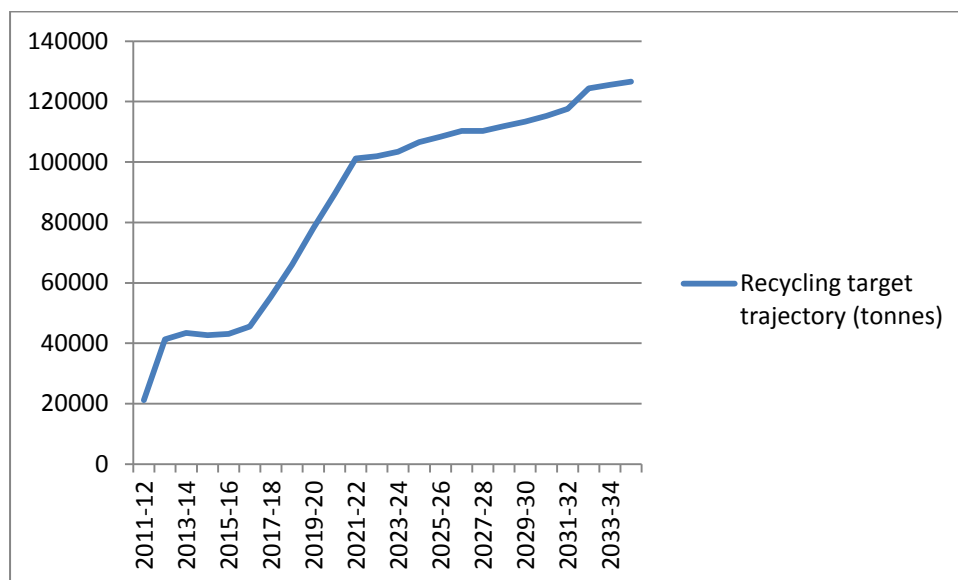
Figure 1: Percentage recycling trajectory established by the scheme, including the increase required from an estimated 17 per cent recycling prior to the scheme’s commencement



The recycling target trajectory in tonnes of recycling is shown in Figure 2 below. This shows that a very rapid increase in recycling was required to meet the scheme’s first target in 2012–13 but that little or no further growth was required from 2013–14 and 2016–17. The

plateau effect on recycling of the slow percentage target growth during this period has been exacerbated by a decline in calculated waste arising.

Figure 2: Recycling target trajectory established by the scheme in tonnes of recycling, including the increase required from an estimated 21,200 tonnes of recycling prior to the scheme’s commencement, and projected recycling targets from 2015–16



The decline in waste arising during the first three years of the scheme has resulted from a decline in the total weight of imports during this period. This followed a period of rapid growth in imports in the years leading up to 2012–13, which coincided with an increase in the use of laptop and tablet computers and changing television technologies, including the switchover to digital technology and the uptake of plasma, LCD and LED technologies. Pitt and Sherry (2015) projected that waste arising will return to an upwards trajectory in 2016–17.

Other aspects of the scheme have contributed to market instability

Other aspects of the scheme’s design have contributed to the current situation and will result in recycling over the next two to three years being lower than the recycling targets.

In an effort to meet their collection service and recycling obligations in 2012–13, the scheme’s co-regulatory arrangements rolled out public collection services across metropolitan, regional and remote Australia and entered into contracts with recyclers. As a result, public demand for recycling was stimulated and some recyclers began investing in new capacity to meet their increased workloads.

Total recycling achieved under the scheme in 2012–13 was 40,813 tonnes, which was just short of the target of 41,327 tonnes. Because of the lead time needed to roll out collection services and for recyclers to adjust to increase workflows, the rate of collection and recycling increase gradually during 2012–13, with 19,874 tonnes, or around 49 per cent of the total recycling undertaken in the last quarter of the year. It is therefore clear that:

- The introduction of the scheme in 2012–13 led to a rapid increase in the rate of e-waste collection and recycling in Australia, which was required to meet the target set by the scheme’s Regulations.

- By the end of the scheme's first year, the rate of collection and recycling was considerably higher than that required to meet the recycling target in the subsequent year, and until at least 2017–18.

The recycling target for 2013–14 was 43,430 tonnes. Due to the number of collection services that remained in place after the end of 2012–13, a considerably higher rate of collection was achieved at the beginning of 2013–14 than was required to meet the target. Co-regulatory arrangements did not immediately reduce the number of collection services because:

- Each arrangement did not know what its individual recycling would be for the financial year until mid way through the financial year. This was due to:
 - The competitive nature of the co-regulatory model, under which co-regulatory arrangements compete for members during the first quarter of the financial year (each arrangement's target is proportional to its market share for the year).
 - Frequent, significant changes to target data, due to TV and computer imports amending import declarations (changes to import declarations change the overall size of the market, as well as each arrangement's market share).
- Future rates of collection were uncertain.
- Establishing a collection network required considerable investment by the co-regulatory arrangements. It would be inefficient to reduce the network only to increase it again if targets increased or if collection rates at remaining sites were lower than expected.

Over time, a number of collection services were closed. However, co-regulatory arrangements have reported that in some instances, closure of one collection service resulted in increased collection rates at nearby collection sites.

In some cases co-regulatory arrangements stockpiled collected products rather than pay for them to be recycled. Most of the collected products were recycled, however, because:

- Storage of e-waste incurs a cost, payment of which is less efficient than recycling the products immediately and carrying over the excess recycling to acquit against future recycling targets, which is permitted under the scheme.
- Concerns about risks associated with stockpiling, which include:
 - Environmental risks, e.g. leaching of hazardous substances if e-waste is not stored under cover on a hard surface (due to the cost of suitable storage, observed industry practice in many cases has been to store substantial amounts of e-waste on the ground in the open).
 - Financial risks, particularly in relation to the liability associated with ownership of stockpiled waste in the event that the recycler or other storage provider goes out of business or is otherwise unable to continue to store the products. Abandonment of waste stockpiles has been cited as a key risk by state and territory EPAs and has previously occurred in relation to e-waste.

- Health and safety risks, including the potential for injury from authorised or unauthorised handling of the waste.

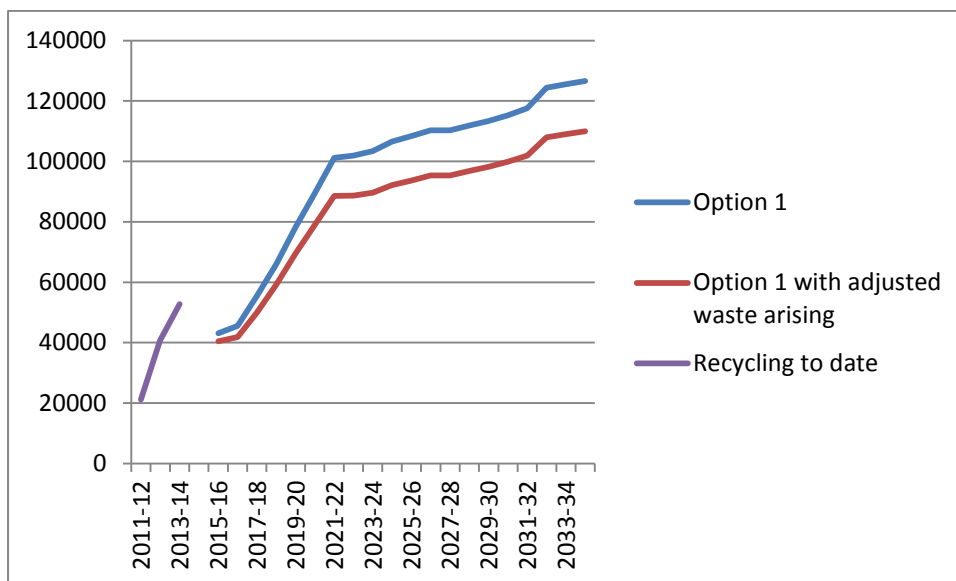
Due to the factors described above, actual recycling in 2013–14 exceeded the recycling target. Total recycling was 52,735 tonnes, which was 40.1 per cent of waste arising.

Recycling to date, including the estimated recycling of 21,200 tonnes prior to the scheme’s commencement and actual recycling in the first two target years, is shown in Figure 5, along with the projected recycling target trajectory from 2015–16. Two projected trajectories are shown. The blue line (Option 1) shows the recycling trajectory derived from the waste arising trajectory included in Option 1 in this RIS. The red line (Option 1 with adjusted waste arising) shows the recycling trajectory using the current percentage target trajectory, and the waste arising trajectory under Options 2 and 3 in this RIS.

Figure 3 shows that under current regulatory settings, the recycling target in 2015–16 will be considerably lower than recycling in 2013–14. It also shows that if the conversion and scaling factors were adjusted as proposed in this RIS, this situation would be exacerbated. As outlined in elsewhere in this RIS, the revisions to conversion and scaling factors are considered necessary and consistent with the intent of the scheme.

As is obvious from Figure 3, the amount of recycling actually undertaken in a financial year is not necessarily the same as the recycling target. Although it is too early to know how much recycling will be undertaken in 2014–15, it is likely that recycling will be slightly less than the target of 42,654 tonnes. It is also likely that recycling in 2015–16 will be lower than the projected target of 43,165 tonnes, because co-regulatory arrangements will seek to acquit the excess recycling they have carried forward from 2013–14. Excess recycling represents a sunk cost for co-regulatory arrangements that can only be recouped by acquitting the excess, meaning that they are likely to do so as soon as they are able to slow their collection rate down sufficiently to fall beneath their annual targets.

Figure 3: Recycling to date (including the increase from an estimated 21,200 tonnes prior to the commencement of the scheme) and projected recycling from 2015–16



Adverse impact of instability on disadvantaged workers

Many recycling firms employ disadvantaged workers, including people with a disability. Recyclers with a stated policy of employing people with a disability recycled 18,525 tonnes, or 20 per cent, of the 93,550 tonnes recycled under the scheme in 2012–13 and 2013–14. The majority of these firms have been employing disadvantaged workers in e-waste recycling since before the scheme was developed, but increased their throughput and employment as recycling increased under the scheme.

These firms typically sort and manually disassemble e-waste products, then forward the aggregated components and materials to specialist recyclers. They are often small to medium sized enterprises and many are located in regional areas. Disassembly close to the point of waste collection reduces transport cost and increases the efficiency of downstream recycling.

In the first two years of the scheme, 15 Australian Disability Enterprises operated e-waste businesses. Australian Disability Enterprises are generally not for profit organisations providing employment opportunities to people with disability, whose employment is supported by the Australian Government through the Department of Social Services.

Of these 15 Australian Disability Enterprises that have provided recycling services under the scheme, 3 are known to have gone out of business in 2014 as the rate of recycling decreased. These closures are believed to have resulted in the loss of more than 50 supported jobs. Many of the remaining businesses have reported difficulty surviving under current market conditions. Because they are relatively small businesses and often located in regions where there is little or no e-waste recycling being funded outside the scheme, they are more vulnerable to fluctuations in feedstock than larger recyclers located in capital cities.

In September 2014 it was estimated that the remaining 12 Australian Disability Enterprises in the e-waste sector were providing supported jobs for around 200 people with disability. This is around 1 per cent of the total 20,000 supported positions in Australian Disability Enterprises.

Supported employees in Australian Disability Enterprises accounted for around 41 per cent of all employees in the e-waste sector in Australia. Total employment in the sector 2013–14 was estimated at 486 workers¹.

Although there is still some recycling occurring outside the scheme, this is likely to remain insufficient to stabilise the recycling sector and prevent impacts on disadvantaged workers. Randell Environmental Consulting and Ascend Waste found that most recyclers are dependent on the scheme for 80-95 per cent of their current work.

Problem C: Stakeholder concern about the adequacy of current provisions underpinning health and safety and environmental performance

Some stakeholders have expressed concern that current provisions underpinning sound health and safety and environmental performance may not adequately mitigate risks of poor health and safety and environmental outcomes. There may be adverse market impacts for

¹ IBISWorld Industry Report OD5420 *E-Waste Collection and Processing in Australia* February 2014

recyclers and co-regulators working to high health and safety and environmental standards, where their competitors are cutting costs by working to lower standards.

Regulation of the e-waste recycling sector is the responsibility of state and territory governments under state and territory health and safety and environmental legislation.

The scheme's Regulations require co-regulatory arrangements to assess the adequacy of the health and safety and environmental policies and procedures of their service providers. Co-regulatory arrangements are estimated to incur costs in auditing recyclers of approximately \$117,000 per year in total. The Regulations do not establish a specific standard against which these audits must occur, and there is clearly considerable variation in the approaches taken and the level of rigour applied by co-regulatory arrangements. Stakeholders have expressed concern that differing requirements amongst recyclers and co-regulatory arrangements mean that there is a downward pressure on resourcing for environmental and health and safety measures such as routine noise, air and blood testing and installation of equipment to mitigate risk.

Aspects of health and safety and environmental performance relevant to the outcomes and impacts of the scheme include procedures for storage of e-waste to prevent leaching of hazardous materials into soil and groundwater, procedures for the safe processing of components containing hazardous materials, and the recording of material flows to ensure that material recovery rates can be accurately measured and reported.

Some instances of poor environmental performance were observed in the scheme's first two years, leading to significant additional cost to society that may have been avoided if an enforceable standard was in place. Underperformance of recyclers under the scheme resulted in the accumulation of more than 6,000 tonnes of cathode ray tube glass in NSW during 2012–13 and 2013–14. Cleanup of this glass and transport to downstream processing facilities was coordinated by the NSW EPA at an estimated cost of more than \$4.2 million, a significant part of which was borne by the NSW EPA.

State EPAs have pointed out that the problems experienced in NSW with cathode ray tube glass are consistent with known risks in waste management. The recycling industry carries inherent risk. In many cases recyclers are paid on the basis of inputs rather than outputs, i.e. they are paid on the basis of the products they receive for recycling rather than a measurement of the amount or quality of the outputs of recycling. Where recyclers are motivated to reduce costs (e.g. due to financial distress) or lack capability to complete recycling to the required level, they may continue to receive products and be paid to recycle them, but fail to do so adequately. This results in stockpiling, which increases risk of abandonment or illegal disposal of potentially hazardous materials that are relatively expensive to process. The costs associated with this risk are often borne by state EPAs in increased monitoring and enforcement activity and clean up of abandoned waste.

Health and safety performance is a matter of significant risk due to the hazardous materials found in e-waste, the risk of handling injuries and the high involvement of vulnerable workers through Australian Disability Enterprises. Over the first two years of the scheme, 23 health and safety incidents have been reported to the Department of the Environment by the co-regulatory arrangements; 12 in 2012–13 and 11 in 2013–14. These included cuts and

lacerations from contact with glass and metal, injuries caused by falling products, other injuries from manual handling and elevated blood lead levels.

However, there is no clear evidence to support a finding that health and safety management under the scheme would have been improved by more prescriptive requirements in the Regulations. As noted, regulation of the e-waste sector is the responsibility of state and territory governments, which have laws in place governing health and safety and environmental performance. While it is recognised that there may be benefit for state and territory regulators in having e-waste recyclers certified to AS 5377, and benefit to recyclers and co-regulatory in providing for a more level playing field, there is insufficient evidence to support a finding that mandatory certification to AS 5377 in relation to recycling under the scheme is warranted at this time.

Problem D: Inefficiency due to changes to import data

The recycling targets of the co-regulatory arrangements and the import or manufacture shares of their members depend on import data provided to the Department by Customs. Customs import data is derived from import declarations made by importers upon arrival of the goods in Australia. Importers have full responsibility for ensuring that the data they submit to Customs accurately reflects their imported products. Under Customs law, where importers have provided incorrect information to Customs on their import declarations, they are required to amend this information.

During each scheme target year, a number of liable parties have found it necessary to amend their import declarations. This has resulted in updated import data being provided to co-regulatory arrangement administrators throughout the year, with consequential changes not only to that arrangement's recycling target, but also to the recycling targets of the other co-regulatory arrangements and the import or manufacture shares of all liable parties. While individual changes may be small, the overall impact has been an increase in administrative cost and uncertainty over targets and liability.

Background - The problems the Regulations were created to address

The October 2009 Decision RIS² prepared to inform the development of the Regulations described the problems that are addressed by the scheme. The 2009 RIS noted that 138,000 tonnes of new televisions, computers and computer products were sold in Australia in 2007–08. In the same year, 106,000 tonnes (16.8 million units) reached their end of life. This was close to 5kg (one unit) per Australian. It was estimated that 84% (by weight) were sent to landfill, with only 10% (by weight) being recycled. Waste volumes were set to increase with rapid technological change, shorter life spans of products and increasing ownership rates. The volume of televisions and computers reaching their end of life was expected to grow to an estimated 181,000 tonnes (44 million units) by 2027–28.

The 2009 RIS found that, because collection and processing costs exceed the value of the resources recovered, recycling was not commercially viable in Australia unless a fee was paid to cover the difference. While some television and computer companies were paying for

² Hyder Consulting and Price Waterhouse Coopers (October 2009) *Environment Protection and Heritage Council – Decision Regulatory Impact Statement: Televisions and Computers*

some recycling as part of their environmental or corporate responsibility programmes, this accounted for only a small proportion of e-waste.

The 2009 RIS outlined that each jurisdiction had its own waste minimisation legislation or policies on e-waste. The broad powers provided to each jurisdiction by waste minimisation legislation meant that there was a tangible risk that each jurisdiction would implement a different approach to the television and computer waste problem in the absence of a national approach. The 2009 RIS found that a consistent national approach to recycling potentially offered cost savings relative to individual jurisdictions implementing separate solutions, and would prevent any adverse impacts that result from inconsistencies across borders.

Due to this, each jurisdiction worked through the then-Environment Protection and Heritage Council seeking a national approach to television and computer waste. Despite some government and private sector action, the recycling rate of televisions and computer products remained low at 10 per cent of the volume reaching end of life, with the remainder being landfilled and a minor proportion being exported.

In considering the case for Australian Government intervention to improve recycling or reduce landfill of televisions and computers in Australia, the following problems were identified in the 2009 RIS:

- Failure to conserve non-renewable resources: these products contain embedded non-renewable resources such as glass, plastics and lead that can be recycled, but that are lost when disposed to landfill.
- Failure to meet community expectations: A URS survey³ of more than 2000 Australians indicated that most respondents are willing to pay for a guaranteed increase in the recycling rate of non-renewable resources in televisions and computers. This suggested that community expectations were not being met in light of current disposal methods.
- Free-rider problem: Previous trials of television and computer recycling schemes in Australia had generally only been successful because of the programme and financial support provided by government, or because they were brand specific. While peak bodies and other key players had expressed interest in establishing recycling schemes, they were unprepared to implement a scheme without full industry participation; that is, to avoid a free-rider problem.
- Costs and risks associated with landfilling: The projected growth in landfill volumes of televisions and computer products were projected to contribute to the direct costs of operating landfills and the opportunity costs of land use. Landfilling of television and computer products present risks and costs because of the toxic substances they contain. Materials such as lead, bromine, mercury and zinc are dangerous to humans and the environment. Although evidence suggested that the problem of leaching may have been small in major urban and regional landfills operating under best practice environmental management systems, not all landfill sites met these criteria, particularly smaller landfill sites and those in outer regional and remote areas.

³ URS (June 2009) – *Willingness to pay for e-waste recycling*

- International obligations: As a signatory to the Basel Convention on the Control of the Transboundary Movement of Hazardous Waste and Their Disposal (the Basel Convention) and Stockholm Convention on Persistent Organic Pollutants (the Stockholm Convention), Australia is required, among other things, to ensure that the generation of hazardous and other wastes within Australia is reduced to a minimum and ensure that wastes are disposed of in a manner that protects human health and the environment against any adverse effects of such waste.

The scheme was established in response to these problems. The Explanatory Statement⁴ accompanying the Regulations outlined that the objectives of the scheme are to:

- Reduce the amount of television and computer waste (particularly hazardous waste materials) for disposal to landfill.
- Increase recovery of resources from end-of-life television and computer products in a safe, scientific and environmentally sound manner.
- Ensure national coverage in respect of collection of television and computer e-waste.
- Provide fair and equitable industry participation in the scheme.

The Regulations were designed to meet the objectives outlined above by requiring companies that import to or manufacture in Australia above a scheme-regulated quantity of televisions or computers fund the recycling of a proportion of those products reaching end of life in each financial year. The proportion set as the above mentioned annual recycling targets. The 2009 RIS found that the net present value of a TV and computer recycling scheme would depend on the estimates used for consumer willingness to pay. The 2009 RIS estimated this through stated preference modelling, which showed that the societal benefit would outweigh the cost of the scheme.

Why is it appropriate to alter the regulatory framework now?

The problems identified through the operational review and outlined in the RIS are serious and immediate, and are hindering the degree to which the scheme is addressing the problems outlined in the 2009 RIS. The alternative to addressing them now would be to wait until the statutory review that is required to occur five years after the commencement of the Act. This review will not commence before August 2016, meaning that any changes arising from it would not take effect until 1 July 2017.

In relation to Problem A (inequitable outcomes for TV and computer companies), the analysis undertaken as part of the present operational review confirms the views expressed by the television and computer industries that some of the scheme's existing conversion factors and the waste arising scaling factor for IT equipment no longer adequately reflect real product weights or the waste stream in Australia. The risk of perverse market impacts would be increased significantly if this situation remained unaddressed for another two years. This problem is hindering the degree to which the scheme is addressing the free rider problem identified in the 2009 RIS.

⁴ Product Stewardship (Televisions and Computers Regulations 2011 (SLI No 200 of 2011) Explanatory Statement

In relation to Problem B (recycling target trajectory is contributing to instability in the e-waste recycling sector that is impacting disproportionately on disadvantaged workers), the risk of further business closures amongst social and disability employers and job losses for disadvantaged workers is immediate due to the continued decline in recycling rates.

In relation to Problem C (stakeholder concern about the adequacy of current provisions underpinning health and safety and environmental performance), while there may be benefit in requiring that recycling under the scheme be done by recyclers certified to AS 5377, it is not clear that there is a need for additional regulation at this time.

Problem D (inefficiency due to changed import data) is not preventing the scheme addressing the problems it was designed to address, but is making it less efficient for its participants to do so.

WHY IS GOVERNMENT ACTION NEEDED?

Government action is needed in relation to Problems A, B and D because these problems arise from current regulatory settings, and market forces are already responding to the incentives created by those settings. There is no likelihood that market participants will take action to improve the situation. In relation to Problem C, it is not clear that Government action is needed at this time, as state and territory laws regulating environmental and health and safety performance of recyclers are already in place.

In the absence of Government action in relation to Problem B (target trajectory), local governments are the organisations most likely to take action to manage e-waste. However, most local governments lack resources to manage the quantities of e-waste arising in their jurisdictions and many will be unable to do so adequately. Management of e-waste at the local level may be less likely to drive the investment in recycling and downstream processing capacity needed over the longer term.

The objectives of government action are to:

- Ensure that the scheme is efficient and allocation of costs to television and computer importers is fair and equitable.
- Reduce the instability in the e-waste recycling sector that is impacting disproportionately on disadvantaged workers.

OPTIONS PROPOSED TO ADDRESS THE PROBLEMS

This RIS considers three options, which are elaborated below and summarised in Table 3.

Option 1 involves no regulatory change. No action would be taken at the national level to resolve the problems identified in this RIS. Instead, additional actions could be undertaken by other levels of government or by industry. These actions may include consideration of support to stabilise the recycling industry, and more active monitoring of e-waste recyclers and, where necessary, enforcement of state health and safety and environmental regulation or management of cleanup operations.

Regulatory amendments to address the problems identified in this RIS would be made under options 2 and 3, with effect from 1 July 2015.

Table 3: Regulatory changes under Options 1, 2 and 3

	Option 1	Option 2	Option 3
Conversion factors for 2015–16 target	No change	Updated conversion factors for some products applying to the 2015–16 target period (i.e. applying to imports made in 2014–15)	
Product codes and conversion factors from 1 July 2016	No change	Updated product codes and conversion factors for some products applying from the 2016–17 target period (i.e. applying to imports made from 1 July 2015)	
Waste arising scaling factor	No change	Updated waste arising scaling factors for IT products from 1 July 2015: <ul style="list-style-type: none"> – 0.8 for computers – 0.88 for printers and computer parts and peripherals 	
Target trajectory	No change	Revised target trajectory starting at 44 per cent of waste arising in 2015–16 and reaching 80 per cent in 2021–22	Revised target trajectory starting at 50 per cent of waste arising in 2015–16 and reaching 80 per cent in 2026–27
Use of Australian Standard 5377	No change	Certification to AS5377 mandatory for scheme recycling from 1 July 2016	
Settlement date for target (import) data	No change	Introduction of a settlement date for target (import) data of 31 October each financial year	

Compared to Option 1, Options 2 and 3:

- Deliver the changes requested by the television and computer industries to scheme settings that provide for the calculation of the weights of imported products and the total amount of waste available for recycling, including product codes, conversion factors and the waste arising scaling factor.
- Provide for more recycling over the next three years. This will help to stabilise the recycling sector and reduce impacts on disadvantaged workers, but will increase the regulatory cost to the television and computer industries over the next three years.
- Significantly reduce the cost to industry over the longer term, due to lower recycling levels each year from 2018–19 and in total over the twenty-year analysis period.

Regulatory changes proposed under Options 2 and 3

Conversion factors affecting recycling targets in 2015–16

New conversion factors are proposed for target calculation in 2015–16 (i.e. these would apply to products imported during 2014–15). The new conversion factors would be included as Schedule 1C to the Regulations, and are provided at Appendix 1 to this RIS.

These conversion factors have been developed based on product weight data provided by television and computer importers. Because they will apply to products being imported in 2014–15, it has been possible to estimate the impact of these new factors based on part-year import data. It is estimated that the new conversion factors will reduce the calculated weight of 2014–15 television imports by around 25 per cent and imports of computers, printers and computer parts and peripherals by around 7 per cent. Because waste arising is calculated using the average three years' import data, the impact of these scaling factors on waste arising will be seen over three years from 2015–16 to 2017–18. This reduction is factored into the waste arising projections for Options 2 and 3 in Table 4.

Product codes and conversion factors affecting recycling targets from July 2016

New product codes and conversion factors are proposed for target calculation from 1 July 2016 (i.e. these will apply to products imported from 1 July 2016). The new product codes and conversion factors would be included as Schedule 1D to the Regulations, and are provided at Appendix 2 to this RIS.

These product codes and conversion factors have been developed based on product weight data provided by television and computer importers. They will first affect waste arising in 2016–17 and their impact has been factored into the waste arising projections for Options 2 and 3 in Table 5.

Waste arising scaling factor

It is proposed to amend the waste arising scaling factor applicable to all IT products under the scheme.

A scaling factor of 0.8 would apply to computers (defined in the Regulations as products listed in Part 2 of the relevant schedule).

A scaling factor of 0.88 would apply to printers and computer parts and peripherals (defined in the Regulations as products listed in Parts 3 and 4 of the relevant schedule).

The scaling factor for televisions will remain at 0.9.

The lower scaling factor for IT equipment is supported by analysis of import data held by the Customs. Annual exports of televisions are less than 1 per cent of imports, while average annual exports of IT equipment are more than 11 per cent of imports. The rates of export of printers and computer parts and peripherals are lower than the rate of export of computers.

Analysis of exports of IT equipment is made challenging by lack of data and lack of clarity in the available data. Information provided by the computer industry suggests that a relatively high proportion of IT equipment, particularly from business sources, is exported for reuse,

but that there may be a tendency for IT equipment brokers and other exporters to classify these exports as something other than IT equipment.

The Department's analysis of available export data suggests that the rate of export of IT equipment for reuse is between 11.1 per cent and 15.2 per cent per year. Data on exports of TVs and IT equipment is summarised in Table 4 below. The export weights for 2012–13 and 2013–14, which provide the upper bound of 15.2 per cent average exports for IT equipment, are based on 2015 analysis by Pitt and Sherry⁵.

The figure of 15.2 per cent is likely to include some IT equipment that should not be considered in relation to the scaling factor. This includes

- I. IT equipment exported for reasons other than reuse, including items listed as defective. Products exported in small amounts (less than 10 units) were also excluded, as this does not appear to be consistent with the export of products for reuse as described by the IT industry. This accounted for 13 per cent of IT exports.
- II. Items exported under three of the 14 Customs AHECC codes (export codes) included in the Pitt and Sherry analysis, including AHECC code 85182900, which does not have a corresponding import code under the scheme, and AHECC code 85044001 and AHECC code 85258090, which include products not covered by the scheme. This accounted for 16 per cent of IT exports.
- III. Computer parts arising from recycled products.

The products described at I and II above were excluded from analysis, resulting in an adjusted average exports percentage of 11.1 per cent, which is considered to be a reasonable lower bound for exports of IT products. The AHECC codes used in this analysis are listed in Appendix 3. It should be noted that this includes computer parts, which may or may not have come from products already counted as recycled (i.e. recycling includes dismantling of products for the purposes of recovering reuseable materials, and may result in some components being made available for reuse).

Table 4: Export data summary

	2012–13			2013–14			2012–13 to 2013–14	
	Imports* (tonnes)	Exports (tonnes)	Exports (% of imports)	Imports* (tonnes)	Exports (tonnes)	Exports (% of imports)	Average exports (% of imports)	Adjusted average exports (% of imports)
TVs	65,357	199	0.3	62,440	334	0.5	0.4	0.4
IT	87,705	6,896	7.9	83,790	19,090	22.8	15.2	11.1

* The relevant imports are those included in waste arising calculations for the financial year, i.e. average annual imports over the previous three financial years.

⁵ Pitt and Sherry (April 2015) – *Examining the implications of alternative parameters and target trajectories*

Further analysis indicated that printers, scanners and other computer peripherals accounted for just 9.7 per cent of exported IT equipment, which supports the application of higher scaling factors for these product types than for computers.

It is suggested that further analysis of exports, in relation to the waste arising scaling factor, be undertaken in the context of the statutory review scheduled to commence in 2016.

Target trajectory

Options 2 and Option 3 have different recycling target trajectories. The percentage recycling target trajectories are given in full in Table 5 below. Because the material recovery target is a proportion (90 per cent) of total recycling in a financial year, the recycling target trajectory effectively also determines the material recovery trajectory under each option.

Table 5: Percentage target trajectories and projected waste arising and scheme recycling targets for Options 1, 2 and 3

Financial year	Option 1			Option 2			Option 3		
	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)
2015-16	116,663	37	43,165	106,431	44	46,830	106,431	50	53,215
2016-17	113,766	40	45,506	101,640	52	52,853	101,640	58	58,951
2017-18	115,422	48	55,403	100,842	56	56,472	100,842	62	62,522
2018-19	117,881	56	66,013	105,747	60	63,448	105,747	64	67,678
2019-20	122,104	64	78,147	108,653	64	69,538	108,653	66	71,711
2020-21	124,200	72	89,424	109,651	72	78,949	109,651	68	74,563
2021-22	126,468	80	101,174	110,770	80	88,616	110,770	70	77,539
2022-23	127,399	80	101,919	110,902	80	88,722	110,902	72	79,850
2023-24	129,305	80	103,444	112,037	80	89,630	112,037	74	82,907
2024-25	133,265	80	106,612	115,225	80	92,180	115,225	76	87,571
2025-26	135,458	80	108,366	117,011	80	93,609	117,011	78	91,269
2026-27	137,915	80	110,332	119,139	80	95,311	119,139	80	95,311
2027-28	137,891	80	110,313	119,190	80	95,352	119,190	80	95,352
2028-29	139,823	80	111,858	121,004	80	96,803	121,004	80	96,803
2029-30	141,715	80	113,372	122,782	80	98,225	122,782	80	98,225
2030-31	144,121	80	115,297	124,925	80	99,940	124,925	80	99,940
2031-32	146,975	80	117,580	127,440	80	101,952	127,440	80	101,952
2032-33	155,438	80	124,350	134,991	80	107,993	134,991	80	107,993
2033-34	156,881	80	125,505	136,249	80	108,999	136,249	80	108,999
2034-35	158,210	80	126,568	137,407	80	109,926	137,407	80	109,926
Total 2015–16 to 2034–35 (tonnes)			1,954,349			1,735,347			1,722,278

Option 1 maintains the existing recycling target trajectory.

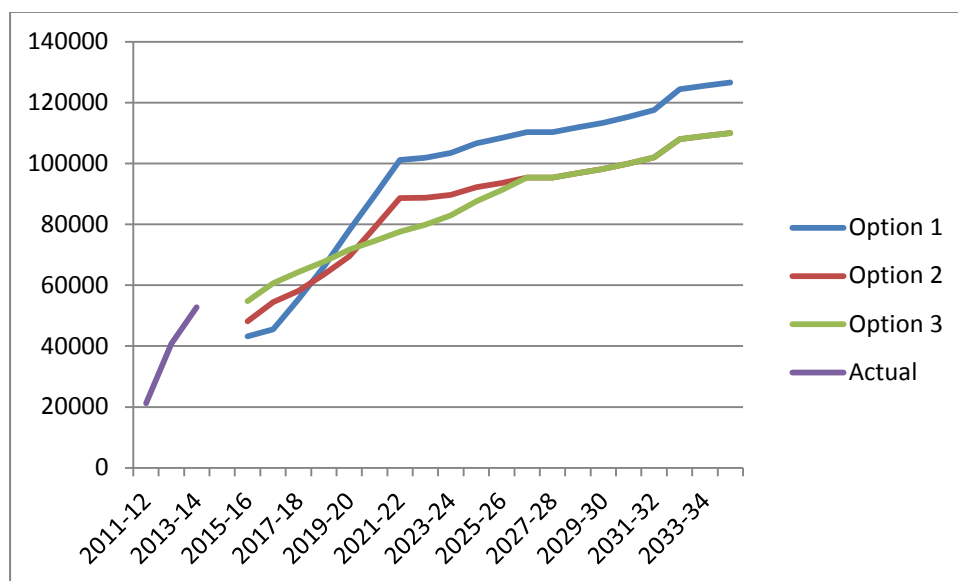
Option 2 is intended to provide an increase in the recycling target over the short term to address the risks identified with the existing recycling target trajectory. From 2015–16 to 2018–19, the percentage recycling target is higher every year than that of Option 1. From 2019–20, the percentage recycling targets under Option 2 match those of Option 1, reaching 80 per cent in 2021–22.

Option 3 provides for a more substantial increase in industry-funded recycling over the short term than Option 2, while also delivering lower cost to industry over time. The increase in industry-funded recycling is offset by a delay in the year in which the final 80 per cent target is reached, to 2026–27.

Projected recycling trajectories under Options 1, 2 and 3 are depicted in Figure 4 below (in tonnes of recycling), along with recycling to date (including the increase from 21,200 tonnes recycling prior to commencement of the scheme). This illustrates the logic behind the trajectories proposed under Options 2 and 3, as well as the impact of proposed amendments to conversion and scaling factors on projected targets.

Options 2 and 3 provides for additional recycling (compared to Option 1) over the next three to four years. Subsequently, however, they provide for less recycling than Option 1, even when their percentage target trajectories are aligned with that of Option 1.

Figure 4: Projected recycling trajectories under Options 1, 2 and 3 (tonnes)

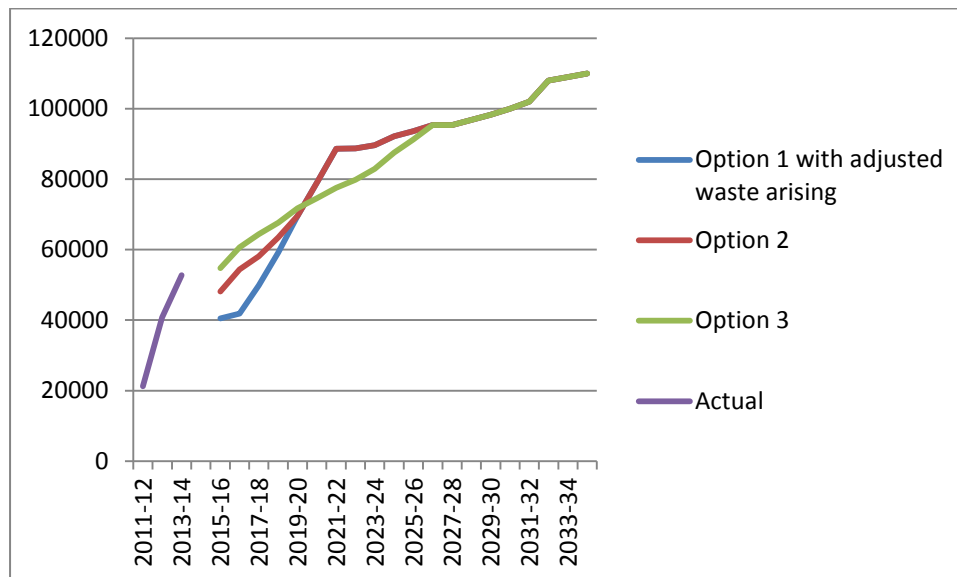


The graph in Figure 5 below provides the same recycling target trajectories for Options 2 and 3, but adds the existing target trajectory (i.e. from Option 1) calculated using the waste arising trajectory from Options 2 and 3 (i.e. allowing for the proposed amendments to conversion and scaling factors).

Figure 5 illustrates more clearly the intent and logic of the target trajectories under Options 2 and 3. Option 2 requires some additional recycling in the next three years before re-aligning with the existing target trajectory, to reach 80 per cent within the current timeframe of 2021–22. Option 3 provides for more additional recycling over the next four years, but progresses towards the final 80 per cent target with a more steady rate of growth. This means that it provides for less recycling than would otherwise occur each year from 2019–20 and 2025–

26. The revised target trajectories alone (i.e. in the absence of any changes to product codes, conversion factors and waste arising scaling factor) would result in a small increase in recycling over the twenty-year analysis period compared to Option 1.

Figure 5: Projected recycling trajectories under Options 2 and 3, and adjusted Option 1 (tonnes)



In the absence of any changes to product codes, conversion factors and waste arising scaling factor (i.e. if the waste arising trajectory was that of Option 1), recycling under the percentage recycling target trajectory in Option 2 would be 1,990,117 tonnes over twenty years, which is 35,767 tonnes, or 1.8 per cent more than would occur under Option 1.

In the absence of any changes to product codes, conversion factors and waste arising scaling factor, recycling under the percentage recycling target trajectory in Option 3 would be 1,974,420 tonnes over twenty years, which is 20,071 tonnes, or 1.0 per cent more recycling than would occur under Option 1.

Australian Standard 5377

Australian/New Zealand Standard 5377:2013 *Collection, storage, transport and treatment of end-of-life electrical and electronic equipment (AS 5377)* was developed with Australian Government support and the full involvement of scheme stakeholders. Use of AS 5377 has the potential to underpin consistent and high quality environmental and health and safety outcomes from recycling under the scheme. All recyclers certified to AS 5377 are required to have identified and minimised occupational health and safety and environmental hazards and risks at their premises, and have established and continue to maintain compliance with all applicable domestic and international regulatory requirements.

Greater uptake of AS 5377 would help provide assurance that the environmental outcomes sought through the scheme were being met and that this was being done with appropriate management of health and safety. There is widespread support among scheme stakeholders, including television and computer companies, the recycling industry and state, territory and local governments for a regulatory approach to increasing the uptake of AS 5377 for recycling under the scheme. The proposal is that co-regulatory arrangements

be required to ensure that all recycling undertaken under the scheme from 1 July 2016 be done by recyclers certified to AS 5377. It is concluded, however, that there is insufficient evidence to conclude that this proposal should be implemented at this time.

In the future, there may be an opportunity to align with international standards on e-waste management, some of which are already in use by some international recycling companies operating in Australia. Currently, however, it is considered that international standards include elements that go beyond the requirements of AS 5377 and would increase the cost of compliance for Australian recyclers. The intention behind the current proposal is to set a minimum benchmark for all recyclers in Australia to meet. If a standard were required, AS 5377 is considered the most appropriate and efficient standard.

Settlement date for target data

Under Options 2 and 3, the Regulations would be amended to establish a settlement date during each target year, after which amendments to import declarations would not be taken into account in calculating recycling targets for co-regulatory arrangements, or the converted weight of imports by a liable party. This would allow the recycling targets of co-regulatory arrangements and the import or manufacture shares of liable parties to be confirmed by November of each financial year, rather than being subject to change throughout the financial year. This reduction in red tape would also have positive flow on effects for other stakeholders, including more predictable payment arrangements for liable parties.

COSTS AND BENEFITS OF THE THREE POLICY OPTIONS

Costing assumptions validated through consultation with industry

Waste arising

Because the scheme's recycling targets are a percentage of the total television and computer waste arising each year, the amount of waste arising is a key driver for the costs and benefits of the scheme. Projections of waste arising were developed in early 2015 by Pitt and Sherry and are presented in Table 5 below. Options 2 and 3 have a different waste arising profile to Option 1, because the calculation of waste arising is influenced by policy settings in the Regulations that would change under Options 2 and 3, including the conversion factors and waste arising scaling factor.

Costs associated with collecting and recycling e-waste

Average costs to industry over the first three years of the scheme have been estimated at:

- \$1,120 per tonne of recycling target in 2012–13, with a total cost of \$46.3 million
- \$1,080 per tonne of recycling target in 2013–14, with a total cost of \$46.9 million
- \$950 per tonne of recycling target in 2014–15, with a total cost of \$40.5 million

Two different cost models for costs associated with collection and recycling over the twenty-year analysis period have been used in this RIS:

Cost Model A: Costs associated with collection and recycling remain at \$950 per tonne of recycling target. This reflects a continuation of the estimated cost per tonne of recycling target in 2014–15. Some factors may tend to reduce costs, such as economies of scale in recycling and transport, while other factors may tend to increase costs, such as a greater marginal effort required to collect e-waste as targets increase over time.

Cost Model B: Costs associated with collection and recycling will continue to decline for two years before stabilising at between \$760 and \$800 per tonne from 2017–18. This model assumes an increasing income from recycling non-glass e-waste relative to the average cost of recycling.

The analysis in this RIS uses Cost Model A in the first instance. Estimates using Cost Model B are provided in the discussion of costs to illustrate the sensitivity of the analysis to changes in cost. These cost models, and the predominant use of Cost Model A, were validated through consultation with state, territory and local governments, co-regulatory arrangement administrators and the recycling and TV and computer industries in April and May 2015.

Co-regulators provided feedback indicating that the cost passed through to TV and computer companies will be less than 100 per cent in 2015–16, as administrators are absorbing some of the costs of operation, including by operating on lower profit margins and using past excess recycling to meet 2015–16 targets (i.e. recycling that was undertaken and paid for previously by the administrators but not required to meet past recycling targets). Prices and market share data provided by the administrators indicates that TV and computer companies will pay average fees of approximately \$700 per tonne of required recycling in 2015–16, which is 26 per cent less than the estimated long-term average regulatory cost of \$950 per tonne.

Over the longer term, however, the co-regulators confirmed that the cost models used in this analysis are likely to reflect the longer term costs of the scheme.

Costs associated with mandatory use of Australian Standard 5377

The cost for mandatory certification of e-waste recyclers to Australian Standard 5377 has been estimated following consultation with industry. Recyclers advised that their costs ranged from \$6,000 to \$10,000 to achieve certification and a further \$2,000 to \$4,000 per annum to maintain it.

Based on this consultation, costs over the twenty-year analysis period have been estimated based on the following assumptions:

- There are 18 small recycling facilities, 15 large recycling facilities.
- Initial certification costs will be \$6,000 for a small facility and \$10,000 for a large facility, and these costs will be incurred in the 2015–16 financial year.
- Recurring costs of \$2,000 per year will be incurred for each small facility and \$4,000 per year for each large one.

It is also assumed that co-regulatory arrangements will gain some cost savings from reduced auditing costs. Co-regulatory arrangements are required to assess the adequacy of the

environmental and health and safety policies and procedures of their service providers. Information provided by co-regulatory arrangement administrators indicates that, as part of their management of health and safety and environmental matters, they conduct audits of potential and contracted recyclers that are similar to the audits conducted in relation to Australian Standards. The cost of these audits is around \$70,000 per audit cycle (i.e. an arrangement administrator will audit a number of recyclers in one cycle) and that these costs are likely to be incurred approximately every three years by each arrangement. It is assumed that these costs will be saved as administrators will be able to rely on certification to Australian Standard 5377 rather than conducting their own audits of recyclers.

Over the twenty-year analysis period at a 7 per cent discount rate, requiring mandatory certification of recyclers to AS 5377 is approximately cost neutral (it would result in a small cost saving to industry of \$68 over twenty years).

Other costs under Options 1 and 2

It is assumed that co-regulatory arrangement administrators and liable parties would each incur additional costs to adjust to revised target trajectories under Options 2 and 3. These costs, which were validated through consultation with co-regulatory arrangement administrators and the TV and computer industries in April and May 2015, are estimated as:

- One-off cost to each of five co-regulatory arrangements of \$6,575 (100 hours staff time)
- One-off cost to each of 135 liable parties of \$524 (8 hours of staff time)

It is assumed that the 31 October settlement date for target data under Options 2 and 3 would result in a cost saving to the five co-regulatory arrangement administrators. Currently, the Department advises administrators of revised target data several times during a financial year, with targets not finalised until late in the financial year. This amendment would enable targets to be finalised in November. It is assumed that this would result in three less target revision processes per year, leading to a cost saving for each of the five co-regulatory arrangements of \$785 per year (4 hours of staff time per revision process).

Costs and benefits of the three options

Partial Analysis - Costs and benefits over the next twenty years – quantifiable

The analysis of quantifiable costs and benefits below indicates that the benefit to society of recycling e-waste is greater than the cost of doing so. This finding should be treated with some caution, however. The costs of recycling are relatively easy to estimate based on actual costs incurred, while quantifying the benefits is more difficult. In this RIS, revealed preference data provided by state, territory and local governments has been analysed to provide an estimate of society's willingness to pay for recycling.

Costs

Calculations of the costs of the three options are given in Tables 6 and 7 below. These are net present values in 2015 dollars, using a 7% discount rate, over twenty-year period from 2015–16 to 2034–35. Figures are given for cost models A and B.

Table 6 shows the total costs of the scheme under each option. The total costs of the scheme are projected to be lower than were projected in the 2009 RIS, because the updated projections for waste arising are lower than the 2009 projections.

Table 7 shows the changes in costs resulting from the three options. Option 1 involves no regulatory change and its costs are therefore zero.

This analysis shows that Options 2 and 3 deliver a negative cost. This results from the reduction in recycling under these options in comparison to Option 1, due to the changes to conversion and scaling factors.

At -\$86.3 million (Cost Model A), the cost of Option 3 is slightly lower than Option 2, at -\$85.3 million. This is because Option 3 provides a slightly higher recycling target offset to the television and computer industries over the analysis period than Option 2.

The figures for Cost Model B also show a lower cost under Options 3 (-\$67.1 million) than Option 2 (-\$66.5 million). These figures are higher than those under Cost Model A because the avoided cost associated with each tonne of recycling not undertaken is less if the total cost of recycling is lower.

Table 6: Total costs of Options 1, 2 and 3 from 2015–16 to 2034–35

	Total recycling 2015-16 to 2034-35 (‘000 tonnes)	Regulatory costs (\$ million)	
		Cost Model A	Cost Model B
Option 1	1954.3	888.2	730.2
Option 2	1735.3	802.9	663.7
Option 3	1722.3	801.9	663.1

Table 7: Change in costs of Options 1, 2 and 3 from 2015–16 to 2034–35

	Change in recycling 2015-16 to 2034-35 (‘000 tonnes)	Regulatory costs (\$ million)	
		Cost Model A	Cost Model B
Option 1	0.0	0.0	0.0
Option 2	-219.0	-85.3	-66.5
Option 3	-232.0	-86.3	-67.1

Although Options 2 and 3 will deliver cost savings to over the longer term, their short term costs are higher than those of Option 1. The television and computer industries expressed concern during the operational review that additional cost in 2015–16 would be difficult to build into companies’ business models due to the short notice they will receive before 1 July 2015. Measures have been taken to address this concern, including by:

- Providing a consultation paper in November 2014 that canvassed:
 - A range of potential target increases, including possible percentage targets of 48 per cent, 52 per cent and 56 per cent for 2015–16.

- The potential impact on required recycling of changes to conversion factors, product codes and waste arising scaling factor.
- All other regulatory changes in RIS Options 2 and 3.
- Reducing the range and magnitude of percentage targets proposed in the regulatory change options, to 44 per cent and 50 per cent in 2015–16, based on feedback from the TV and computer industries.
- Updating the projections of waste arising to provide a more robust estimate of recycling targets, in tonnes, under the three RIS options. The best available projection of waste arising in 2015–16 at the time of publication of the review paper was 135,265 tonnes. Based on that projection, the estimated recycling target in 2015–16 under current settings (i.e. 37 per cent target) was 50,048 tonnes, while the highest target proposed in the review paper (56 per cent) was 75,748 tonnes.

As a result of these measures, TV and computer companies now have a clearer indication of the range of costs they may be asked to bear in 2015–16, and this range is both lower and narrower than would have been anticipated based on the proposals included in the November review paper.

In 2015-16, Option 2 will cost \$3.5 million and Option 3 \$9.5 million, compared to Option 1. Assuming full cost pass-through to TV and computer companies, the impact on imports of TVs and computers is estimated at an average of \$0.11 per unit (i.e. per individual product imported) under Option 2 and \$0.30 per unit under Option 3, based on 2013–14 import figures of 31,605,143 units imported by liable parties. By weight of products, the impact is estimated at \$0.03 per kilogram under Option 2 and \$0.08 per kilogram under Option 3, based on imports by liable parties in 2013–14 weighing a total of 119,034.5 tonnes.

For an LCD television with a screen size between 99cm and 109cm, which has a conversion factor of 11.4kg for 2015–16 target calculation under Options 2 and 3, the cost impact would be \$0.34 under Option 2 and \$0.91 under Option 3.

For a laptop, notebook or tablet computer weighing less than 1kg, which has a conversion factor of 0.6kg for 2015–16 target calculation under Options 2 and 3, the cost impact would be \$0.02 under Option 2 and \$0.05 under Option 3.

Over the three years from 2015–16 to 2017–18, the total NPV costs of Options 2 and 3 compared to Option 1 are projected to be \$10.2 million and \$25.6 million respectively. Option 2 is projected to deliver a small total NPV cost reduction within six years (-\$4.5 million from 2015–16 to 2020–21), and Option 3 within 7 years (-\$0.9 million from 2015–16 to 2021–22).

Benefits

The benefits of the options are more difficult to quantify. Based on the limited available data on consumers' valuation of recycling, it is estimated that the societal value of recycling is higher than the cost of recycling and may be in the order of \$1341 per tonne.

This figure is based on analysis of data on the costs of recycling paid by state, territory and local governments prior to the commencement of the scheme. Data on recycling costs were provided by the ACT, South Australian and Western Australian Governments and the Gold Coast City Council. Based on this data it is estimated that the average cost to jurisdictions of collecting and recycling e-waste prior to the scheme was approximately \$1255 per tonne in 2011 dollars. This is based on an average recycling fee of \$805 per tonne across jurisdictions, and assumed costs of \$450 per tonne for collection, transport and administration (from Pitt and Sherry 2015). Converting this to 2015 dollars gives a figure of \$1341 per tonne (using the inflation calculator at <http://www.rba.gov.au/calculator/annualDecimal.html>).

From this limited analysis it may be concluded that the value of e-waste recycling to those state, territory and local governments that chose to recycle TVs and computers prior to the scheme's commencement may be in the order of \$1341 per tonne.

The data on revealed preferences of consumers is even more limited. Some data is available from the ACT, which prior to the scheme prohibited disposal of TVs and computers to landfill and had a user-pays system in place for recycling TVs and computers. Data from the ACT is presented in Table 8 below.

This data shows that over a six month period prior to the commencement of collections under the scheme in the ACT in May 2012, consumers paid for the recycling of 366 tonnes of waste TVs and computers. The fee levied per collected item was between \$15 and \$40, which is estimated to be equivalent to a cost of approximately \$1500 per tonne. Co-regulatory arrangements reported collecting a total of 3,434 tonnes of e-waste in the ACT between May 2012 and the end of the 2012–13 target year. The monthly rate of collection was 4 times higher under the scheme than under the user-pays system. This suggests that, in the ACT, 4 times more people will use an e-waste recycling service that is free of charge, than will use a recycling service at an equivalent cost of \$1500 per tonne where no other legal disposal options are available.

From such limited data, it is not possible to extrapolate the value placed on recycling by those using the free service, or those that did not use any recycling service during this period. However, if it is assumed that 25 per cent of consumers using the free recycling service would have been willing to pay \$1500 per tonne and the remaining consumers were willing to pay between \$0 and \$1499 per tonne, then the average valuation of ACT consumers would be between \$375 and \$1499 per tonne.

Table 8: Collection rates for user pays and free recycling services in the ACT

Cost to consumer (\$/tonne)	Months of collection	Total collected (tonnes)	Collection rate (tonnes/month)
1500	6	366	61
0	14	3434	245

The figures of \$1341 per tonne based on revealed preferences of some state, territory and local governments and between \$375 and \$1499 based on analysis of ACT collection data are broadly consistent with the analysis of societal benefits included in the 2009 RIS. This analysis was based on stated preference, and suggested a societal valuation of \$963 per tonne in 2009 dollars, equivalent to \$1094 in 2014 dollars.

Tables 9 and 10 below show the quantifiable benefits of Options 1, 2 and 3 over twenty years, using a 7 per cent discount rate and the estimate of \$1341 societal benefit per tonne of recycling. This analysis shows that Option 1 has the highest societal benefit, due to its higher level of recycling caused the higher calculation of waste arising under current conversion and scaling factors.

Excluding the effect of the current conversion and scaling factors on the level of recycling under the current trajectory (i.e. using the recycling trajectory under Option 1 and the waste arising trajectory from Options 2 and 3), the total quantifiable benefit of recycling under Option 1 would be 1070.8 million, which is lower than Options 2 and 3.

Table 9: Total quantifiable benefits of Options 1, 2 and 3 from 2015–16 to 2034–35

	Total recycling 2015-16 to 2034-35 (‘000 tonnes)	Quantifiable benefits (\$ million)
Option 1	1954.3	1,254.8
Option 2	1735.3	1,133.4
Option 3	1722.3	1,131.9

Table 10: Change in quantifiable benefits of Options 1, 2 and 3 from 2015–16 to 2034–35

	Change in recycling 2015-16 to 2034–35 (‘000 tonnes)	Quantifiable benefits (\$ million)
Option 1	0.0	0.0
Option 2	-219.0	-121.4
Option 3	-232.0	-122.9

Partial Analysis - Benefits over the next twenty years - unquantifiable

Unquantifiable benefits of each option have also been considered, and are presented below in relation to each of the change proposals included in this RIS.

Because Option 1 involves no regulatory changes, none of the benefits discussed below would apply under Option 1. The relative benefits of Options 2 and 3 are discussed in relation to the proposal to amend the target trajectory. In all other cases, the benefits would be identical under Options 2 and 3.

Conversion factors for 2015–16 target (i.e. applying to products imported between 1 July 2014 and 30 June 2015)

As already noted, updates to conversion factors will ensure that the original policy intent of the scheme, which is that the recycling obligations of television and computer companies reflects a reasonable estimate of the weight of their current imports, is met. Failure to amend out-of-date conversion factors would result in some importers' current obligations reflecting the weights of legacy waste products rather than their current imports.

The magnitude of changes to the conversion factors reflects the degree to which the current conversion factors no longer reflect current imports. Based on analysis of import data from June 2014 to February 2015 it is estimated that the new conversion factors for the 2015–16 target year will result in a calculation of waste arising in relation to televisions that is 25 per cent lower than would be calculated using the existing conversion factors. The reduction in waste arising for computers, printers and computer parts and peripherals is estimated to be around 7 per cent. A key benefit of amending the conversion factors is therefore that it will avoid a significant overestimation of waste arising and therefore a higher recycling burden for importers than intended by the scheme, at any given percentage target level.

Product codes and conversion factors from 1 July 2016 (i.e. applying to products imported from 1 July 2015)

Following consultation with industry on the scheme's product codes, the Australian Bureau of Statistics updated the statistical codes in the Australian Working Tariff, for some television and computer products. These new statistical codes:

- Provide for greater specificity for some products where there is currently a wide range of weights of products imported under one product code.
- Provide for the classification of televisions by weight rather than screen size.

New product codes are proposed to correspond to these new statistical codes, and applicable conversion factors have been developed. Amending the scheme to incorporate these new product codes and conversion factors by 1 July 2016 will avoid the scheme's product codes becoming inconsistent with the Australian Working Tariff from which they are derived.

The benefits of the new product codes and conversion factors will be that the calculated weights of relevant products will be less likely to be significantly higher or lower than the actual weight. For televisions, a sufficient reduction in the weight of a product of a given screen size will result in the product moving to a lower weight category. This will mean that the conversion factors for televisions will remain more accurate over time. This brings treatment of televisions into line with existing, weight-based product codes for computers and printers.

Waste arising scaling factor

Similarly to the changes to conversion factors, the proposed update to the waste arising scaling factors for computers, printers and computer parts and peripherals will ensure consistency with the intent of the scheme, that companies' recycling obligations reflect the contribution to the waste stream associated with their current imports. It has been demonstrated, based on export data, that the contribution of computer products to the waste stream is overestimated under current settings. The proposed amendment to the scaling

factor will therefore make the scheme more consistent with its policy intent and will ensure that it is fairly applied to computer importers.

Recycling target trajectory

As noted under *Assessing the problem* above, instability in the e-waste sector is impacting disproportionately on disadvantaged workers in Australian Disability Enterprises. Revision of the trajectory will provide for greater stability by providing for additional recycling to be undertaken over the next three years than would otherwise be the case.

Option 3 is expected to deliver greater stability than Option 2. Under Option 3, recycling will return immediately to a level similar to that in 2013–14, with a further increase in 2016–17. The level of recycling under Option 3 is therefore expected to be sufficient to avoid any further reversal of the employment gains made in the sector during 2012–13 and 2013–14.

The improvement in stability will benefit the sector as a whole. Although there is no guarantee that the additional recycling will result in additional throughput for any particular firm, it is expected that the greater stability will address the risks to disadvantaged workers in Australian Disability Enterprises.

Co-regulatory arrangements have indicated throughout the review that their ability to engage with Australian Disability Employers will be greater if recycling targets are higher. They have also stated their intention to engage with Australian Disability Enterprises under those circumstances, noting the important role that these firms play in the recycling process.

Co-regulatory arrangements have also indicated that with higher targets, they will be more willing to consider entering into multi-year contracts with recyclers, including Australian Disability Enterprises, than they have been to date. Multi-year contracts will provide greater certainty for recyclers, and is likely to lead to greater stability of employment for disadvantaged workers.

As outlined under *Secondary benefits of adjusting the recycling target trajectory* below, there is some evidence to suggest that higher targets lead to higher collection rates in non-metropolitan areas. This is likely to benefit those Australian Disability Enterprises that are located in regional areas.

Secondary benefits of adjusting the recycling target trajectory

In addition to the primary benefits discussed above, adjusting the target trajectory will have secondary benefits for a number of stakeholder groups.

One benefit may be that the development of specialist recycling capacity required to meet the material recovery target in future years will occur:

- In a timeframe that increases the likelihood that the target will be met.
- More efficiently due to the reduced likelihood that capacity developed to date will be lost.

The costs to establish specialist e-waste recycling capacity are considerable, and significant lead times are required to have infrastructure, expertise and markets in place to produce and market the outputs of recycling. One firm informed the Department that it invested \$4 million in 2013 to establish a new e-waste recycling facility capable of specialist processing of

cathode ray tube glass. Other firms have provided cost estimates of \$1 million to purchase and install machinery capable of crushing cathode ray tube glass, and \$750,000 to upgrade an existing crusher to process the glass to specifications required by an overseas market.

Although in some cases it may be more efficient to export difficult and hazardous components for specialist recycling, hazardous waste legislation makes this difficult. Hazardous waste legislation gives effect to Australia's obligation under the Basel Convention to process hazardous waste in Australia in preference to exporting it.

While some investment already occurred during the period of rapid increase in recycling during 2012–13 and 2013–14, this capacity is at risk of being lost due to the downturn in recycling that has occurred in 2014–15 and is set to continue for two more years. A number of recyclers have already ceased operating, and other recyclers have reported experiencing financial distress. At least one cathode ray tube glass crushing facility has been decommissioned due to financial difficulties. Losing more specialist recycling capacity over the next two years only to begin rebuilding it again from 2017–18 is likely to be less efficient than providing more stable market conditions conducive to maintaining existing capacity and investment in new capacity, by adjusting the target trajectory.

Option 3 is likely to deliver this benefit to a greater degree than Option 2, because, as shown in Figure 7, Option 3 provides for a level of recycling in 2015–16 that is closer to the level of recycling achieved in 2013–14 than does Option 2. It is expected that Option 3 would therefore have a greater immediate effect on the stability of the e-waste sector and make it more likely that existing capacity would be maintained.

Consumers will have more opportunities to have their waste televisions and computers recycled at a time when consumer demand⁶ is known to exceed the existing supply of recycling opportunities. Of the 52,735 tonnes of waste recycled under the scheme in 2013-14, around 41,000 tonnes came from collection services accessible to the public, with the remaining 12,000 coming from business sources. Despite this high level of public collection, 29 submissions from local government bodies in response to the operational review paper noted that community demand for recycling is greater than the supply of funded recycling available in their jurisdictions. These submissions include LGA NT (representing 17 councils), LGA SA (representing 68 councils) and LGA NSW (representing 120 councils).

Advice from local government and the continuing accumulation of stockpiles in some jurisdictions since the commencement of the scheme (the Department is aware of one such stockpile of 1200 tonnes of waste televisions and computers) suggests that demand will remain strong in the near future. It is more difficult to project the level of demand beyond the near term, suggesting that the potential cost of reducing the supply of recycling from 2019-20 under Option 3 relative to Option 1 is less than the benefit of increasing recycling in the near term.

Some stakeholders have raised concerns about an inequitable distribution in the provision of recycling services around the country. Areas where costs of collection and recycling are higher, such as Western Australia, Queensland and other regional areas, have received less access to scheme services than other areas, particularly metropolitan areas. These

⁶ Demand for recycling in this context means the quantity of e-waste handed in to scheme collection services.

stakeholders have noted that local governments in less serviced areas incur greater cost in managing e-waste, but that any cost pass-through by TV and computer companies will not be confined to those areas receiving better greater access to recycling services.

The earlier increasing in recycling targets under Options 2 and 3 than Option 1 is likely to contribute to more equitable distribution of services over the next three to four years. There is some evidence that a higher proportion of the total products recycled are collected in non-metropolitan areas at higher overall levels of recycling. Table 11 below shows the overall percentage of waste collected from publicly accessible collection services in metropolitan and non metropolitan areas, and collection services provided solely to businesses. This confirms that the distribution in public collection services has been strongly weighted towards metropolitan areas, and also shows that collections in non-metropolitan areas grew at a disproportionately high rate as overall recycling increased over the scheme's first two years.

Table 11: Collection rates from metropolitan, non-metropolitan and business-only sources

Year	Total weight recycled (tonnes)	Proportion collected: Metropolitan	Proportion collected: Non-metropolitan	Proportion collected: Business-only
2012–13	40,813	61	18	21
2013–14	52,735	58	20	22

While the data suggests that collections in non-metropolitan areas increased as overall recycling was increasing, data on the closure of publicly accessible collection services since the end of 2013–14 suggests that as recycling has decreased following the peak in 2013–14, the number of services provided in non-metropolitan areas may have been reduced at a disproportionately high rate. Of 93 sites reported as having been ceased between 30 June 2014 and June 2015, 82 per cent were in non-metropolitan areas.

The greater stability in the e-waste recycling sector due to an adjusted target trajectory, particularly under Option 3, will also have flow-on benefits. As previously noted, where e-waste recyclers experience financial distress, which is more likely to occur under the unstable market conditions under Option 1, the risk of environmental and health and safety incidents will be higher, requiring closer monitoring by regulators. Under more stable market conditions, monitoring of the sector by state and territory EPAs and health and safety regulators is likely to be more efficient. State governments are also less likely to be required to fund the cleanup of abandoned e-waste stockpiles.

Firms in the recycling industry will experience more stable market conditions under Options 2 and 3, with greater stability under Option 3 than Option 2. This will reduce risk associated with investment and short-medium term financial viability under current conditions.

Mandatory use of AS 5377

Although there is insufficient evidence to support additional regulation at this time, it is recognised that requiring co-regulatory arrangements to use only recyclers that are certified to AS 5377, at facilities covered by that certification would benefit some stakeholder groups.

By setting a minimum benchmark for the health and safety and environmental policies and procedures, AS 5377 would address the concerns of co-regulatory arrangements and recyclers that by meeting adequate standards, they are at a competitive disadvantage in relation to competitors that work to lesser standards.

Co-regulatory arrangements, the Australian Government and state and territory health and safety and environmental regulators would be able to determine, more efficiently, that adequate performance standards are being applied by recyclers under the scheme. To the degree that it assisted state and territory regulators in monitoring and enforcing existing laws, mandatory use of AS 5377 may reduce the likelihood of environmental underperformance like that experienced in NSW during the first two years of the scheme.

Settlement date for target (import) data

This change would benefit scheme participants by providing certainty over recycling targets from November each financial year. This would enable co-regulatory arrangements to finalise their collection and recycling strategies sooner than they currently can. This will have flow on effects to importers, who will know the costs of the scheme sooner in the financial year. It will also have positive flow on effects for other stakeholders, including recyclers and collection service operators, which are less likely to experience fluctuations in through put if the co-regulatory arrangements are not experiencing changes to their targets during the financial year.

Total Analysis - Costs and benefits over the next twenty years – quantifiable plus unquantifiable

This section of the RIS provides an overview of the quantitative and qualitative analyses above, arranged by stakeholder groups.

Television and computer industries

Television and computer companies fund the scheme. Under Options 2 and 3 they will face higher costs in the short term, with higher short-term costs under Option 3. Total costs will be lower over the next ten years and twenty years under Options 2 and 3, with the Option 3 having the lowest costs. Adjustments to product codes and conversion factors will provide an ongoing benefit those companies importing products under the relevant product codes. The reduction in the scaling factor will benefit companies importing computers, printers and computer parts and peripherals.

Recycling industry

Firms in the recycling industry will experience more stable market conditions under Options 2 and 3, with greater stability under Option 3. This will reduce risk around investment and short-medium term financial viability. This will have a flow on effect to employment in the industry, including employment of persons with a disability.

Should certification to AS 5377 be required, the cost of undergoing audits would be borne directly by recyclers, rather than by co-regulatory arrangements. Those recyclers already performing to a high standard would benefit from the removal of any price disadvantage they currently face in relation to competitors meeting lesser health and safety and environmental standards.

Workers in Australian Disability Enterprises

People with a disability working in the e-waste sector would benefit from greater employment stability.

State, territory and local governments

The short-term increase in recycling under Options 2 and 3 is likely to result in some local government areas receiving a greater level of service under the scheme than they have to date. There is some evidence to suggest that the inequitable distribution of collection services between metropolitan and non-metropolitan areas will be partly addressed sooner than would occur under Option 1.

To the degree that it assisted state and territory regulators in monitoring and enforcing existing laws, mandatory use of AS 5377 may reduce the likelihood of environmental underperformance like that experienced in NSW during the first two years of the scheme.

The public

The public will have more opportunities to have their waste televisions and recycled in the next three to four years under Options 2 and 3, with more opportunities under Option 3 than Option 2. Over the longer term, lower recycling volumes under Options 2 and 3 compared to Option 1 may result in fewer opportunities to have products recycled.

Sensitivity analysis

Table 12 below presents a sensitivity analysis of the net present value of costs under Options 1, 2 and 3 over twenty years at 4 per cent, 7 per cent and 10 per cent discount rates, under cost models A and B. This analysis shows that the cost is lower under each option at a 4 per cent discount rate, and higher at a 10 per cent discount rate. Using a 4 per cent or 7 per cent discount rate, Option 3 has lower cost than Option 2. Using a 10 per cent discount rate, however, Option 2 has lower cost than Option 3. This is because the savings under Option 3 from lower recycling in the out years have a lower impact the higher the applied discount rate.

Table 12: Net present values of Options 1, 2 and 3 over twenty years from 2015–16 to 2034-35 at 4 per cent, 7 per cent and 10 per cent discount rates, under Cost Models A and B.

Alternative Discount Rates	Change in recycling 2015–16 to 2034–35 ('000 tonnes)	4%	7%	10%
Option		Costs (\$ m)	Costs (\$ m)	Costs (\$ m)
Cost model A				
Option 1	0.0	0.0	0.0	0.0
Option 2	-219.0	-123.2	-85.3	-60.1
Option 3	-232.0	-128.1	-86.3	-58.3
Cost Model B				
Option 1	0.0	0.0	0.0	0.0
Option 2	-236.7	-97.3	-66.5	-46.2
Option 3	-232.1	-101.1	-67.1	-44.5

Regulatory burden measure

Table 13 below presents the costs set out above, but not the benefits, consistent with the regulatory burden measurement framework. These costs have been calculated over ten years, compared to a business as usual scenario, and the average of the period is presented in Table 13. In contrast with the cost benefit analysis above, no discount rate has been applied to these figures.

The assumptions underlying these estimates were validated through consultation with state, territory and local governments, co-regulatory arrangement administrators and the recycling and television and computer industries in April and May 2015 (see consultation papers at Appendices 5 and 6).

As Option 1 involves no regulatory change, there is no change to the regulatory burden associated with this option.

Options 2 and 3 both result in a reduction to the regulatory burden over ten years. The average annual cost reduction over ten years is \$6.037 million under Option 2 and \$7.057 million under Option 3.

These cost reductions result from the reduction in recycling over ten years under Options 2 and 3, compared to Option 1.

Under Option 2, the average annual change in recycling is -6,357.1 tonnes per year. Using Cost Model A (i.e. \$950 per tonne), this results in a cost of -\$6.039 million.

Under Option 3, the average annual change in recycling is -7,430.1 tonnes per year. Using Cost Model A (i.e. \$950 per tonne), this results in a cost of -\$7.057 million.

The other regulatory costs under Options 2 and 3 described above, including those associated with certification of recyclers to AS 5377 and adjustment to a new recycling trajectory are an average of \$0.002 million per year.

Table 13: Regulatory burden measurement of Options 1, 2 and 3 over ten years

Instrument Title				
Enhancements to National Television and Computer Recycling Scheme				
Average annual regulatory costs (from business as usual)				
Change in costs (\$ million)	Business	Community organisations	Individuals	Total change in costs (\$ million)
Total, Option 1	\$0	\$0	\$0	\$0
Total, Option 2	-\$6.037	\$0	\$0	-\$6.037
Total, Option 3	-\$7.057	\$0	\$0	-\$7.057
Cost offset (\$ million)	Business	Community organisations	Individuals	Total, by source (\$ million)
Agency	\$0	\$0	\$0	\$0
Are all new costs offset? (<i>tick</i>) Deregulatory – cost offsets not required				
<input type="checkbox"/> Yes, costs are offset <input type="checkbox"/> No, costs are not offset <input checked="" type="checkbox"/> Deregulatory—no offsets required				

A key driver and area of uncertainty in the regulatory costing is waste arising. This was developed based on assumptions about the rate of TV and computer imports and disposal over time, which are detailed in the 2015 analysis by Pitt and Sherry. The projections of waste arising are more inevitably uncertain in the outward years than in the near term, and the estimated regulatory costs are sensitive to changes in waste arising from the projected trajectory. The projection for 2015–16 is most robust, as it is based on known import data for 2012–13 and 2013–14 and partial import data for 2014–15. Projections for the subsequent two years depend to a decreasing degree on known data, while projections from 2018–19 onwards depend entirely on assumptions.

If waste arising was to increase by 3 per cent per year from 2017–18 (i.e. at a higher average rate than the modelled projection trajectory), the regulatory cost of Options 2 and 3 compared to Option 1 would be lower than under the modelled scenario:

- Under Option 2, the average annual change in recycling would be -6,846.8 tonnes per year. Using Cost Model A (i.e. \$950 per tonne), this results in an annual cost of -\$6.053 million.
- Under Option 3, the average annual change in recycling would be -8,093.5 tonnes per year. Using Cost Model A (i.e. \$950 per tonne), this results in a cost of -\$7.687 million.

If waste arising remained at 2017–18 levels for the remainder of the analysis period (i.e. lower growth than the modelled projection trajectory), the regulatory cost of Options 2 and 3 compared to Option 1 would be higher than under the modelled scenario, though still negative:

- Under Option 2, the average annual change in recycling would be -5,853.6 tonnes per year. Using Cost Model A (i.e. \$950 per tonne), this results in an annual cost of -\$5.563 million.
- Under Option 3, the average annual change in recycling would be -6,622.1 tonnes per year. Using Cost Model A (i.e. \$950 per tonne), this results in a cost of -\$6.291 million.

Future variation in annual waste arising from that projected, as well as variation in the average recycling cost, will affect the magnitude of costs under any of the three options. However, due to the effect of fixed conversion factors and percentage recycling targets, the relative differences in costs between the three options will remain unchanged (i.e. Option 3 will remain the lowest cost option over the twenty-year period and Option 1 will remain the highest cost option).

CONSULTATION

The operational review of the scheme was announced in September 2014 by Minister for the Environment, the Hon Greg Hunt MP.

Overview of consultation process

Consultation was conducted in three stages: preliminary consultation meetings held from September to November 2014; public consultation on proposals in a review paper from November 2014 to February 2015, and detailed consultation on regulatory costs from April to May 2015. The list of the dates of all the meetings and the stakeholder consulted is at Appendix 4.

A preliminary assessment RIS was provided to OBPR. In response to the preliminary assessment RIS, OBPR advised that a standard form RIS was required, that targeted consultation should occur with the recycling and television and computer industries on changes to the regulatory burden and that, following this consultation, a first pass final assessment RIS should be prepared.

The process for consultation throughout the operational review was as follows:

Preliminary consultation and development of options

- September to November 2014: Roundtables hosted by Minister Hunt, the Minister's office and the Department of the Environment with state, territory and local governments, industry associations and other stakeholders involved in the consumer electronics, information technology and recycling industries.

Public consultation on options, November 2014 – February 2015

- Ten week public consultation period from 28 November 2014 to 6 February 2015, meeting the best practice requirement for consultation under RIS processes.
- November 2014: Review paper released outlining issues raised in the roundtables referred to above, proposing possible regulatory and non-regulatory response options and providing key information to inform consideration of potential cost impacts (e.g. projected recycling targets and proposal to require certification to AS 5377). The review paper served the purpose of a consultation RIS. It canvassed four recycling target trajectories, with targets for 2015–16 of between 50,048 tonnes and 75,748 tonnes, as well as a number of other regulatory amendments.
- December 2014: Roundtable meetings with industry associations and other stakeholders in the television and computer industries.
- January to February 2015: Public consultation sessions on the operational review paper held in Brisbane, Sydney, Melbourne, Adelaide and Perth.
- February 2015: 85 written submissions received from stakeholders in response to the operational review paper (these are available on the [Environment website](#)). A list of the respondents is at Appendix 5 and the summary of the responses is at Appendix 6).

Targeted consultation on key costing element: New product codes and conversion factors

- December 2014 to March 2015: Consultation with the co-regulatory arrangements, scheme liable parties and television and computer industry associations to inform development of proposed new product codes and conversion factors. Importers were invited to provide actual weights of products imported and propose new product codes. The revised product codes and conversion factors were based on their input.

State and territory governments kept informed of progress

- February 2015: Environment ministers from all jurisdictions informed of key outcomes of consultation and progress in regulatory impact analysis at the Meeting of Environment Ministers (i.e. Commonwealth and state and territory environment ministers).

Targeted consultation on Regulatory Burden Measurement Framework costing

- April 2015: A consultation paper on costings of RIS options was provided to scheme stakeholders, including representatives of the television and computer industries and the recycling industry, co-regulatory arrangement administrators, state and territory governments and local government peak bodies. The paper included the Regulatory Burden Measurement Framework costings table, as well as the detailed assumptions

underlying the costings. Costings were included for three target trajectories, with targets in 2015–16 of between 43,165 tonnes and 53,226 tonnes, and the other regulatory amendments included in this paper (other regulatory amendments proposed in the review paper were excluded from the costings paper and the RIS following consultation).

- May 2015: In response to initial stakeholder feedback on the costings paper, a revised costings paper was provided during the consultation period, including minor amendments to the recycling trajectories and targets for 2015–16 of between 43,165 tonnes and 53,215 tonnes (i.e. a reduction in the 2015–16 recycling target under Option 3 of 11 tonnes).
- May 2015: 10 written submissions were received from stakeholders in response to the Regulatory Burden Measurement consultation papers.

Following the targeted consultation with the recycling and television and computer industries on changes to the regulatory burden, a first pass final assessment RIS was prepared and provided to OBPR. Comments received from OBPR on the first pass RIS have been addressed in this second pass final assessment RIS.

Further detail on the consultation processes on the review paper and regulatory costs is given below.

Public consultation on the operational review paper

The review paper outlined the following issues that had been identified through the preliminary consultation process:

- A shortfall in funded recycling in the short to medium term.
- Instability in the e-waste recycling sector.
- Equitable outcomes for liable parties.

To address the shortfall in funded recycling, the review paper proposed three revised target trajectories:

- Trajectory 1: the recycling target percentage is increased to 48 per cent by 2015–16. The trajectory then increases by four percent per year to reach 68 per cent by 2020–21. From 2021–22 the trajectory slows, increasing by two per cent per year to meet the target of 80 per cent by 2026–27. The recycling target in 2015–16 is 64,927 tonnes.
- Trajectory 2: the recycling target percentage is increased to 52 per cent by 2015–16. The trajectory then increases by four percent per year to 2017–18, and then increases by two percent per year until 2028–29, to meet the target of 80 per cent by 2028–29. The recycling target in 2015–16 is 70,338 tonnes.
- Trajectory 3: the recycling target percentage is increased to 56 per cent by 2015–16. The trajectory then increases by two per cent per year to 72 per cent by 2023–24,

and then increases by one percent per year to meet the 80 per cent target by 2031-32. The recycling target in 2015–16 is 75,748 tonnes.

More than 75 per cent of respondents were in favour of some level of adjustment to the scheme target trajectory. A recurring message in submissions was that actual recycling must increase as a result of any percentage increase to the target trajectory – i.e. planned changes to product codes, conversion factors and waste arising should not offset any increase to target tonnage.

Support for increased recycling targets was particularly strong amongst local government organisations, who proposed much higher recycling targets (up to 100 per cent of available e-waste) and fast progression towards the peak of the scheme's rollout. Respondents in the recycling industry were also strongly in favour of adjustment to the target trajectory. The television and computer industries were either not in favour of adjusting the target trajectory, or preferred the limited adjustment over the short term. Several submissions received from state and territory governments expressed concern that the scheme's national target has led to inequitable outcomes for states where collection and transport costs for e-waste are higher, and proposed that state-based targets be considered in the 2016 statutory review.

As a result of consultation, the range and magnitude of targets for 2015–16 was reduced to contain the potential additional cost to TV and computer companies in 2015–16. The year in which the alternative target trajectories reach 80 per cent was also brought forward.

Proposals to underpin sustainable recycling capacity included:

- The establishment of a settlement date during each target year, after which amendments to import declarations would not be taken into account in calculating recycling targets for co-regulatory arrangements. While the majority of submissions expressed no view on this proposal, a number of co-regulatory arrangements and the recycling industry, who would benefit from earlier finalisation of data and recycling targets, were in favour of a settlement date.
- A proposal to allow co-regulatory arrangements more flexibility in the delivery of recycling by enabling an overlap period between target periods. This was not well supported and was opposed by a number of stakeholders and was not included for consideration in this RIS.
- A proposal that co-regulatory arrangements be required to report on their engagement of social and disability employers through the existing annual report process. This was not well supported and was opposed by a number of stakeholders and was not included for consideration in this RIS.
- A requirement that co-regulatory arrangements be required to use recyclers that are certified to AS 5377. The majority of submissions from co-regulatory arrangements, state and territory governments and the television and computer industries supported mandatory use of recyclers certified to AS 5377. The majority of local government respondents did not address this recommendation. There were some recyclers, however, that expressed concern about the potential costs faced by smaller recycling providers who would need to improve their facilities or processes in order to be certified. Respondents who gave conditional support requested

exemptions for smaller facilities, a transition period for industry, and certification of individual recycling facilities, rather than 'umbrella' certification for all of a company's operations.

- It is important to note that businesses operating in the e-waste recycling industry are responsible for their own viability, and must be prepared for the competitive and often unpredictable nature of domestic feedstock supplies, international commodity markets, and changing market conditions. Businesses with diversified feedstock supply may be better placed to deliver scheme services.

Proposals to address equitable outcomes for TV and computer companies included amendments to the scheme's product codes, conversion factors and waste arising scaling factor for IT equipment.

Feedback received on this proposal gave in principle support for updates to product codes and conversion factors, as long as the total scheme recycling volume did not decrease as a result. Submissions from importers noted that for television product codes, screen size was no longer closely correlated to weight of product.

Liability parties were strongly in favour of updates to product codes and conversion factors, based on a reduction in average product weights and the entry of new products into the market which do not fit accurately into existing product codes. There is also strong support in the television and computer industries for a move to actual weight liability. A major change to the way scheme liability is calculated was considered to be beyond the scope of the operational review, and may be considered as part of the 2016 statutory review.

State governments gave in principle support for changes to product codes and conversion factors, emphasising the need for 'robust and transparent evidence to justify any changes to conversion factors'.

Taking into account the strong support for revision of product codes and conversion factors and the identification of specific problems such as the inaccuracy of screen size based product codes, the Department undertook a project to collect and analyse actual product data from all liability parties. The information provided by liability parties was used to assess the accuracy of existing weighted conversion factors, and consider the need for revised product codes where new products had entered the market.

The results of the project, based on data provided by industry, indicated that of the 65 product codes listed in the Regulations:

- 25 required a reduction in weighted conversion factor reduced to better reflect average product weight
- 7 required an increase in weighted conversion factor to reflect underestimated average weight
- 33 accurately reflected average product weights and were not in need of any amendment.

To reflect changing technologies in television and computer manufacturing, 24 new product codes are proposed to come into effect on 1 July 2016, applying to products imported from the 2015–16 financial year onwards.

Updates to product codes change televisions to weight-based rather than screen size measurements, split product codes to reduce weight variation of products within a code, and add product codes to reflect changes in technology.

These new codes will allow importers to choose from a wider range of weight classes when classifying their products, which increases the accuracy and alignment of the associated conversion factor for each product. The Department will proceed with amendments to the Regulations to include updated product codes and conversion factors.

The waste arising scaling factor is applied to the estimated waste arising figure to reflect products which do not enter the waste stream in Australia and are therefore not available for recycling under the scheme. This primarily applies to new products which are imported into Australia and subsequently exported for sale overseas.

Stakeholder support for this proposal was generally conditional on total scheme recycling not decrease as a result of changes to the waste arising scaling factor.

Local governments were not in favour of changes to the scaling factor, believing that the existing 0.9 scaling factor for all scheme products already reduces the television and computer industry's liability significantly and should not be decreased.

The Australian Information Industry Association strongly support revising the scaling factor from 0.9 to 0.6, based on the view that many IT products are exported as new or for reuse and do not enter the waste stream, or are stored by households or businesses for long periods of time.

Analysis of available export data indicated that the rate of recorded export of IT equipment may be in excess of 10 per cent of imports, compared to less than 1 per cent for televisions. Providing strong grounds for differentiated scaling factors between TVs and IT products. Analysis also showed that exports of printers and computer peripherals were considerably less than exports of computers, indicating that differential scaling factors between computers and other IT products were appropriate. Based on the available information, a model for IT scaling factors of 0.8 for computer systems and 0.88 for printers, computer parts and peripherals was included in Options 2 and 3.

Consultation on regulatory costs

On 23 April 2014, the Department of the Environment provided a consultation paper on costings of proposed changes to the scheme, to state, territory and local governments, co-regulatory arrangement administrators and the recycling and television and computer industries, including the Waste Management Association of Australia, the Australian Council of Recycling, the Australian Industry Group, the Consumer Electronics Association and the Australian Information Industry Association. The paper is at Appendix 7 to this RIS.

The paper outlined three options and their associated costs to television and computer companies with a responsibility for funding scheme recycling. Option 1 was a 'no-change' option and provided a baseline against which the impacts of any regulatory change could be measured. Options 2 and 3 were regulatory change options designed to address issues

considered in the review paper. They also involved reducing the total cost of the scheme as paid for by industry over time.

The paper included three revised target trajectories that had been developed following consultation on the review paper, and other amendments to improve the equity of scheme metrics and to underpin a high standard of recycling and material recovery.

Initial stakeholder feedback on the paper from the television and computer industries suggested that the waste arising trajectories for Options 2 and 3 had not adequately accounted for the impact of new conversion factors for televisions imported in 2014–15, and that as a result, the 2015–16 recycling targets (in tonnes) presented in the paper were higher than they would actually be.

As a result of this feedback, further analysis was undertaken, based on actual import data from July 2014 to February 2015. It was determined that the waste arising under Options 2 and 3 had been underestimated by 2999 tonnes per year over the three years in which the new conversion factors would affect waste arising, from 2015–16 to 2017–18.

Initial feedback was also provided by state and territory governments, which expressed concern that the target trajectories under Options 2 and 3 delayed excessively the achievement of the final 80 per cent recycling target. Concern was also expressed that the waste arising scaling factor for printers, computer parts and peripherals under Option 3 was too low, and that the scaling factor for these products under Option 2 better reflected the level of exports of these products. Minor adjustments were therefore made to the outyears of the recycling trajectories under Options 2 and 3, and the scaling factor under Option 3 was aligned with that of Option 2. A revised paper was released on 4 May 2015 with these changes, and is included at Appendix 8.

Formal written comments were received from three television and computer industry associations, two co-regulatory arrangements, two e-waste recyclers, two state environmental agencies with regulatory responsibility for e-waste, and one local government association. This feedback did not highlight any inaccuracies in the costing assumptions.

State government feedback supported the net increase in the level of recycling to be covered under the scheme, and strongly supported increased e-waste recycling responsibility for industry beyond the options outlined in the costings paper.

In particular, state governments expressed the view that Options 2 and 3 should be adjusted to achieve the 80 per cent recycling target in 2021–22, consistent with Option 1. This change has been made to Option 2 in this RIS, but has not been made to Option 3.

Feedback from e-waste recycling providers also confirmed support for higher recycling targets than those outlined in the review paper and costings paper. E-waste recyclers supported the introduction of certification to the AS 5377 Standard, on the understanding that the compliance of all scheme recycling providers would be closely monitored.

Comments from industry associations representing the television and computer industries widely commended the introduction of revised conversion factors and product codes which reduce the amount of funding required of industry by reducing the average assigned weight of scheme products. Conversely, they expressed strong opposition to any increase in

recycling targets in the short term. While cost reductions arising from changes to conversion factors, product codes, and waste arising scaling factors are acknowledged, the television and computer industries would prefer no changes to the target trajectory. The budgeting timeframes used by industry were noted as an impediment to short term regulatory changes.

Co-regulatory arrangements reported on behalf of their members that a regulatory option which minimises costs to industry is preferred. No comment was made on the estimated costs to industry of certification to AS 5377.

Local government association feedback supported the recycling trajectory being brought forward to meet current public demand for recycling, and also preferred additional increases to total scheme recycling tonnages.

PREFERRED OPTION

Option 3 is the preferred option, based on quantifiable costs and non-quantifiable benefits. It is recommended, however, that the proposal to require that recycling under the scheme be done by recyclers that are certified to Australian Standard 5377 not be implemented. While it is recognised that there may be benefit in requiring recycling under the scheme to be done by e-waste recyclers certified to AS 5377, the evidence does not support additional regulation at this time.

Compared to Option 1, Option 3 offers significantly lower quantitative cost and significantly greater qualitative benefits. Due to the effect of proposed changes to conversion and scaling factors in reducing total recycling under Option 3, Option 3 shows a lower quantitative benefit than Option 1, where the quantitative benefit is calculated based on the amount of recycling undertaken. The difference in quantitative benefits between Options 3 and 1 would be marginal, however, based solely on target trajectories.

Compared to Option 2, Option 3 offers significantly greater qualitative benefits arising from the adjustment to the target trajectory. In relation to problems A, C and D, Option 2 and 3 offer the same qualitative benefits. The qualitative costs of Options 2 and 3 are similar, with option 3 offering marginally lower cost over twenty years. The quantitative benefits of Options 2 and 3 are also similar, with Option 2 offering a slightly higher benefit than Option 3.

Over the twenty-year analysis period, Option 3 has a total cost of -\$86.3 million (i.e. a cost saving of \$86.3 million), compared to -\$85.3 million under Option 2 and \$0 under Option 1.

In relation to the unquantifiable costs and benefits, the three options have been ranked from 1 to 3 according to the degree to which they address the problems with the existing regulatory design as identified in this RIS. The results of this ranking are presented in Table 14 below. The option that is considered to address the problem best is ranked 1, while the option that least adequately addresses the problem is ranked 3.

Options 2 and 3 both address the problem of inequitable outcomes for television and computer companies (Problem A) through amendments to product codes and conversion and scaling factors. Option 1 does not address this problem.

Options 2 and 3 both address the problem that the current target trajectory is contributing to instability in the e-waste recycling sector that is impacting disproportionately on disadvantaged workers (Problem B), by bringing forward increases in recycling targets to provide for more stable market conditions conducive to maintenance of existing capacity. However, by providing for more recycling over the next three years, Option 3 is considered to address this problem better than Option 2. Option 1 does not address this problem.

Table 14: Rankings of Options 1, 2 and 3 against Problems A, B, C and D

	Option 1	Option 2	Option 3
Problem A	3	1	1
Problem B	3	2	1
Problem C	3	1	1
Problem D	3	1	1
Overall	3	2	1

Options 2 and 3 seeks to address the problem of health and safety and environmental performance (Problem C) by requiring that recycling under the scheme is done by recyclers certified to AS 5377. Option 1 does not include new measures in relation to environmental and health and safety performance. It is concluded, however, that there are not sufficient grounds to proceed with this proposal.

Options 2 and 3 both address the problem of inefficiency due to changes to import data (Problem D) by establishing a settlement date for import data for the purposes of setting recycling targets. Option 1 does not address this problem.

Based on this analysis of unquantifiable costs and benefits, Option 3 (excluding the proposal regarding AS 5377) is preferred to Option 2, while Option 1 is the least preferred option.

IMPLEMENTATION AND EVALUATION

Should Option 1 be selected, the Department will continue to monitor the issues identified through the operational review. Discussions will be held with state, territory and local governments, which may choose to take actions to address the problems identified.

Should Option 2 or Option 3 be selected, amendments to the Product Stewardship (Televisions and Computers) Regulations 2011 will be required. The Department is undertaking preparatory work to ensure that draft regulations will be available if required, with a view to ensuring that the proposed implementation date of 1 July 2015 could be achieved.

A statutory review of the *Product Stewardship Act 2011* is scheduled to commence in 2016 and any further consideration will be given to the need for adjustments to the scheme at that time, when data will be available to enable early evaluation of the commercial impacts driven by the change in 2015-16 targets.

APPENDIX 1

Proposed data for Schedule 1 C, to apply to imports from 1 July 2014 to 30 June 2015

Part 1—Televisions

Division 1—Colour

Colour televisions—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
1.1	Plasma:		
	(a) screen size less than 76cm	8528.72.00.23	23.9
	(b) screen size 76cm or more but less than 111cm	8528.72.00.24	23.9
	(c) screen size 111cm or more but less than 137cm	8528.72.00.25	23.9
	(d) screen size 137cm or more	8528.72.00.26	42.9
1.2	LCD and LED:		
	(a) screen size less than 35cm	8528.72.00.81	2.5
	(b) screen size 35cm or more but less than 43cm	8528.72.00.82	2.6
	(c) screen size 43cm or more but less than 51cm	8528.72.00.83	2.8
	(d) screen size 51cm or more but less than 59cm	8528.72.00.84	4.3
	(e) screen size 59cm or more but less than 74cm	8528.72.00.85	5.2
	(f) screen size 74cm or more but less than 84cm	8528.72.00.86	6.5
	(g) screen size 84cm or more but less than 99cm	8528.72.00.87	11.4
	(h) screen size 99cm or more but less than 109cm	8528.72.00.88	11.4
	(i) screen size 109cm or more but less than 125cm	8528.72.00.89	14.4
	(j) screen size 125cm or more but less than 135cm	8528.72.00.90	18.1
	(k) screen size 135cm or more but less than 150cm	8528.72.00.91	20.9
	(l) screen size 150cm or more	8528.72.00.92	29.7
1.3	Other	8528.72.00.93	29.7

Division 2—Black and white or other monochrome

Other televisions—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
2.1	Black and white or other monochrome	8528.73.00.35	1.0

Part 2—Computers

Computers—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
3.1	Automatic data processing machines and units, magnetic or optical readers, machines for transcribing data onto data media in coded form, and machines for processing the data: (a) portable automatic data processing machines, weighing not more than 10kg, consisting of at least a central processing unit, a keyboard and a display: (i) laptops, notebooks, palmtops and tablets weighing: (A) not more than 1kg (B) more than 1kg but not more than 3kg (C) more than 3kg but not more than 10kg (ii) other (b) other automatic data processing machines, comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined: (i) personal computers (ii) other (c) other automatic data processing machines, presented in the form of systems: (i) personal computers (ii) other (d) processing units other than those mentioned in paragraphs (b) and (c), whether or not containing in the same housing one or 2 storage units, input units or output units: (i) central processing units for personal computers (ii) other		
		8471.30.00.31	0.6
		8471.30.00.33	2.3
		8471.30.00.34	3.4
		8471.30.00.90	3.0
		8471.41.00.21	10.7
		8471.41.00.91	10.0
		8471.49.00.22	11.0
		8471.49.00.92	11.6
		8471.50.00.23	7.4
		8471.50.00.93	13.2
3.2	Monitors and projectors, not incorporating television reception apparatus, reception apparatus for television, whether or not		

Computers—product codes and conversion factors

Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
	incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus:		
	(a) cathode-ray tube monitors of a kind solely or principally used in an automatic data processing system mentioned in item 3.1	8528.41.00.10	11.4
	(b) other monitors of a kind solely or principally used in an automatic data processing system mentioned in item 3.1:		
	(i) flat screen monitors	8528.51.00.32	6.0
	(ii) other	8528.51.00.33	6.3

Part 3—Printers

Printers—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
4.1	Machines which perform 2 or more of the functions of printing, copying or fax transmission (with printing or copying as the principal function) capable of connecting to an automatic data processing machine or to a network, weighing:		
	(a) not more than 10kg	8443.31.00.20	5.1
	(b) more than 10kg but not more than 20kg	8443.31.00.21	11.7
	(c) more than 20kg but not more than 50kg	8443.31.00.22	32.3
	(d) more than 50kg but not more than 100kg	8443.31.00.23	83.0
	(e) more than 100kg but not more than 150kg	8443.31.00.24	122.0
	(f) more than 150kg but not more than 200kg	8443.31.00.25	152.0
	(g) more than 200kg but not more than 300kg	8443.31.00.26	238.3
	(h) more than 300kg but not more than 500kg	8443.31.00.27	304.0
	(i) more than 500kg	8443.31.00.28	617.2
4.2	Other printers capable of connecting to an automatic data processing machine or to a network, weighing:		
	(a) not more than 10kg	8443.32.00.31	4.3
	(b) more than 10kg but not more than 20kg	8443.32.00.32	14.6
	(c) more than 20kg but not more than 50kg	8443.32.00.33	26.5
	(d) more than 50kg but not more than 100kg	8443.32.00.34	68.4
	(e) more than 100kg but not more than 150kg	8443.32.00.35	109.2
	(f) more than 150kg but not more than 200kg	8443.32.00.36	157.7
	(g) more than 200kg but not more than 300kg	8443.32.00.37	239.2
	(h) more than 300kg but not more than 500kg	8443.32.00.38	384.2
	(i) more than 500kg	8443.32.00.39	551.0

APPENDIX 2

Proposed data for Schedule 1D, to apply to imports from 1 July 2015

Part 1—Televisions

Division 1—Colour

Colour televisions—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
1.1	Colour televisions:		
	(a) weighing less than 3kg	8528.72.00.01	2.7
	(b) weighing 3kg or more but less than 5kg	8528.72.00.02	4.1
	(c) weighing 5kg or more but less than 8kg	8528.72.00.03	6.3
	(d) weighing 8kg or more but less than 10kg	8528.72.00.04	9.0
	(e) weighing 10kg or more but less than 12kg	8528.72.00.05	11.1
	(f) weighing 12kg or more but less than 14kg	8528.72.00.06	12.9
	(g) weighing 14kg or more but less than 16kg	8528.72.00.07	14.7
	(h) weighing 16kg or more but less than 18kg	8528.72.00.08	16.7
	(i) weighing 18kg or more but less than 20kg	8528.72.00.09	18.8
	(j) weighing 20kg or more but less than 25kg	8528.72.00.63	22.1
	(k) weighing 25kg or more but less than 30kg	8528.72.00.64	27.2
	(l) weighing 30kg or more but less than 40kg	8528.72.00.65	34.6
	(m) weighing 40kg or more	8528.72.00.66	46.6
1.2	Other	8528.72.00.93	46.6

Division 2—Black and white or other monochrome

Other televisions—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
2.1	Black and white or other monochrome	8528.73.00.35	1.0

Part 2—Computers

Computers—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
3.1	Automatic data processing machines and units, magnetic or optical readers, machines for transcribing data onto data media in coded form, and machines for processing the data: (a) portable automatic data processing machines, weighing not more than 10kg, consisting of at least a central processing unit, a keyboard and a display: (i) laptops, notebooks, palmtops and tablets weighing: (A) not more than 1kg (B) more than 1kg but not more than 3kg (C) more than 3kg but not more than 10kg (ii) other (b) other automatic data processing machines, comprising in the same housing at least a central processing unit and an input and output unit, whether or not combined: (i) personal computers (ii) other (c) other automatic data processing machines, presented in the form of systems: (i) personal computers (ii) other (d) processing units other than those mentioned in paragraphs (b) and (c), whether or not containing in the same housing one or 2 storage units, input units or output units: (i) central processing units for personal computers (ii) other	8471.30.00.31 8471.30.00.33 8471.30.00.34 8471.30.00.90 8471.41.00.21 8471.41.00.91 8471.49.00.22 8471.49.00.92 8471.50.00.23 8471.50.00.93	0.6 2.3 3.4 3.0 10.7 10.0 11.0 11.6 7.4 13.2
3.2	Monitors and projectors, not incorporating television reception apparatus, reception		

Computers—product codes and conversion factors

Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
	apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus:		
	(a) cathode-ray tube monitors of a kind solely or principally used in an automatic data processing system mentioned in item 3.1	8528.41.00.10	11.4
	(b) other monitors of a kind solely or principally used in an automatic data processing system mentioned in item 3.1:		
	(i) flat screen monitors		
	(A) weighing not more than 5kg	8528.51.00.20	4.2
	(B) weighing more than 5kg but not more than 10kg	8528.51.00.21	6.0
	(C) weighing more than 10kg	8528.51.00.22	20.3
	(ii) other	8528.51.00.33	6.3

Part 3—Printers

Printers—product codes and conversion factors			
Item	Column 1 Description	Column 2 Product code	Column 3 Conversion factor (kg)
4.1	Machines which perform 2 or more of the functions of printing, copying or fax transmission (with printing or copying as the principal function) capable of connecting to an automatic data processing machine or to a network, weighing:		
	(a) not more than 10kg	8443.31.00.20	5.1
	(b) more than 10kg but not more than 20kg	8443.31.00.21	11.7
	(c) more than 20kg but not more than 35kg	8443.31.00.18	25.2
	(d) more than 35kg but not more than 50kg	8443.31.00.19	43.5
	(e) more than 50kg but not more than 100kg	8443.31.00.23	83.0
	(f) more than 100kg but not more than 150kg	8443.31.00.24	122.0
	(g) more than 150kg but not more than 200kg	8443.31.00.25	152.0
	(h) more than 200kg but not more than 300kg	8443.31.00.26	238.3
	(i) more than 300kg but not more than 500kg	8443.31.00.27	304.0
	(j) more than 500kg	8443.31.00.28	617.2
4.2	Other printers capable of connecting to an automatic data processing machine or to a network, weighing:		
	(a) not more than 1kg	8443.32.00.27	0.55
	(b) more than 1kg but not more than 5kg	8443.32.00.28	2.6
	(c) more than 5kg but not more than 10kg	8443.32.00.29	6.3
	(d) more than 10kg but not more than 20kg	8443.32.00.32	14.6
	(e) more than 20kg but not more than 50kg	8443.32.00.33	26.5
	(f) more than 50kg but not more than 100kg	8443.32.00.34	68.4
	(g) more than 100kg but not more than 150kg	8443.32.00.35	109.2
	(h) more than 150kg but not more than 200kg	8443.32.00.36	157.7
	(i) more than 200kg but not more than 300kg	8443.32.00.37	239.2
	(j) more than 300kg but not more than 500kg	8443.32.00.38	384.2
	(k) more than 500kg	8443.32.00.39	551.0

APPENDIX 3

List of AHECC codes included in analysis of exports

Notes	Codes
8443 Printing machinery used for printing by means of plates, cylinders and other printing components of 8442; other printers, copying machines and facsimile machines, whether or not combined; parts and accessories thereof	84331105 8433207
8471 Automatic data processing machines and units thereof; magnetic or optical readers, machines for transcribing data onto data media in coded form and machines for processing such data, not elsewhere specified or included	84713011 84714121 84714930 84715040 84716050 84711700
8473 Parts and accessories (other than covers, carrying cases and the like) suitable for use solely or principally with machines of 8469 to 8472	84733010
8528 Monitors and projectors, not incorporating television reception apparatus; reception apparatus for television, whether or not incorporating radio-broadcast receivers or sound or video recording or reproducing apparatus	85284101 85285101 85287205 85287305

APPENDIX 4

List of consultation meetings held during the operational review

Date	Attendees
Thursday 4 September 2014	Roundtable meeting between Minister Hunt's Office and the Department of the Environment, and the Australian Industry Group
Thursday 2 October 2014	Meeting hosted by Minister Hunt's Office and the Department of the Environment, with social enterprises in the e-waste recycling industry
Friday 3 October 2014	Meeting between Minister's Office and the Consumer Electronics Suppliers Association
Thursday 9 October 2014	Roundtable meeting hosted by Minister Hunt with administrators of the five co-regulatory arrangements: ANZRP, DHL Australia, Ecycle Solutions, EPSA, and Reverse E-waste; and the Department of the Environment
Thursday 14 October 2014	Meeting between Minister Hunt's Office and the Department of the Environment, and members of the Australian Industry Group and the Consumer Electronics Suppliers Association
Thursday 16 October 2014	Meeting between Minister Hunt's Office and the Department of the Environment, and members of the Australian Information Industry Association
Monday 20 October 2014	Meeting between the Department of the Environment and the ACT Government (ACT No-Waste)
Friday 24 October 2014	Meeting between the Department of the Environment and Queensland Government
Monday 3 November 2014	Teleconference between the Department of the Environment and the Australian Bureau of Statistics regarding accuracy of scheme product codes and conversion factors
Friday 14 November 2014	Roundtable meeting between Minister Hunt's Office and the Department of the

Date	Attendees
	Environment, with members of the Waste Management Association of Australia and the Australian Council of Recycling
Friday 14 November 2014	Meeting between the Department of the Environment and the NSW Environmental Protection Agency
Monday 17 November 2014	E-waste regulators roundtable between the Department of the Environment and state and territory agencies with regulatory responsibility for e-waste
Tuesday 16 December 2014	Meeting between Minister Hunt's Office and the Department of the Environment, and the Australian Information Industry Association's Environment Special Interest Group
Tuesday 16 December 2014	Meeting between Minister Hunt's Office and the Department of the Environment, and the Australian Industry Group and the Consumer Electronics Suppliers Association
Thursday 22 January 2015	Brisbane public consultation session on the operational review
Friday 23 January 2015	Sydney public consultation session on the operational review
Thursday 29 January 2015	Melbourne public consultation session on the operational review
Friday 30 January 2015	Adelaide public consultation session on the operational review
Monday 2 February 2015	Perth public consultation session on the operational review
27 February 2015	Meeting of Commonwealth and state and territory environment ministers confirms support for review
Thursday 23 April 2015	Meeting between the between the Department of the Environment Information Industry Association
Monday 4 May 2015	Teleconference between between the Department of the Environment and the

Date	Attendees
	Australian Industry Group

APPENDIX 5

List of respondents to the November 2014 review paper

Submission from	Total
Co-regulatory arrangements	
Co-regulatory Arrangement - ANZRP	1
Co-regulatory Arrangement - Ecycle Solutions	2
Co-regulatory Arrangement - EPSA	3
Co-regulatory Arrangement - DHL	4
Co-regulatory Arrangement - Reverse E-waste	5
Local government	
Council - Adelaide Hills Region Waste Management Authority	1
Council - Alice Springs Council	2
Council - Armadale City Council WA	3
Council - Australian Local Government Association	4
Council - Brisbane City Council	5
Council - Central Local Government Region of South Australia	6
Council - City of Ballarat	7
Council - City of Bussleton	8
Council - City of Charles Sturt	9
Council - City of Greater Geraldton	10
Council - City of Marion	11
Council - City of Mount Gambier	12
Council - City of Onkaparinga	13
Council - City of Palmerston	14
Council - City of Ryde	15
Council - City of Townsville	16
Council - City of Wagga Wagga	17
Council - Darebin City Council	18
Council - Eastern Regional Alliance	19
Council - Fleurieu Regional Waste Authority	20
Council - Gannawarra Shire Council	21
Council - Gippsland Local Government Waste Forum	22
Council - Goulburn Valley Local Govt Waste Forum	23
Council - Great Lakes Council	24
Council - Greater Shepparton City Council	25
Council - Hunter Resource Recovery	26
Council - Ku-ring-gai Council	27
Council - Lake Macquarie City Council	28
Council - Local Government Association Northern Territory	29
Council - Local Government Association South Australia	30

Council - Local Government New South Wales	31
Council - Manly City Council	32
Council - Metropolitan Waste & Resource Recovery Group Victoria	33
Council - Mornington Peninsula Shire	34
Council - North East Local Govt Waste Forum	35
Council - Northern Tasmanian Waste Management	36
Council - Palerang Council	37
Council - Port Macquarie-Hastings Council	38
Council - Redland City Council	39
Submission from	Total
Council - Regional Networks for Effective Waste Management (RENEW)	40
Council - Riverina Eastern Regional Organisation of Councils	41
Council - Scenic Rim Regional Council	42
Council - Shellharbour City Council	43
Council - Shire of Boddington	44
Council - Shoalhaven City Council	45
Council - Southern Sydney Regional Organisation of Councils	46
Council - Warringah Council	47
Council - West Australian Local Government Association	48
Council - Western Sydney Regional Organisations of Councils	49
Council - Yarra Ranges Council	50
Public, academic and environmental	
Individual - M Neville	1
Academic - Monash University and University of Queensland	2
Environment NGO - Total Environment Centre	3
TV and computer industries	
Liable Party - Officeworks	1
Liable Party - Panasonic	2
Liable Party - TCL Electronics	3
Liable party - Samsung	4
Industry - AI Group	5
Industry - Australian Information Industry Association	6
Industry - Australian Mobile Telecommunications Association	7
Industry - Consumer Electronics Suppliers Association (CESA)	8
Recycling industry	
Recycler - Aspitech	1
Recycler - Community Recycling Network of Australia	2
Recycler - Endeavour Foundation	3
Recycler - Knox Transfer Station and Yarra Ranges Recycling	4
Recycler - MRI Australia	5
Recycler - National E-waste Alliance	6
Recycler - PGM Refiners and Social Ventures Australia	7
Recycler - Phoenix Metals and Minerals	8
Recycler - Renewable Recyclers	9
Recycler - Total Green Recyclers	10

Recycling industry - Infoactiv	11
Recycling industry - ACOR	12
Recycling industry - Waste Management Association of Australia	13
Submission from	Total
State government	
State government - New South Wales EPA	1
State government - Victoria	2
State government - South Australia	3
State government - Workcover NSW	4
State government - Western Australia	5
State government - New South Wales	6
Total submissions	85

APPENDIX 6

Summary of stakeholder responses and changes made to proposals as a result of public consultation on the operational review paper, November 2014 to February 2015

Stakeholder submissions to the review paper were overwhelmingly in favour of the continuation of the scheme, and strongly support the scheme's objectives – to utilise a product stewardship approach to reduce the amount of hazardous material entering landfill, and enable the reuse of the valuable materials contained in e-waste.

The outcome of each recommendation is discussed, including changes made to the proposed options for regulatory analysis based on feedback received during consultation.

Recommendation 1: Co-regulatory arrangements strengthen awareness and increase understanding of the scheme's design through targeted communication activities.

Submissions to the review paper from local governments, state and territory governments, and the recycling industry demonstrate a need for increased communication between co-regulatory arrangements and other scheme stakeholders. Key areas where increased communication would be mutually beneficial include:

- Discussion of opportunities for cost sharing which would enable local governments to co-fund a scheme service in their area.
- Co-management of hazardous materials arising from e-waste, such as leaded glass and plastics treated with brominated flame retardants.

Twenty-eight local government submissions noted that community demand for recycling significantly exceeded the existing scheme recycling targets. Another recurring theme in submissions was the provision of reasonable access to collection services being undertaken by some co-regulatory arrangements as a 'box-ticking exercise', without sufficient consideration of the quality of the service provided and appropriate communication activities to support uptake from the community. Local government submissions also indicated a need for early notification from co-regulatory arrangements where a contract with the arrangement for delivery of service has ended unexpectedly.

Under the *Product Stewardship Act 2011*, co-regulatory arrangements must take all reasonable steps to ensure scheme outcomes are achieved. Matters that must be dealt with by the arrangement include communicating information to the public about its activities. Going forward, the Department will consider the activities undertaken to publicise any collection service which returns a small or negligible amount of e-waste for recycling. This information will be used to determine whether all reasonable steps were taken to communicate the availability of the service.

Co-regulatory arrangements will also be encouraged to undertake regular meetings with the Department, the local government associations and environmental protection and policy agencies of each state and territory. More regular contact would give co-regulatory arrangements the opportunity to provide information on current activities, plans for future services, and environmental outcomes.

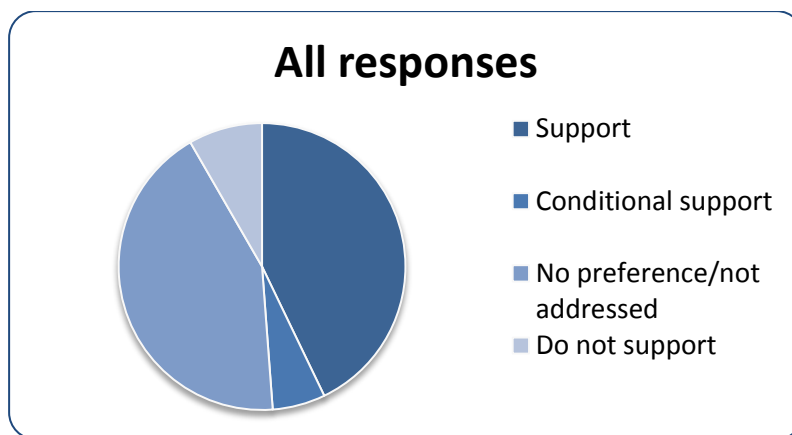
Recommendation 2: Stakeholders consider whether regulatory amendment is necessary to drive uptake of AS 5377 [Australian Standard 5377:2013 'Collection, storage, transport and

treatment of end-of-life electrical and electronic equipment'] and, if so, whether this could be done without increasing the regulatory burden on industry.

The proposed approach reduces the regulatory burden on industry, as it removes the need for recycling providers to be audited annually against a range of differing operational standards. This would require co-regulatory arrangements to only contract with recycling organisations who are certified to AS 5377. AS 5377 was developed in consultation with industry and specifies requirements for the safe and environmentally sound management of e-waste materials.

The majority of submissions from co-regulatory arrangements, all levels of government, and the television and computer industries supported accreditation of all scheme recyclers to AS 5377. The majority of local government respondents had no preference or did not address this recommendation.

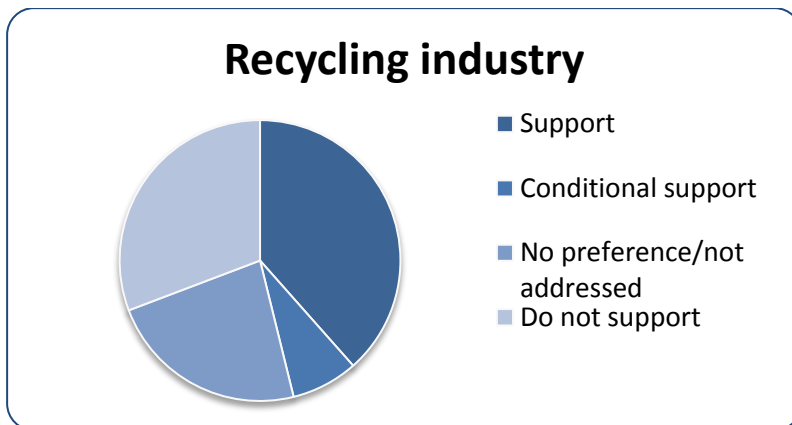
Figure 1: All stakeholder responses to the proposal for certification of scheme recyclers to AS 5377.



State government and co-regulatory arrangement submissions unanimously supported a consistent industry standard for scheme recycling providers. They view mandatory certification as vital in ensuring that work health and safety outcomes associated with the scheme remain positive. This was noted as especially important in light of the proposed increases to scheme recycling targets. As stated by one regulatory agency, 'mandatory adherence to AS 5377 would ensure that the e-waste industry operates on a level playing field that ensures the safety of individuals and the environment'.

Some segments of the recycling industry did not support mandatory certification, based on the potential costs faced by smaller recycling providers who would need to improve their facilities or processes in order to be certified. Respondents who gave conditional support requested exemptions for smaller facilities, a transition period for industry, and certification of individual recycling facilities, rather than 'umbrella' certification for all of a company's operations.

Figure 2: Recycling industry responses to the proposal for certification of scheme recyclers to AS 5377.



Co-regulatory arrangements also reported that mandatory certification is likely to provide benefits to arrangements and recyclers, as arrangements would only need to complete one audit per recycler rather than multiple audits, and recyclers would only need to maintain certification to one standard rather than a range of standards.

RIS Options 2 and 3 require co-regulatory arrangements to only contract with recycling service providers that are certified to AS 5377. This requirement will come into effect from 1 July 2016, to allow a sufficient transition period for the recycling industry. This measure will apply consistent requirements to all recycling providers. It may encourage co-regulatory arrangements to work with small or independent service providers who can demonstrate through certification that they deliver the same quality of service as their larger competitors.

***Recommendation 3:** Stakeholders provide feedback and the Department undertake regulatory impact analysis on the options outlined for possible adjustments to the target trajectory.*

The target trajectory, the proportion of e-waste required to be funded by industry each year, was conservatively low in the scheme's early years. This was a risk-based approach, due to a level of uncertainty regarding public demand for recycling services and the e-waste recycling industry's capacity to manage increasing volumes of material.

Since the implementation of the scheme, evidence of high consumer demand and sufficient capacity in the e-waste recycling sector has resulted in the need to reconsider the existing trajectory of a low initial recycling rate followed by significant increases in later years. Three options for adjustments to the target trajectory were put forward, and stakeholders were asked to submit other options for consideration.

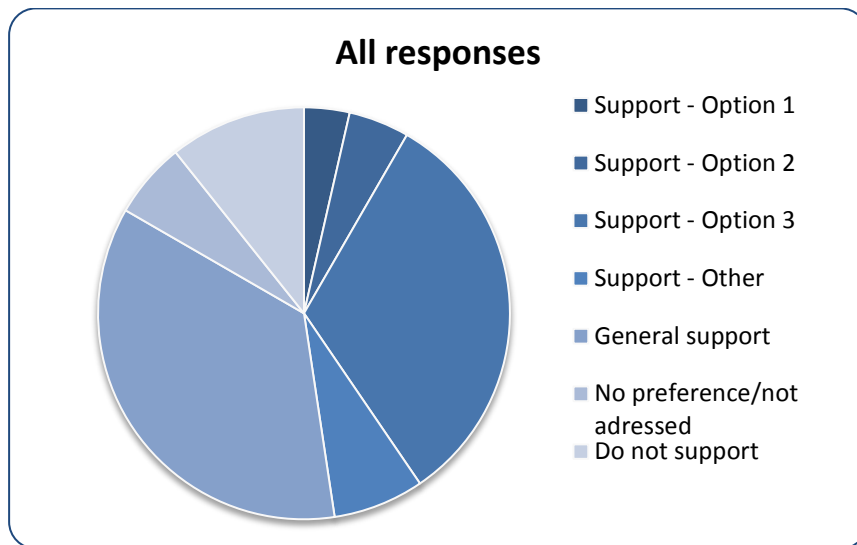
Each of the options proposed in the review paper involved bringing forward recycling volumes in the short time while smoothing the recycling rate in future years to reduce long term costs to industry. These options included:

- **Trajectory 1:** the recycling target percentage is 48 per cent for 2015–16. The trajectory then increases by four percent per year to reach 68 per cent by 2020–21. From 2021–22 the trajectory slows, increasing by two per cent per year to meet the target of 80 per cent by 2026–27.
- **Trajectory 2:** the recycling target percentage is 52 per cent for 2015–16. The trajectory then increases by four percent per year to 2017–18, and then increases by two percent per year until 2028–29, to meet the target of 80 per cent by 2028–29.

- **Trajectory 3:** the recycling target percentage is 56 per cent for 2015–16. The trajectory then increases by two per cent per year to 72 per cent by 2023–24, and then increases by one per cent per year to meet the 80 per cent target by 2031–32

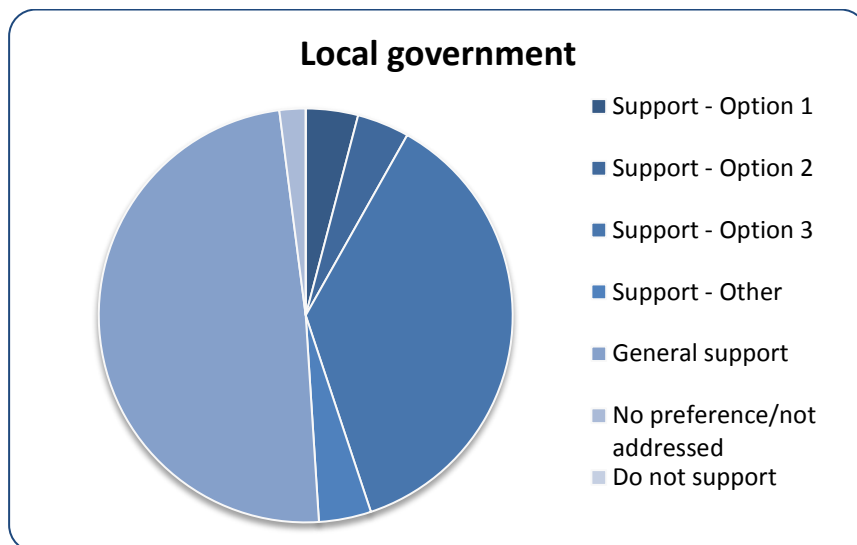
More than 75 per cent of respondents were in favour of some level of adjustment to the scheme target trajectory. A recurring message in submissions was that actual recycling must increase as a result of any percentage increase to the target trajectory – i.e. planned changes to product codes, conversion factors and waste arising should not offset any increase to target tonnage.

Figure 3: All responses to proposal to increase the scheme target trajectory



Support for increased recycling targets was particularly strong amongst local government organisations, who proposed much higher recycling targets (up to 100 per cent of available e-waste) and fast progression towards the peak of the scheme’s rollout. Respondents in the recycling industry, who stand to benefit from increased recycling volumes in the short term, were also strongly in favour of adjustment to the target trajectory.

Figure 4: Local government responses to proposal to increase the scheme target trajectory



Liability parties were either not in favour of adjusting the target trajectory, or preferred the limited adjustment over the short term. Industry groups which represent television and computer

companies were also against adjustment of the target trajectory, sharing the view that state and territory governments should do more to support management of e-waste outside the scheme before industry is required to fund an increased amount of recycling.

Co-regulatory arrangement responses were divided, depending on the level of representation given to the views of their liable party members. One view put forward against adjustment of the target trajectory was a perceived lack of e-waste available for recycling in the coming years, which could result in co-regulatory arrangements being unable to meet increased targets.

Several submissions received from state and territory governments were concerned that the scheme's national target has led to inequitable outcomes for states where collection and transport costs for e-waste are higher, and have put forward state-based targets for consideration in the 2016 statutory review.

Changes to proposals arising from consultation

Based on the strong opposition from the television and computer industries towards any adjustments to the target trajectory resulting in short term increased costs, the 2015–16 percentage targets were revised downwards in the options for regulatory analysis. In response to concern from other stakeholders about the delay in attaining the 80 per cent target, the year for reaching 80 per cent was brought forward.

Recommendation 4: The Department and co-regulatory arrangements consider options to provide additional information to the market to assist e-waste businesses in planning.

Submissions from the recycling industry confirmed that business planning has been difficult when there is limited insight into future e-waste supply and data available on the Australian e-waste recycling industry as a whole.

The Department commissioned a report on e-waste recycling market trends and capacity. A key finding of this report is the 18,000 tonnes of e-waste which the recycling industry estimates was recycled outside of the scheme in 2013–14. Based on the 52,736 tonnes of scheme recycling in 2013–14, this suggests that more than 70,500 tonnes of e-waste recycling occurred across Australia last financial year.

The total annual capacity of the e-waste recycling industry, estimated based on data provided by individual e-waste recycling organisations, is approximately 148,000 tonnes. This figure does not include additional tonnage that could be managed through increasing work shifts, labour or storage capacity. This means that based on expected waste levels, even at the highest point of the target trajectory industry capacity will exceed the volumes of e-waste provided through industry-funded scheme collection.

To improve awareness of market conditions, a communications strategy is being developed which will consider the relevant information required by e-waste recyclers in planning their business, and the best way to provide this information in a consistent and ongoing manner.

Recommendation 5: Co-regulatory arrangements to better manage the impact of changes to recycling procurement on the recycling industry by providing additional notice of planned changes.

Submissions from e-waste recyclers and peak bodies representing recyclers were strongly in favour of additional notice being provided of changes to expected feedstock, especially where the change would vary significantly from existing feedstock supply patterns.

It is expected that the changes to the timeframes for import data collection (outlined in Recommendation 6 below) will have positive flow on effects for the recycling industry. Earlier finalisation of liable party import data and scheme targets will enable co-regulatory arrangements to provide appropriate and timely information to their contracted recycling providers.

It is important to note that businesses operating in the e-waste recycling industry are responsible for their own viability, and must be prepared for the competitive and often unpredictable nature of domestic feedstock supplies, international commodity markets, and changing market conditions. Businesses with diversified feedstock supply may be better placed to deliver scheme services.

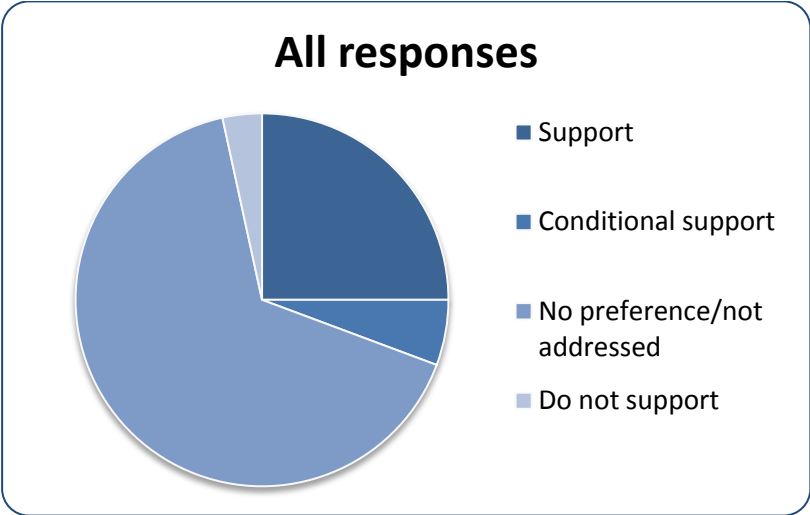
***Recommendation 6:** Stakeholders comment on the proposal to amend the Regulations to establish a settlement date for target data, after which amendments to import declarations would not be taken into account.*

Currently, the scheme target fluctuates throughout the financial year as importers make amendments to their Customs import data. This causes uncertainty and planning difficulties for all parties. This proposal would limit the timeframe in which liable parties can report data changes to the Department for inclusion in the scheme target.

The majority of submissions expressed no preference towards the introduction of a settlement date for target data. Most co-regulatory arrangements and the recycling industry, who would benefit from earlier finalisation of data and recycling targets, were in favour of a settlement date.

Importers of goods into Australia have a legal responsibility to accurately report their import data to Customs. Liable parties requested that sufficient time be allocated for any required amendments to incorrect Customs data after they receive notification of their liability from the Department.

Figure 5: All responses on proposal to introduce a settlement date for target data in the Regulations



As this change ensures the earliest possible finalisation of scheme and co-regulatory arrangement targets, it is a key activity in achieving greater scheme stability. With targets finalised earlier, co-regulatory arrangements will be able to plan more effectively and contract service providers to meet these obligations. Existing liable parties have been notified of the policy decision to implement a settlement date, which requires that amendments to Customs import declarations be finalised by 31 October following notification of liability each financial year.

Recommendation 7: Stakeholders comment on the proposal to amend the Regulations to smooth recycling rates between financial years by allowing recycling undertaken in July and August to count towards recycling targets in the previous financial year.

This proposal was supported by 40 per cent of co-regulatory arrangements, and fewer than 25 per cent of all other stakeholders. The lack of support for this proposal was based on the view that existing provisions for the carryover of excess recycling into a future financial year are sufficient in smoothing recycling rates.

Changes to proposals arising from consultation

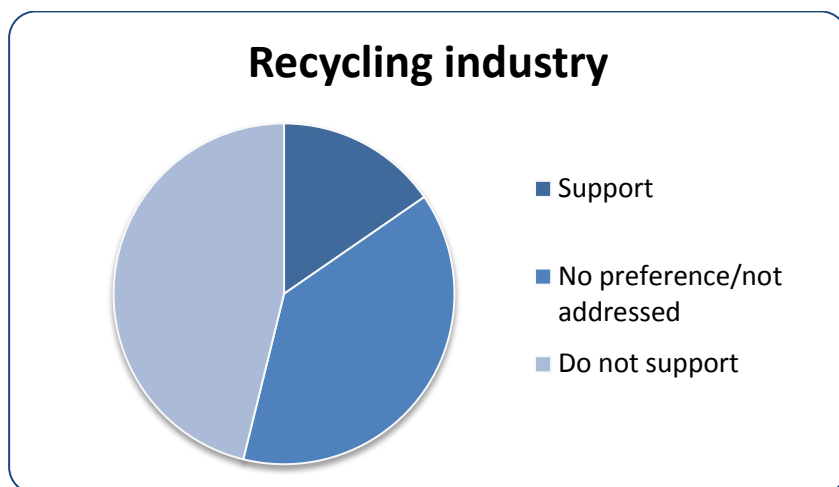
Based on low stakeholder support for this proposal, the proposal to smooth recycling between financial years was excluded from the proposed options.

Recommendation 8: Stakeholders comment on the proposal to amend the Regulations to require co-regulatory arrangements to report on their engagement of social and disability enterprises in the content of their annual reports.

Most respondents, including the majority of most social enterprise recyclers, were not in favour of this proposal. Social enterprise recyclers stated that mandatory reporting could lead to 'tokenistic engagement' with the sector, or 'blue rinsing of annual reports to refer to social engagement without any real benefit'.

While three co-regulatory arrangements supported this proposal, they acknowledged that engagement with social enterprise is already included voluntarily in their annual reports. The majority of respondents who addressed this proposal were in agreement that engagement with social enterprise must be voluntary and meaningful. Stakeholders also addressed the responsibilities of social enterprise recyclers, stating that they 'must have a real world capacity to flourish and to stand or fall based on their business model'.

Figure 6: *Recycling industry responses to proposal for mandatory reporting of social enterprise engagement.*



Changes to proposals arising from consultation

Based on a lack of support for this proposal and reporting undertaken voluntarily by co-regulatory arrangements, mandatory reporting on social enterprise engagement was excluded from the proposed options.

Recommendation 9: The Department continues work to revise the scheme's product codes and conversion factors.

Product codes and conversion factors define which products are included in the scheme and the average weight of each type of product. The review paper reaffirmed the Department's committed to periodically updating these settings to reflect changing technologies and product weights.

Feedback received on this proposal gave in principle support for updates to product codes and conversion factors, as long as the total scheme recycling volume did not decrease as a result. Submissions from importers noted that for television product codes, screen size was no longer closely correlated to weight of product.

Liable parties were strongly in favour of updates to product codes and conversion factors, based on a reduction in average product weights and the entry of new products into the market which do not fit accurately into existing product codes. There is also strong support in the television and computer industries for a move to actual weight liability. A major change to the way scheme liability is calculated is beyond the scope of the operational review, and may be considered as part of the 2016 statutory review.

State governments gave in principle support for changes to product codes and conversion factors, emphasising the need for 'robust and transparent evidence to justify any changes to conversion factors'.

Taking into account the strong support for revision of product codes and conversion factors and the identification of specific problems such as the inaccuracy of screen size based product codes, the Department undertook a project to collect and analyse actual product data from all liable parties. The information provided by liable parties was used to assess the accuracy of

existing weighted conversion factors, and consider the need for revised product codes where new products had entered the market.

The results of the project, based on data provided by industry, indicated that of the 65 product codes listed in the Regulations:

- 25 required a reduction in weighted conversion factor reduced to better reflect average product weight
- 7 required an increase in weighted conversion factor to reflect underestimated average weight
- 33 accurately reflected average product weights and were not in need of any amendment.

To reflect changing technologies in television and computer manufacturing, 24 new product codes are proposed to come into effect on 1 July 2016, applying to products imported from the 2015–16 financial year onwards.

Updates to product codes change televisions to weight-based rather than screen size measurements, split product codes to reduce weight variation of products within a code, and add product codes to reflect changes in technology.

These new codes will allow importers to choose from a wider range of weight classes when classifying their products, which increases the accuracy and alignment of the associated conversion factor for each product. The Department will proceed with amendments to the Regulations to include updated product codes and conversion factors.

Recommendation 10: Stakeholders comment and provide information on the proposal to consider the waste arising scaling factor applicable to computer systems, and provide any data or research which supports a particular scaling factor.

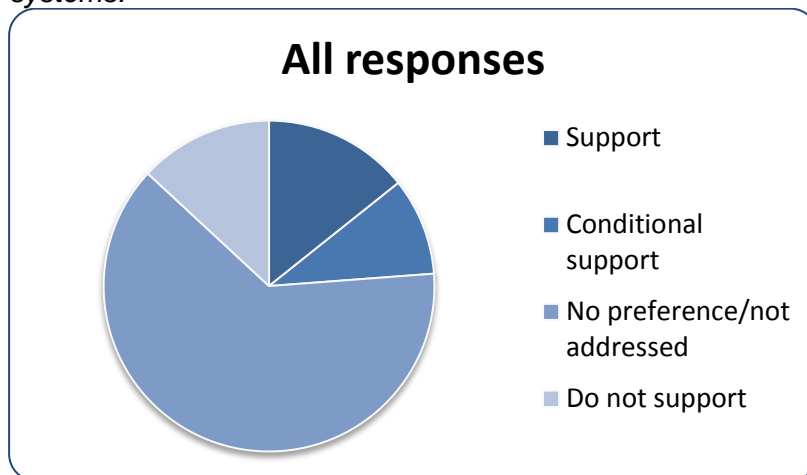
The waste arising scaling factor is applied to the estimated waste arising figure to reflect products which do not enter the waste stream in Australia and are therefore not available for recycling under the scheme. This primarily applies to new products which are imported into Australia and subsequently exported for sale overseas.

As seen in Recommendation 9 above, stakeholder support for this proposal was given on the condition that total scheme recycling not decrease as a result of changes to the waste arising scaling factor.

Local governments were not in favour of changes to the scaling factor, believing that the existing 0.9 scaling factor for all scheme products already reduces the television and computer industry's liability significantly and should not be decreased.

The Australian Information Industry Association strongly support revising the scaling factor from 0.9 to 0.6, based on the view that many IT products are exported as new or for reuse and do not enter the waste stream, or are stored by households or businesses for long periods of time.

Figure 7: All responses on proposal to reconsider the waste arising scaling factor for computer systems.



Changes to proposals arising from consultation

Analysis of this issue was undertaken but was hindered by lack of clarity in the available data. Information provided by the computer industry suggests that a relatively high proportion of IT equipment, particularly from business sources, is exported for reuse, but that there may be a tendency for IT equipment brokers and other exporters to classify these exports as something other than IT equipment.

Analysis of available export data indicated that the rate of recorded export of IT equipment may be increasing and may be in excess of 10 per cent of imports. An e-waste recycler also provided data on IT equipment provided to brokers for export. This data indicated that the rate of export of computer systems was in the order of 10 per cent of post-use products, while a considerably lower proportion of other IT products were exported. Based on the available information, a model for IT scaling factors of 0.8 for computer systems and 0.88 for printers, computer parts and peripherals was developed.

From 1 July 2015, these scaling factors will be applied to the proportions of available waste which consist of computer systems and printers, parts and peripherals. The 0.9 scaling factor for televisions will remain, based on the relatively minor export of these products as new or for reuse.

APPENDIX 7

Consultation paper on regulatory cost (excluding appendices)

Operational Review of the National Television and Computer Recycling Scheme

Further information on possible enhancements

For consultation

23 April 2015

Introduction

An operational review of the National Television and Computer Recycling Scheme (the scheme) was initiated in September 2014 by Minister for the Environment, the Hon Greg Hunt MP.

A review paper was released for consultation in November 2014. 85 submissions were received. The review and submissions are available on the [Department of the Environment's website](#).

The Department of the Environment is now preparing a Regulatory Impact Statement (RIS) to support a decision on the matters considered through the review. The information in this paper has been developed to inform the development of the RIS and is provided for consultation regarding the costing assumptions and estimation of the change in regulatory burden.

The three options presented in this paper are the final options for consideration in the RIS. They represent a refinement of the target options and other proposals presented in the November 2014 review paper, following feedback from stakeholders during the national consultation process.

Option 1 is a 'no-change' option and provides a baseline against which the impacts of any regulatory change can be measured. Options 2 and 3 are regulatory change options designed to address issues discussed in the review paper, while also reducing cost to industry over time. They include revised target trajectories, which are based on those presented in the review paper but with smaller increases in 2015–16, and other amendments to make the scheme fairer for television and computer companies and to underpin a high standard of recycling and material recovery.

Interested stakeholders are invited to submit views on the information provided in this paper, particularly the information on costing and change in regulatory burden, no later than close of business Thursday 7 May, to:

The Director
Product Stewardship Regulator Section
Department of the Environment
ewaste@environment.gov.au

Options for regulatory impact analysis

The three options below are the final options for consideration in the RIS. They represent a refinement of the target options and other proposals presented in the November 2014 review paper, following feedback from stakeholders during the national consultation process.

Regulatory changes under the three options are:

Option 1

- No regulatory change.

Option 2

- Revised target trajectory starting at 44% of waste arising in 2015–16
- Updated conversion factors for some products applying to the 2015–16 target period (i.e. applying to imports made in 2014–15)
- Updated product codes and conversion factors for some products applying from the 2016–17 target period (i.e. applying to imports made from 1 July 2015)
- Updated waste arising scaling factors for IT products from 1 July 2015:
 - 0.8 for computers (products listed in Part 2 of the relevant schedule)
 - 0.88 for printers and computer parts and peripherals (products listed in Parts 3 and 4 of the relevant schedule)
- Use of Australian Standard 5377 for recycling mandatory from 1 July 2016
- Settlement date for target (import) data of 31 October.

Option 3

- Revised target trajectory starting at 50% of waste arising in 2015–16
- Updated conversion factors for some products applying to the 2015–16 target period (i.e. applying to imports made in 2014–15)
- Updated product codes and conversion factors for some products applying from the 2016–17 target period (i.e. applying to imports made from 1 July 2015)
- Updated waste arising scaling factors for IT products from 1 July 2015:
 - 0.8 for computers, printers and computer parts and peripherals (products listed in Parts 2, 3 and 4 of the relevant schedule)
- Use of Australian Standard 5377 for recycling mandatory from 1 July 2016
- Settlement date for target (import) data of 31 October.

Projected scheme recycling targets under Options 1, 2 and 3

Table 1 below presents the percentage target trajectories and the projected waste arising and scheme recycling targets for each option, over a twenty year period. Projections for waste arising were redeveloped in early 2015 based on updated assumptions, and differ for each option based on the applicable regulatory settings. The total recycling projected to occur under each option is also shown, indicating that the regulatory changes under Options 2 and 3 will result in less recycling occurring than would occur under Option 1, with the least recycling occurring under Option 3.

Table 1: Percentage targets and projected waste arising and scheme targets for Options 1, 2 and 3

Year	Option 1 Schedule 1B Scaling factor 0.9 for all products			Option 2 Schedules 1C, 1D Scaling factors 0.9/0.8/0.88			Option 3 Schedules 1C, 1D Scaling factors 0.9/0.8/0.8		
	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)
2015-16	116,663	37	43,165	109,430	44	48,149	106,453	50	53,226
2016-17	113,766	40	45,506	104,639	52	54,412	102,098	58	59,217
2017-18	115,422	48	55,403	103,841	56	58,151	101,592	60	60,955
2018-19	117,881	56	66,013	105,747	60	63,448	103,403	62	64,110
2019-20	122,104	64	78,147	108,653	64	69,538	106,200	64	67,968
2020-21	124,200	72	89,424	109,651	68	74,563	107,173	66	70,734
2021-22	126,468	80	101,174	110,770	70	77,539	108,262	68	73,618
2022-23	127,399	80	101,919	110,902	72	79,850	108,417	70	75,892
2023-24	129,305	80	103,444	112,037	74	82,907	109,534	72	78,864
2024-25	133,265	80	106,612	115,225	76	87,571	112,701	73	82,272
2025-26	135,458	80	108,366	117,011	80	93,609	114,462	74	84,702
2026-27	137,915	80	110,332	119,139	80	95,311	116,561	75	87,421
2027-28	137,891	80	110,313	119,190	80	95,352	116,606	76	88,620
2028-29	139,823	80	111,858	121,004	80	96,803	118,416	77	91,180
2029-30	141,715	80	113,372	122,782	80	98,225	120,192	78	93,750
2030-31	144,121	80	115,297	124,925	80	99,940	122,312	80	97,850
2031-32	146,975	80	117,580	127,440	80	101,952	124,801	80	99,840
2032-33	155,438	80	124,350	134,991	80	107,993	132,332	80	105,865
2033-34	156,881	80	125,505	136,249	80	108,999	133,569	80	106,855
2034-35	158,210	80	126,568	137,407	80	109,926	134,703	80	107,762
2035-36	154,826	80	123,861	134,282	80	107,426	131,520	80	105,216
Total 2015-16 to 2035-36 (tonnes)			2,078,210			1,811,664			1,755,918

Cost assumptions

Average costs to industry over the first three years of the scheme have been estimated at \$1,120 per tonne of recycling in 2012–13, \$1,080 per tonne in 2013–14 and \$950 per tonne in 2014–15. Two industry cost models will be considered in the RIS:

Model A: Assumes average costs to industry will remain at \$950 per tonne. Some factors may tend to reduce costs, such as economies of scale in recycling and transport, while other factors may tend to increase costs, such as a greater marginal effort required to collect e-waste as targets increase over time.

Model B assumes costs will continue to decline for two years before stabilising at between \$760 and \$800 per tonne from 2017–18. This model assumes an increasing rebate from recycling non-glass e-waste relative to the cost of recycling.

The cost of mandating Australian Standard 5377 has been estimated following consultation with recyclers. Estimates provided by recyclers ranged from \$6,000 to \$10,000 to achieve certification under the AS 5377 standard and around \$2,000 to \$4,000 per year to maintain it.

Based on these preliminary costings and an estimate and categorisation of facility sizes across Australia, costing analysis has been undertaken based on:

- 18 small recycling facilities, 15 large recycling facilities and 5 co-regulatory arrangements
- Initial certification costs of \$6,000 for a small facility and \$10,000 for a large facility (incurred in the 2015-16 financial year)
- Recurring compliance costs of \$2,000 per year for a small facility and \$4,000 per year for a large one
- Offsetting costs to parties operating co-regulatory arrangements involving avoided costs associated with audit costs of around \$70,000 per arrangement incurred on a three year audit cycle (assumed to be spread evenly over the forecast period).

It is assumed that co-regulatory arrangement administrators and liable parties would each incur additional costs to adjust to revised target trajectories under Options 2 and 3. These costs are estimated as:

- A one-off cost to each of the five co-regulatory arrangements of \$6,575 (100 hours staff time)
- A one-off cost to each of the 135 liable parties of \$524 (8 hours of staff time).

It is assumed that the implementation of the 31 October settlement date for target data under Options 2 and 3 would result in a cost saving to the five co-regulatory arrangement administrators. Currently, the Department advises administrators of revised target data several times during a financial year, with targets not finalised until late in the financial year. This amendment would enable targets to be finalised in November. It is assumed that this would result in three less target revision processes per year, leading to a cost saving for each of the five co-regulatory arrangements of \$785 per year (4 hours of staff time per revision process).

Proposed changes to product codes and conversion factors

The changes proposed to the scheme's product codes and conversion factors are detailed in Appendices A and B.

Regulatory Burden Measure

All regulatory costs, whether arising from new regulations or changes to existing regulation, must be quantified using the Regulatory Burden Measurement framework. Table 2 below presents the estimated change in regulatory burden over a ten year period.

Table 2: Average annual impact on regulatory costs over ten years from 2015–16 to 2024–25

Average annual regulatory costs (from business as usual)				
Change in costs (\$million)	Business	Community organisations	Individuals	Total change in cost
Total, by sector:				
Option 1	\$0	\$0	\$0	\$0
Option 2	-\$8.993	\$0	\$0	-\$8.993
Option 3	-\$9.873	\$0	\$0	-\$9.873
Cost offset (\$million)	Business	Community organisations	Individuals	Total, by source
Agency:	\$0	\$0	\$0	\$0
Are all new costs offset? Deregulatory – cost offsets not required.				
Total (Change in costs – cost offsets) (\$million):				
Option 1: \$0				
Option 2: -\$8.993				
Option 3: -\$9.873				

In Table 2, the change in cost under Option 1 is zero, reflecting the fact that Option 1 is the no-change option in the RIS and is therefore the business as usual scenario.

The changes in costs under Options 2 and 3 are negative, indicating that these options are deregulatory in nature, meaning they deliver a reduction in cost over the ten year period. The average annual cost reductions are \$8.993 million for Option 2 and \$9.873 million for Option 3. These cost reductions result from reductions in total recycling under Options 2 and 3, compared to option 1.

The overall reduction under option 2 includes reductions of \$89.946 million over ten years due to the reduction in recycling, and additional compliance costs of \$0.019 million.

The overall reduction under option 3 includes reductions of \$98.754 million over ten years due to the reduction in recycling, and additional compliance costs of \$0.019 million.

APPENDIX 8

Revised consultation paper on regulatory cost (excluding appendices)

Operational Review of the National Television and Computer Recycling Scheme

Further information on possible enhancements

For consultation

4 May 2015

Note: This paper is an update of the consultation paper circulated on 23 April 2015.

Introduction

An operational review of the National Television and Computer Recycling Scheme (the scheme) was initiated in September 2014 by Minister for the Environment, the Hon Greg Hunt MP.

A review paper was released for consultation in November 2014. Following public meetings in Brisbane, Sydney, Melbourne, Adelaide and Perth, 85 written submissions were received. The operational review paper and submissions are available on the [Department of the Environment's website](#).

The Department of the Environment is now preparing a Regulatory Impact Statement (RIS) to support a decision on the matters considered through the review. The information in this paper has been developed to inform the development of the RIS and is provided for consultation regarding the costing assumptions and estimation of the change in regulatory burden.

The three options presented in this paper are the final options for consideration in the RIS. They represent a refinement of the target options and other proposals presented in the November 2014 review paper and the April 2015 consultation paper on costings, following feedback from stakeholders during the national consultation process from November 2014 to February 2015 and since the release of the April 2015 paper.

Option 1 is a 'no-change' option and provides a baseline against which the impacts of any regulatory change can be measured. Options 2 and 3 are regulatory change options designed to address issues discussed in the review paper, while also reducing cost to industry over time. They include revised target trajectories, which are based on those presented in the review paper but with smaller increases in 2015–16, and other amendments to make the scheme fairer for television and computer companies and to underpin a high standard of recycling and material recovery.

Interested stakeholders are invited to submit views on the information provided in this paper, particularly the information on costing and change in regulatory burden, no later than close of business Thursday 7 May, to:

The Director
Product Stewardship Regulator Section
Department of the Environment

Changes to the options from the 23 April 2015 consultation paper

The following changes have been made from the 23 April 2015 consultation paper:

- Amended waste arising projections for Options 2 and 3 to more accurately reflect the impact of new conversion factors for televisions imported in 2014–15.
 - Stakeholder feedback and analysis of import data for the period from July 2014 to February 2015 indicates that the impact of the new conversion factors proposed for imports made in 2014–15 (see proposed schedule 1C at Appendix A), particularly in relation to imports of televisions, will be greater than was projected in the April 2015 paper.
 - Analysis of import data indicates that the new conversion factors will reduce the converted weight of 2014–15 television imports (i.e. the weight as calculated for the purposes of the scheme) by around 25 per cent and imports of computers, printers and computer parts and peripherals by around 7 per cent.
 - Because waste arising is calculated using import data averaged over three years, the reduction in converted weight of imports under schedule 1C will affect the calculation of waste arising over three years. Accordingly, the projections of waste arising under the regulatory change options has been reduced by 2,999 tonnes per year from 2015–16 to 2017–18.
- The waste arising scaling factor profile for Option 3 has been amended to align with that of Option 2, which is 0.9 for televisions, 0.8 for computers and 0.88 for printers and computer parts and peripherals. This profile better reflects evidence from export data and feedback from the recycling industry that few printers and computer parts and peripherals are exported relative to computers.
- The target trajectories under Options 2 and 3 have been adjusted to bring forward achievement of the 80 per cent target. This responds to stakeholder concerns that the target trajectories presented in the operational review paper and April 2015 consultation paper would result in too great a reduction in recycling, societal benefit and net benefit over the analysis period. The trajectories remain the same for 2015–16 and 2016–17, to avoid any further cost to industry over the next two years.
- The changes above are reflected in the scheme target projections (in tonnes) in Table 1 and the regulatory burden measure in Table 2. The total effect of the changes to underlying data on the projected scheme targets for 2015–16 is:
 - Under Option 2 the projected target has changed from 48,149 to 46,830 tonnes.
 - Under Option 3 the projected target has changed from 53,226 to 53,215 tonnes.

The three options below are the final options for consideration in the RIS. They represent a refinement of the target options and other proposals presented in the November 2014 review paper and the April 2015 consultation paper, following feedback from stakeholders on both papers.

Regulatory changes under the three options are:

- Option 1
 - No regulatory change.
- Option 2
 - Revised target trajectory starting at 44% of waste arising in 2015–16
 - Updated conversion factors for some products applying to the 2015–16 target period (i.e. applying to imports made in 2014–15)
 - Updated product codes and conversion factors for some products applying from the 2016–17 target period (i.e. applying to imports made from 1 July 2015)
 - Updated waste arising scaling factors for IT products from 1 July 2015:
 - 0.8 for computers (products listed in Part 2 of the relevant schedule)
 - 0.88 for printers and computer parts and peripherals (products listed in Parts 3 and 4 of the relevant schedule)
 - Use of Australian Standard 5377 for recycling mandatory from 1 July 2016
 - Settlement date for target (import) data of 31 October.
- Option 3
 - Revised target trajectory starting at 50% of waste arising in 2015–16
 - Updated conversion factors for some products applying to the 2015–16 target period (i.e. applying to imports made in 2014–15)
 - Updated product codes and conversion factors for some products applying from the 2016–17 target period (i.e. applying to imports made from 1 July 2015)
 - Updated waste arising scaling factors for IT products from 1 July 2015:
 - 0.8 for computers (products listed in Part 2 of the relevant schedule)
 - 0.88 for printers and computer parts and peripherals (products listed in Parts 3 and 4 of the relevant schedule)
 - Use of Australian Standard 5377 for recycling mandatory from 1 July 2016
 - Settlement date for target (import) data of 31 October.

Projected scheme recycling targets under Options 1, 2 and 3

Table 1 below presents the percentage target trajectories and the projected waste arising and scheme recycling targets for each option, over a twenty year period. Projections for waste arising were redeveloped in early 2015 based on updated assumptions, and differ for each option based on the applicable regulatory settings. The total recycling projected to occur under each option is also shown, indicating that the regulatory changes under Options 2 and 3 will result in less recycling occurring than would occur under Option 1, with the least recycling occurring under Option 2.

Table 1: Percentage targets and projected waste arising and scheme targets for Options 1, 2 and 3

Year	Option 1 Schedule 1B Scaling factor 0.9 for all products			Option 2 Schedules 1C, 1D Scaling factors 0.9/0.8/0.88			Option 3 Schedules 1C, 1D Scaling factors 0.9/0.8/0.88			
	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	Projected waste arising (tonnes)	Percentage target	Projected scheme target (tonnes)	
2015-16	116,663	37	43,165	106,431	44	46,830	106,431	50	53,215	
2016-17	113,766	40	45,506	101,640	52	52,853	101,640	58	58,951	
2017-18	115,422	48	55,403	100,842	56	56,472	100,842	62	62,522	
2018-19	117,881	56	66,013	105,747	60	63,448	105,747	64	67,678	
2019-20	122,104	64	78,147	108,653	64	69,538	108,653	66	71,711	
2020-21	124,200	72	89,424	109,651	68	74,563	109,651	68	74,563	
2021-22	126,468	80	101,174	110,770	72	79,754	110,770	70	77,539	
2022-23	127,399	80	101,919	110,902	76	84,286	110,902	72	79,850	
2023-24	129,305	80	103,444	112,037	80	89,630	112,037	74	82,907	
2024-25	133,265	80	106,612	115,225	80	92,180	115,225	76	87,571	
2025-26	135,458	80	108,366	117,011	80	93,609	117,011	78	91,269	
2026-27	137,915	80	110,332	119,139	80	95,311	119,139	80	95,311	
2027-28	137,891	80	110,313	119,190	80	95,352	119,190	80	95,352	
2028-29	139,823	80	111,858	121,004	80	96,803	121,004	80	96,803	
2029-30	141,715	80	113,372	122,782	80	98,225	122,782	80	98,225	
2030-31	144,121	80	115,297	124,925	80	99,940	124,925	80	99,940	
2031-32	146,975	80	117,580	127,440	80	101,952	127,440	80	101,952	
2032-33	155,438	80	124,350	134,991	80	107,993	134,991	80	107,993	
2033-34	156,881	80	125,505	136,249	80	108,999	136,249	80	108,999	
2034-35	158,210	80	126,568	137,407	80	109,926	137,407	80	109,926	
Total 2015-16 to 2034-35 (tonnes)			1,954,349				1,717,663			

Cost assumptions

Average costs to industry over the first three years of the scheme have been estimated at \$1,120 per tonne of recycling in 2012–13, \$1,080 per tonne in 2013–14 and \$950 per tonne in 2014–15. Two industry cost models will be considered in the RIS:

- Model A: Assumes average costs to industry will remain at \$950 per tonne. Some factors may tend to reduce costs, such as economies of scale in recycling and transport, while other factors may tend to increase costs, such as a greater marginal effort required to collect e-waste as targets increase over time.
- Model B assumes costs will continue to decline for two years before stabilising at between \$760 and \$800 per tonne from 2017–18. This model assumes an increasing rebate from recycling non-glass e-waste relative to the cost of recycling.

The cost of mandating Australian Standard 5377 has been estimated following consultation with recyclers. Estimates provided by recyclers ranged from \$6,000 to \$10,000 to achieve certification under the AS 5377 standard and around \$2,000 to \$4,000 per year to maintain it.

Based on these preliminary costings and an estimate and categorisation of facility sizes across Australia, costing analysis has been undertaken based on:

- 18 small recycling facilities, 15 large recycling facilities and 5 co-regulatory arrangements
- Initial certification costs of \$6,000 for a small facility and \$10,000 for a large facility (incurred in the 2015-16 financial year)
- Recurring compliance costs of \$2,000 per year for a small facility and \$4,000 per year for a large one
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It is assumed that co-regulatory arrangement administrators and liable parties would each incur additional costs to adjust to revised target trajectories under Options 2 and 3. These costs are estimated as:

- A one-off cost to each of the five co-regulatory arrangements of \$6,575 (100 hours staff time)
- A one-off cost to each of the 135 liable parties of \$524 (8 hours of staff time)

It is assumed that the implementation of a 31 October settlement date for target data under Options 2 and 3 would result in a cost saving to the five co-regulatory arrangement administrators. Currently, the Department advises administrators of revised target data several times during a financial year, with targets not finalised until late in the financial year. This amendment would enable targets to be finalised in November. It is assumed that this would result in three less target revision processes per year, leading to a cost saving for each of the five co-regulatory arrangements of \$785 per year (4 hours of staff time per revision process).

Proposed changes to product codes and conversion factors

The changes proposed to the scheme’s product codes and conversion factors are detailed in Appendices A and B.

Regulatory Burden Measure

All regulatory costs, whether arising from new regulations or changes to existing regulation, must be quantified using the Regulatory Burden Measurement framework. Table 2 below presents the estimated change in regulatory burden over a ten year period.

Table 2: Average annual impact on regulatory costs over ten years from 2015–16 to 2024–25

Average annual regulatory costs (from business as usual)				
Change in costs (\$million)	Business	Community organisations	Individuals	Total change in cost
Total, by sector:				
Option 1	\$0	\$0	\$0	\$0
Option 2	-\$7.719	\$0	\$0	-\$7.719
Option 3	-\$7.058	\$0	\$0	-\$7.058
Cost offset (\$million)	Business	Community organisations	Individuals	Total, by source
Agency:	\$0	\$0	\$0	\$0
Are all new costs offset? Deregulatory – cost offsets not required.				
Total (Change in costs – cost offsets) (\$million):				
Option 1: \$0				
Option 2: -\$7.719				
Option 3: -\$7.058				

In Table 2, the change in cost under Option 1 is zero, reflecting the fact that Option 1 is the no-change option in the RIS and is therefore the business as usual scenario.

The changes in costs under Options 2 and 3 are negative, indicating that these options are deregulatory in nature, meaning they deliver a reduction in cost over the ten year period. The average annual cost reductions are \$7.719million for Option 2 and \$7.058million for Option 3. These cost reductions result from reductions in total recycling under Options 2 and 3, compared to option 1.

The overall reduction under option 2 includes reductions of \$77.171 million over ten years due to the reduction in recycling, and additional compliance costs of \$0.019 million.

The overall reduction under option 3 includes reductions of \$70.564 million over ten years due to the reduction in recycling, and additional compliance costs of \$0.019 million.