

Evaluation of the National Television and Computer Recycling Scheme (NTCRS)

Department of the Environment and Energy

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Executive Summary

The National Television and Computer Recycling Scheme (NTCRS) was established in 2011 to provide Australian householders and small business with access to industry-funded collection and recycling services for televisions and computers. The NTCRS involves a combination of government regulation (overseen by the Department of the Environment and Energy – DoEE) and industry action.

The objectives of the NTCRS are to:

- reduce waste to landfill, especially hazardous materials found in e-waste;
- increase recovery of reusable materials in a safe, scientific and environmentally sound manner; and
- provide access for households and small businesses Australia-wide to an industry-funded recycling service.

The Regulations specify three key outcomes to be achieved by approved co-regulatory arrangements: the provision of reasonable access to collection services in metropolitan, regional and remote areas; annual recycling targets; and a material recovery target.

To date, more than 1,800 collection services have been made available to the public and, according to the NTCRS team, more than 230,000 tonnes of TV and computer e-waste has been collected and recycled under the scheme. This has diverted hazardous materials away from landfill and enabled the reuse of valuable resources contained in e-waste. The scheme has also created employment opportunities within the recycling sector, and assisted local government manage e-waste by providing alternative collection services. The scheme supplements state, territory and local government e-waste management, but does not entirely replace these activities.

Purpose and Scope of the Evaluation

The purposes of this evaluation are to:

- determine the overall quality and effectiveness of the NTCRS;
- identify lessons learned and recommend areas for improvement of the NTCRS;
- recommend whether NTCRS should expand to include other e-waste products;
- identify lessons learned for potential co-regulatory approaches for other (i.e. non e-waste) products; and
- identify lessons learned for evaluating the effectiveness of other regulations.

The primary uses of the evaluation findings will be: as an input to a statutory review of the Product Stewardship Act 2011, being undertaken in 2017; and to inform development of a consistent approach to evaluating the effectiveness of other regulation administered by the Department.

Methodology

ACIG undertook stakeholder consultation and analysis of relevant qualitative and quantitative data. We interviewed representatives from the co-regulatory arrangements, and from state and local governments. We surveyed representatives from the recycling sector, and from liable parties.

Both quantitative and qualitative data were collected for analysis in the evaluation. We used a mixed-method approach to overcome the limitations in the use of qualitative or quantitative methods alone. The validity and reliability of both forms of data have been further reinforced through data triangulation, which involves drawing on different methods, sources and stakeholder perspectives.

Summary of main findings

We evaluated the NTCRS in terms of: appropriateness, efficiency, effectiveness and impact, sustainability, and improvement. Relevant key evaluation questions (KEQs) relating to each focus area were developed in consultation with DoEE.

Appropriateness

1. To what extent has the program design proven to be adequately matched to identified needs?

The design of the NTCRS – including the changes made to the scheme in 2015 – has proven to be appropriate and adequately matched to the identified needs. So far the scheme has, overall, met or exceeded the stated targets (even when those targets were raised in 2015). However based on stakeholder concerns and market experience, the NTCRS target trajectory should be revisited to ensure that the program remains sustainable and is able to meet its projected outcomes.

Efficiency

2. How efficiently has the NTCRS been managed and implemented?
3. How efficient has the NTCRS been in delivering its intended outcomes?

There exists a common view amongst all stakeholders that DoEE staff are doing the best they can in an environment of ever declining resources and personnel numbers. Our finding, supported by the available data and stakeholder views, is that DoEE's costs of program delivery are clearly justifiable against its results, and represents good value for money for the Australian Government.

DoEE has delivered the scheme with high compliance results and good customer satisfaction rates. DoEE's annual outcomes reports from 2011-12 to 2014-15 demonstrate that the scheme has mostly achieved the three key outcomes specified in the Regulations: the provision of reasonable access to collection services in metropolitan, regional and remote areas; annual recycling targets; and a material recovery target.

Effectiveness and Impact

4. Were communication and education activities adequate?

5. Were the activities and their resourcing adequate to ensure the delivery of the planned outputs?
6. To what extent has the NTCRS been implemented as intended?
7. How effective has the NTCRS been in achieving its intended outcomes?

The NTCRS has been effective in achieving its objectives. The scheme has demonstrably reduced waste to landfill, especially the hazardous materials found in e-waste. It has increased recovery of reusable materials in a safe, scientific and environmentally sound manner and it has provided access for households and small businesses to an industry-funded recycling service. Overall, although the communications and stakeholder engagement could be improved, the scheme is so far meeting its recycling targets and has achieved a very high level of liable party compliance.

Sustainability

8. To what extent is the scheme sustainable in the future?

DoEE resourcing of the scheme has steadily declined since 2011, and if this downward trend continues, DoEE seems likely to face substantial difficulties in administering the scheme effectively. Based on available evidence, liable party resourcing of the scheme seems appropriate and sustainable. The current institutional or structural arrangements for implementing the program in the future are adequate, but need not necessarily remain static. Industry and community pressures to change and improve the scheme will likely build over time. All stakeholders want the scheme to continue to be improved, which will in turn require more resources.

Improvement

9. What lessons have been learned that can inform improvements in the NTCRS?
10. What lessons have been learned that could inform potential co-regulatory approaches for other (non e-waste) products?
11. What are the key elements and lessons from the evaluation of the NTCRS that are potentially useful in other regulatory evaluation settings and could inform development of a consistent approach to evaluation of regulation administered by the Department?

While the scheme is working well overall for all participants, there are improvements that could be made to enhance its efficiency and effectiveness. In addition, the majority of stakeholders believe that there is the potential to expand the scheme to cover other types of e-waste, although views are mixed on how this should be done.

The improvement opportunities we assess as being of the highest priority are addressed below, in the recommendations. However there are several lessons arising from the NTCRS that are translatable to other regulatory schemes.

Flexible program administration. The NTCRS has been subject to regular review, and its administrators have demonstrated flexibility in improving the scheme as required, according to market outcomes and stakeholder requirements. We found that the 2014 operational review of the NTCRS, and the resulting changes made to the scheme in 2015, were very well received by stakeholders. Not only did the review and subsequent changes address the problems raised

by stakeholders, it also enhanced the credibility of both the scheme and DoEE amongst all stakeholder groups.

Sufficient DoEE resources for scheme enforcement. There must be sufficient government resources provided to ensure effective enforcement of the scheme. DoEE has achieved NTCRS liable party compliance rates of 97-99%. This effort is highly commendable, because DoEE resources generally have been declining since the scheme was introduced. However, making sure liable parties meet their obligations under the NTCRS is only one of the activities that go towards enforcing the scheme and making sure it is achieving its stated aims and intended outcomes. Other areas of enforcement within the NTCRS are less strong, including health checks on co-regulatory arrangements, and the effective oversight of downstream recycling.

Design. There was broad consensus among stakeholders that a co-regulatory scheme like the NTCRS is the best way to achieve the desired outcomes of product stewardship. The majority of stakeholders, including those from liable parties, agreed that a scheme which requires industry to bear the lion's share of the responsibility and cost is both fair and reasonable, and also in line with public expectations. Several stakeholders, across all groups, were of the view that a voluntary or self-regulatory scheme would not achieve the same high rates of compliance by industry participants.

Timing. Some state and territory jurisdictions claimed that introduction of the NTCRS was, in their opinion, delayed. This affected the timing of their own activities in relation to e-waste (in some cases, forcing them to extend activities beyond their original deadline). Secondly, the introduction of the NTCRS unfortunately coincided with the Digital TV Switchover, resulting in much greater volumes of old cathode ray tube (CRT) televisions coming onto the recycling market than would normally be the case. The lesson for other similar schemes is, to the greatest extent possible, be aware of the broader context and how the timing of a new scheme might impact, or be impacted by, other government initiatives and market developments.

State government regulatory environments. The rollout of a national scheme must always take into account the differences between state and territory jurisdictions in terms of regulatory environment, existing infrastructure and market conditions. We suggest that this could in part be addressed through stronger and more regular consultation and communication between all levels of government. We do note, however, that while the Commonwealth needs to take a leading role, all jurisdictions must take their share of responsibility for ensuring successful outcomes on a national level.

Impact on local government. Within Australia there are 546 local councils, each playing an important regulatory and practical role, particularly in the field of waste management. Just as with state and territory governments, it is important to ensure strong engagement and regular consultation and communication.

Impact on industry. The NTCRS was designed to allow for multiple co-regulatory arrangements, so that liable parties and recyclers were able to shop around for the best commercial deal for them. In the opinion of stakeholders, prices have dropped, at least partially as a result. Not all stakeholders believe that this led to the best outcomes, particularly in the early years of the scheme. Some raised concerns that competition and pricing pressure may cause recyclers to adopt sub-standard processes, leading to poor environmental and health and safety outcomes.

Recommendations

To follow is a summary – the full recommendations are articulated in the final chapter of this evaluation report.

Identified areas for improvements to management of the scheme

Recommendation 1. Improve or replace PS Online.

NTCRS data is collected, collated and managed within software that DoEE calls PS Online. Although PS Online was originally built specifically for the NTCRS, the requirements of the scheme have become more complex since its inception. While the software has been modified and improved over time, it does not consistently perform the tasks it was designed to do, and is often broken, preventing DoEE from administering the scheme more effectively. DoEE officers reported that they need to manually check the data in the system due to concerns about reliability and accuracy, and they spend an inordinate proportion of their time trying to manage and maintain the system.

Recommendation 2. Improve and formalise stakeholder engagement.

DoEE engagement with state and territory government agencies, and with local councils (including the state-based peak bodies for local government) is inconsistent. A formal consultative/reference group does not exist. DoEE liaises with State and Territory governments on an ad hoc basis (approximately annually). DoEE has far stronger relationships with some States and Territories than others. DoEE's engagement with local government is even weaker, and similarly patchy. Its strongest ties lie with one or two state-based peak bodies for local government, rather than with councils themselves.

Recommendation 3. Prepare a communications strategy, with agreed roles, activities and outcomes, so that stakeholders and the public receive strong, consistent messages about the NTCRS.

The NTCRS is a complex scheme with multiple key stakeholders. Roles and responsibilities, especially around communications, are not always clear. An agreed communications strategy, prepared by DoEE in consultation with key stakeholders, should include: objectives; audiences; key messages; tools and activities; resources and timelines; allocated responsibilities; and opportunities for measurement and review.

Recommendation 4. Map and review the existing reporting timelines and associated data collection activities.

There are some obvious points at which the data collection timelines are very tight, and any slippage in one will inevitably have a cascading effect onto the others. In some cases actions are required (by the Regulations) before all the necessary data is available. A process review could also identify issues with data reliability and cross-checking, enabling DoEE to determine how best to enhance its data collection activities with the Department of Immigration and Border Protection, co-regulatory arrangements and liable parties.

Identified areas for improvements to the implementation of the scheme

Recommendation 5. Review whether current service levels provide equitable access to the scheme for consumers in rural, regional and remote locations.

Local and state government stakeholders consistently raised the point that collection services in rural, regional and remote locations needed to be improved. A DoEE review could investigate whether the situation could be improved by setting a minimum performance standard to force higher service standards for areas currently under-served by the NTCRS. For example: A minimum collection weight of two tonnes per collection service.

Recommendation 6. Increase oversight of the downstream flow of recycled products.

Various stakeholders raised concerns about the lack of visibility of downstream arrangements, particularly where the by-products of recycling are exported. If e-waste material is not being handled in accordance with hazardous waste obligations and standards, there may be significant risk to DoEE, and to the community's perception of the scheme.

Recommendation 7. That further analysis and consultation be undertaken prior to determining whether the NTCRS should be expanded to include other types of e-waste.

In considering whether or not to expand the scheme, the following factors should be taken into account: consumer confusion about what can and can't be recycled under the scheme; nature of hazardous waste; nature of products; stakeholder capacity; and impact on market.

Lessons learned for evaluating the effectiveness of other regulations

Recommendation 8. Monitoring evaluation, review and improvement processes should be built into the design of a regulatory scheme at the earliest opportunity.

The development by key DoEE stakeholders of a comprehensive program logic ensured all parties agreed and were clear about the intended causal connections and relationships between the scheme's efforts and the intended results. However we note that the program logic model was developed retrospectively by DoEE (in early 2017, in preparation for this evaluation) to reflect the existing program. Ideally a program logic model, and associated monitoring, review and improvement activities, should be built into the initial design and implementation of a regulatory scheme. DoEE may also wish to consider some further refinements of the program logic to assist with the definition and measurement of outcomes in future evaluations.

Introduction and Background

What is the NTCRS?

Products and their component materials can have a negative impact on the environment and on human health and safety. Product stewardship acknowledges that those involved in producing, selling, using and disposing of products share responsibility for managing the impacts of products throughout their lifecycle. The *Product Stewardship Act 2011* is intended to address the negative impacts of products by providing a framework for mandatory, co-regulatory, and voluntary product stewardship.

Televisions and computers were the first products to be regulated under the Act. The *Product Stewardship (Televisions and Computers) Regulations 2011* support a co-regulatory recycling scheme for televisions, computers, printers and computer products.

The National Television and Computer Recycling Scheme (NTCRS) aims to reduce the impact of television and computer e-waste products on the environment and to reduce the impact that substances contained in these products have on human health and safety. The NTCRS involves a combination of government regulation and industry action. Government sets the outcomes to be met, while industry funds and implements the scheme and has the flexibility to determine how outcomes will be achieved.

The Regulations apply to televisions, computers, printers and computer products, including internal parts and peripherals. The Regulations apply to two key groups of stakeholders:

- **Liable parties.** These are corporations that imported or manufactured regulated products in the previous financial year. Liable parties must become a member of an approved co-regulatory arrangement which organises collection and recycling of e-waste on their behalf. (To limit the impact on small business, companies that import or manufacture fewer than 5,001 units of televisions, fewer than 5,001 units of computers or printers, or fewer than 15,001 units of computer parts or peripherals are exempt.)
- **Co-regulatory arrangements.** These are body corporates responsible for administering the arrangement on behalf of liable party members.

The objectives of the NTCRS are to:

- reduce waste to landfill, especially hazardous materials found in e-waste;
- increase recovery of reusable materials in a safe, scientific and environmentally sound manner; and
- provide access for households and small businesses Australia-wide to an industry-funded recycling service.

The Regulations specify three key outcomes to be achieved by approved co-regulatory arrangements: the provision of reasonable access to collection services in metropolitan, regional and remote areas; annual recycling targets; and a material recovery target.

Under the scheme, liable parties are required to fund collection and recycling of a proportion of the televisions and computers disposed of in Australia each year, by joining a co-regulatory

arrangement which delivers recycling services on their behalf. Through the scheme, government has established a market and controls access to that market by approving the co-regulatory arrangements.

The aim of the scheme is to deliver a staged increase in the rate of recycling of televisions and computers in Australia (estimated to be only 17% in 2010–11 prior to the scheme's introduction). In July 2015, as a result of extensive stakeholder consultation as part of a comprehensive, formal Operational Review, NTCRS recycling targets were increased to better meet strong public demand for recycling services and ensure stability and ongoing capacity in the e-waste recycling industry. From 1 July 2015, the target trajectory for industry-funded recycling was raised to 50% of available e-waste for the 2015-16 financial year reaching 80% in 2026-27 (the original target was 80% by 2021-22).

Non-scheme waste televisions and computers, along with all other e-waste, remains the constitutional responsibility of state and territory governments and through them, local governments.

Purpose and Scope of the Evaluation

The purposes of this evaluation are to:

- determine the overall quality and effectiveness of the NTCRS;
- identify lessons learned and recommend areas for improvement of the NTCRS;
- recommend whether the NTCRS should be expanded to include other e-waste products;
- identify lessons learned for potential co-regulatory approaches for other (i.e. non e-waste) products; and
- identify key elements and lessons learned for evaluating the effectiveness of other regulations.

The primary uses of the evaluation findings will be:

- as an input to a statutory review of the *Product Stewardship Act 2011*, being undertaken in 2017;
- to inform development of a consistent approach to evaluating the effectiveness of other regulation administered by the Department of the Environment and Energy (DoEE).

Evaluation Methodology

ACIG's evaluation of the NTCRS combines formative and summative elements.

A formative evaluation is often undertaken during the development or implementation of a program with the aim of providing feedback to program staff so that they are able to make any necessary adjustments. In contrast, a summative evaluation is more retrospective and oriented toward making judgements about a program's performance over time. Formative and summative evaluations are complementary approaches that combine to provide a complete picture of a program.

Key Evaluation Questions (KEQs)

The key evaluation questions (KEQs) were initially developed by DoEE. With DoEE's approval, ACIG modified the wording of some KEQs, and added some sub-questions to help address the KEQs more completely. We have grouped the KEQs under five evaluation domains: Appropriateness, Efficiency, Effectiveness and Impact, Sustainability, and Improvement. Each question is addressed in detail in the section of this report headed 'Findings'.

Appropriateness

1. To what extent has the program design proven to be adequately matched to identified needs?
 - a. Have the needs identified during the original development of the NTCRS changed over time?
 - b. What evidence is there that the NTCRS program design meets or is likely to meet identified needs?

Efficiency

2. How efficiently has the NTCRS been managed and implemented?
 - a. To what extent were available resources used to the best effect?
3. How efficient has the NTCRS been in delivering its intended outcomes?
 - a. To what extent are the costs of program delivery justifiable against its results?
 - b. To what degree is the scheme cost-effective compared to other like programs or other options that address the same needs?

Effectiveness and Impact

4. Were communication and education activities adequate?
 - a. How were the target audiences for education and information determined and to what extent were they reached?
5. Were the activities and their resourcing adequate to ensure the delivery of the planned outputs?

- a. Were the activities that were delivered adequate in achieving the planned outputs?
 - b. Were the resources provided adequate to achieve the planned outputs?
- 6. To what extent has the NTCRS been implemented as intended?
 - a. Has adequate resourcing been provided to the NTCRS?
 - b. What outputs has the NTCRS delivered?
 - c. How consistent has the implementation been across organisations and target audiences?
 - d. What were the barriers to, and enablers of, implementation activities.
- 7. How effective has the NTCRS been in achieving its intended outcomes?
 - a. What outcomes have been achieved to date?
 - b. What demonstrable progress has been made towards achieving longer term outcomes?
 - c. What, if any, unintended outcomes (positive and/or negative) have been observed?
 - d. To what extent is the NTCRS having an impact, or is likely to have an impact in the longer term, on reducing the negative environment, health and safety impacts of the products that it regulates?

Sustainability

- 8. To what extent is the scheme sustainable in the future, with respect to:
 - a. Resources: what is the adequacy of future financial arrangements for implementing the program?
 - b. Organisational capacity and capability: what is the adequacy of institutional or structural arrangements for implementing the program in the future?
 - c. Context: the effects of reasonably foreseeable social, economic, technical or environmental change that may impact the need for the program or organisation's ability to deliver the program.

Improvement

- 9. What lessons have been learned that can inform improvements in the NTCRS?
 - a. What has worked for whom, why and how?
 - b. What factors (internal and external) have facilitated or impeded the achievement of intended outcomes?
 - c. What lessons (from success or failure) could be shared among co-regulators for the purpose of improvement?

- d. In what ways could the efficiency of implementation be improved?
 - e. In what ways could the effectiveness of the scheme be improved?
 - f. If the scheme is expanded, what e-waste products should be included as a priority?
10. What lessons have been learned that could inform potential co-regulatory approaches for other (non e-waste) products?
- a. What lessons from the NTCRS are translatable to other regulatory schemes?
 - b. What factors should inform expansion of the scheme to other e-waste?
11. What are the key elements and lessons from the evaluation of the NTCRS that are potentially useful in other regulatory evaluation settings and could inform development of a consistent approach to evaluation of regulation administered by the Department?
- a. What worked well in the evaluation?
 - b. What did not?
 - c. What were the limitations in practice of the approach?
 - d. What improvements can be made for future evaluations?

NTCRS and Evaluation Stakeholders and Users

A list of stakeholders consulted during the evaluation is provided at Appendix B.

The main stakeholders and users of the evaluation are within DoEE, including: various officers from within the Environment Standards Division (ESD) and the Policy Analysis and Implementation Division (PAID); and the Regulatory Maturity Committee (advises on improvements to regulatory capacity and practice, and provides strategic oversight of DoEE's regulatory activity).

Other NTCRS stakeholders also include:

- NTCRS co-regulatory arrangements
 - ANZRP
 - MRI PSO Pty Ltd
 - Ecycle Solutions Pty Ltd
 - Electronic Product Stewardship Australasia (EPSA);
- NTCRS liable parties (there were 139 liable parties in 2015-16 and 141 in 2016-17);
- recyclers;
- Australian state and territory governments;
- local councils; and
- the Australian public.

Users of the Evaluation

The primary users of the evaluation (as identified by DoEE) are:

- Senior Executive, Environment Standards Division (ESD);
- Product Stewardship Section (NTCRS administrators), ESD;
- Data Analysis and Information Management Section, ESD;
- Reporting and Evaluation Section, Policy Analysis and Implementation Division (PAID);
- Regulatory Maturity Committee, DoEE; and
- Regulatory Capability Section, ESD.

Potential secondary users of the evaluation (again, as identified by DoEE) are: NTCRS co-regulatory arrangements; state and territory governments and local councils; liable parties; and recyclers.

Evaluation Activities

ACIG conducted the evaluation in three stages:

1. Planning: We reviewed and analysed relevant data and documents; agreed the program logic and evaluation framework with DoEE; and developed a stakeholder engagement and evaluation plan.
2. Data collection and analysis: we undertook stakeholder consultation (through interviews and online surveys) and analysis of all qualitative and quantitative data.
3. Reporting: we prepared preliminary evaluation findings, key issues and recommendations in a draft report to DoEE; incorporated feedback from DoEE on the draft report; and delivered the final report.

Evaluation Approach

For this evaluation we used a mixed-method approach (also known as methodological pluralism) as a means to overcome the limitations in the use of qualitative or quantitative methods alone. It draws on the advantages of combining the breadth that quantitative data provide with the depth offered by qualitative data. The validity and reliability of both forms of data have been further reinforced through the use of data triangulation, which involves drawing on different methods, sources and stakeholder perspectives.

Data Sources

Both quantitative and qualitative data were collected for analysis in the evaluation. We note, however, that the quantitative data was largely limited to:

- annual outcomes data for 2012-13, 2013-14, and 2014-15 (with the 2015-16 data not available at the time of writing);
- annual reports published by the co-regulatory arrangements on the DoEE website;

- the 2014-15 Operational Review of the NTCRS;
- data contained within Regulatory Impact Statements; and
- DoEE budget, risk assessment and administrative data.

Qualitative data included the above sources, as well as:

- [Regulatory Maturity Project Final Report](#) (Woodward report) and DoEE response to the report;
- [DoEE's Regulator Performance Framework self-assessment report](#);
- assessments from stakeholders about how efficiently the NTCRS has been managed and implemented;
- discussion with stakeholders about outcomes and impacts (including unintended outcomes) and the factors leading to those results; and
- information from stakeholders about lessons learned, gathered through interviews and surveys.

Limitations

Potential Sources of Bias. All evaluation methods carry the risk of some form of bias, if only because human beings carry them out, and we are all prone to bias.

Attribution bias – the tendency to seek and find confirmatory evidence to support existing beliefs and to ignore or discard conflicting evidence – is considered important for evaluations because it underpins many other forms of cognitive bias. The most practical way to manage this tendency is for the evaluators to maintain their own self-awareness and critically question their judgements throughout the data collection and analysis. By holding off making evaluative judgements until all the evidence is available, the evaluators will strive to maintain impartiality.

Attribution bias can also be an issue for respondents to evaluation surveys, interviews and story collection exercises, because they may attribute change to specific individuals and programs while underplaying general social forces or other valid elements of the context within which the evaluation occurs. This is an inherent risk in all evaluations where people's opinions are canvassed through interviews and surveys. Evaluators manage this by designing carefully constructed questions, and triangulating evidence sources.

Confirmation bias is a well-known issue for evaluators, and can be expected to be of concern in circumstances where theories of action (as in the program logic) are being tested by evaluators who may have significant attachment to their particular theories and models. In the current evaluation, the program logic has been developed by DoEE independently of the evaluators, so the latter have no investment in confirming or contradicting it.

Another form of bias that might be anticipated in an evaluation is that in which people over-report socially acceptable behaviours and under-report undesirable behaviours. Evaluators manage this by designing carefully constructed questions that aim to minimise implications of 'social good' in any particular response.

Data Validity. The survey and interview sample sizes were necessarily limited, due to the numbers involved in the industry. Therefore, data derived from these sources lacks statistical significance. Consequently, should the same surveys be repeated over a period of time, only very large changes will show up as being statistically significant. Smaller changes, while potentially reflecting actual underlying trends, could not be demonstrated to be statistically significant. Confidence in judgements will be drawn from the totality and combination of evidence drawn from multiple sources or data types, through triangulation.

Ethics

ACIG follows the [Australasian Evaluation Society's Guidelines for the Ethical Conduct of Evaluations and Code of Ethics](#).

Voluntary participation. Participation in the evaluation research was on a voluntary basis and interviewees and survey respondents could opt out at any time. Requests for participation in surveys and interviews contained information on the voluntary nature of their participation, as well as assurances concerning confidentiality and security of the information collected as part of the evaluation.

Confidentiality. Data compiled from surveys and interviews is held by the evaluators securely to ensure that the original data cannot be accessed by anyone outside the evaluation team. Survey and interview data records are coded, with the identification codes held separately to the response data. All data reported in the evaluation has been anonymised, de-identified or aggregated. The evaluators will not use or disclose personal information, as defined in the *Privacy Act 1988*, for any purpose. ACIG will securely dispose of primary evaluation data five years after the completion of the project.

Data Collection

Documents

Relevant documents (refer also to previous list of data sources) which were publicly available were downloaded from the DoEE website. Internal documents, including the NTCRS Risk Assessment (June 2017 – July 2018) and DoEE NTCRS Expenditure 2011-12 to 2017-18, were provided to us by DoEE officers.

Interviews

Seventeen telephone interviews, each of around 60 minutes duration, were conducted with 24 stakeholders. Interviewees included:

- Eight DoEE officers.
- Four people from three different co-regulatory arrangements. ACIG made numerous attempts to contact the fourth co-regulatory arrangement but they did not respond.
- Eight state and territory government officers, with two each from relevant agencies in WA, ACT, NSW and SA. ACIG made numerous attempts to contact the other states and territories but the relevant people did not respond.
- One officer each from a rural council in Victoria, a large metropolitan council in Queensland, and the peak bodies in WA (WALGA) and NSW (Local Government NSW).

ACIG reached out to over a dozen of the councils which had submitted responses to the 2014-15 Operational Review but only one person replied (whom we subsequently interviewed). We also used our own networks to contact another council officer (whom we also subsequently interviewed). Late in the evaluation process DoEE provided contact details for officers within two local government peak bodies (in WA and NSW) whom we subsequently interviewed.

A list of interviewees is provided at Appendix B, and a copy of the interview guide is provided at Appendix C. The detailed notes taken at each interview are NOT provided, in order to preserve the privacy of interviewees and the anonymity of their responses. We used the data gathered during interviews to draw out common or key themes and issues, and have provided de-identified quotes to illustrate these in our report. The interviewees were selected in consultation with DoEE. The challenges ACIG faced in contacting and interviewing stakeholders are further discussed in our findings under KEQ 11 on page 65.

Prior to the interviews, each interviewee was sent an email from DoEE telling them about the NTCRS evaluation and encouraging them to participate. The initial email included: the purpose and the importance of the research; the name and website of the organisation that would undertake the research; the period when the respondents could be expected to be contacted to arrange an interview; privacy information; and a DoEE contact email and phone number to give the stakeholders the opportunity to seek clarification.

In consultation with the DoEE evaluation team, ACIG developed an interview guide. This document lists key discussion points that need to be covered during the course of the interview but – unlike a questionnaire – does not circumscribe the conversation. Our consultants used the interview guide as a prompt, then carefully probed the interviewee for further depth or follow up on other issues of relevance. The guide ensured that all key topics were covered during each interview but did not limit the related issues that were raised by interviewees.

Surveys

ACIG used an online survey to consult with the NTCRS liable parties. The survey was developed in close consultation with DoEE staff. A link to the survey and an explanation of the evaluation was sent by email to potential respondents by the co-regulatory arrangements (at DoEE's request). Of the 141 liable parties, 34 responded to the survey (a 24% response rate).

ACIG also used an online survey to consult with recyclers. Again, the survey was developed in close consultation with DoEE staff and again, a link to the survey and an explanation of the evaluation was sent by email to potential respondents by two of the four co-regulatory arrangements (at DoEE's request).

In total, and based on information provided to ACIG directly as well as sourced from relevant annual reports, the four co-regulatory arrangements work with 19 recyclers around Australia. Some of the recyclers are used by two or more of the co-regulatory arrangements. The survey was sent 14 of those recyclers (74%). Of those 14, 13 responded to the survey – a 93% response rate from those who received the survey, and representing 68% of the total number of recyclers that work with the four co-regulatory arrangements.

As with the stakeholder interviews, we have included quotes from survey respondents (de-identified) throughout the report in order to illustrate the key themes and issues in our findings. However the collected survey responses are NOT provided, in order to preserve the privacy of survey participants and the anonymity of their responses.

Findings

In this chapter, we respond in detail to each of the key evaluation questions (KEQs). We have grouped the KEQs under five evaluation domains: appropriateness, efficiency, effectiveness and impact, sustainability, and improvement.

An overarching summary of our findings, conclusions and recommendations is provided in the final chapter of this report, 'Conclusions and Recommendations'.

Appropriateness

1. To what extent has the program design proven to be adequately matched to identified needs?

We consider that the design of the NTCRS – including the changes made to the scheme following the 2014-15 Operational Review – has proven to be appropriate and adequately matched to the identified needs. However, as discussed under KEQs 1a and 1b below, there are areas where the scheme design should be revisited and potentially revised to ensure that the key identified needs are being met.

The NTCRS was established to meet identified environmental needs arising from the high landfill disposal and low recycling rates of televisions, computers and computer products. These needs are reflected in the stated objectives of the NTCRS:

- reduce waste to landfill, especially hazardous materials found in e-waste;
- increase recovery of reusable materials in a safe, scientific and environmentally sound manner; and
- provide access for households and small businesses Australia-wide to an industry-funded recycling service.

Two policy approaches informed the design of the NTCRS:

- Product Stewardship, where those involved in producing, selling, using and disposing of products have a shared responsibility to ensure those products or materials are managed throughout their life cycle in a way that reduces their impact on the environment and on human health and safety.
- Co-regulation, where government sets the outcomes to be met, and industry funds and implements the scheme.

The NTCRS is the first scheme to be established under the *Product Stewardship Act 2011* and is the largest producer scheme to be rolled out in Australia. The scheme was co-designed by the Australian, state and territory governments. As the co-regulatory approach relied on the cooperation of industry to fund and implement the scheme, it was necessary to secure industry agreement and support from the outset. Consultation with industry stakeholders first took place in July 2009 and again between May 2010 and May 2012. The extended consultation period was intended to optimise the engagement and cooperation of industry, however some of the state and territory government stakeholders whom we interviewed claimed that it delayed the introduction of the NTCRS beyond their expectations.

Some stakeholders also claimed that industry involvement in the design of the scheme meant that the original recycling targets were set too low and did not take into account the level of public demand for e-waste recycling. In the first years of the scheme the co-regulatory arrangements met the target sooner than expected, which caused the co-regulatory arrangements to reduce or withdraw recycling services in some areas to avoid collecting more e-waste than they were funded to recycle. The resulting market fluctuation and instability had significant negative impacts on scheme recyclers, who faced financial and resourcing difficulties when their e-waste feedstock became intermittent or ceased entirely. This problem was recognised and addressed during the 2014-15 Operational Review (discussed further under KEQ 1a below).

Stakeholders have also suggested that the original design of the NTCRS failed to recognise the extent to which consumers, both household and business, had been stockpiling their e-waste. Existing stockpiles led to an early glut of e-waste which contributed to the problem of recycling targets being met much earlier than expected and recycling services being reduced or withdrawn as a result. This had a negative impact on consumers who may have wanted to dispose of their e-waste through the scheme but were unable to do so. It also affected some local councils who had ceased their own e-waste recycling program when the NTCRS was introduced, but were forced to recommence it when scheme-funded recycling services were withdrawn from their area. Current market information indicates that stockpiling is no longer a problem, except possibly in more remote areas where collection services don't operate as frequently as in other areas of the country – this issue is discussed further under KEQ 1b below.

a. Have the needs identified during the original development of the NTCRS changed over time?

In our view the fundamental needs that drove the original development of the NTCRS haven't necessarily changed, but lived experience in implementing and administering the scheme has better informed the way in which the needs can be met.

Problems with the scheme's regulatory design were identified early and articulated in the Operational Review initiated in November 2014. The problems were summarised in the subsequent June 2015 Regulation Impact Statement (RIS) and addressed by changes made to the scheme which were initiated in 2015, as outlined below:

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.

(Source: 2015 RIS, page 5)

To address this problem, from 1 July 2015 a waste arising scaling factor of 0.8 was applied to computers, reflecting higher exports of these products. For printers, computer parts and peripherals which are less frequently exported than computers, the waste arising scaling factor was 0.8. The waste arising scaling factor of 0.9 remained for televisions, reflecting no change in the export trends for this product type.

From 1 July 2015, product codes for televisions became weight-based rather than screen size-based; product codes were also split to reduce weight variation of products within a code; and other product codes were added or removed to reflect changes in technology.

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.

(Source: 2015 RIS, page 5)

In response to the above problem, scheme recycling targets were increased to better meet strong public demand for recycling services and ensure stability and ongoing capacity in the e-waste recycling industry. From 1 July 2015, the target trajectory for industry-funded recycling was raised to 50% of available e-waste for the 2015-16 financial year reaching 80% in 2026-27.

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.

(Source: 2015 RIS, page 5)

To address these concerns, from 1 July 2016, the Australian Government required co-regulatory arrangements to only contract with recycling service providers that are certified to AS 5377: the Australian Standard for the collection, storage, transport and treatment of end-of-life electrical and electronic equipment.

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.

(Source: 2015 RIS, page 5)

To ensure more timely and efficient management of target data, a firm settlement date for liable parties to finalise their import data with the Department of Immigration and Border Protection (DIBP) and notify DoEE of any changes was established as 31 October of each financial year from 2015-16.

DoEE also implemented non-regulatory changes to enhance the scheme including improved stakeholder communication and an expectation that co-regulatory arrangements effectively communicate their contracting processes, particularly any changes in terms, to their service providers. DoEE and co-regulatory arrangements also committed to provide additional information on market trends and capacity to the recycling industry to assist e-waste business planning.

b. What evidence is there that the NTCRS program design meets or is likely to meet identified needs?

One of the key needs that the NTCRS was designed to meet was to minimise the amount of e-waste going to landfill and divert it into the recycling stream instead.

The original design of the NTCRS allowed for a gradual ramping up of annual e-waste recycling targets from 30% in 2012-13 to 80% in 2021-22. As noted above, the target was raised ahead of the original schedule, in response to problems arising in the first years of the scheme when recycling and collection service providers suffered negative impacts from unexpected market fluctuation. This meant that the annual recycling target on 1 July 2015 was set at 50% (instead of 37% under the original target trajectory). The increase in industry-funded recycling in the short term was offset by delaying the eventual end target of 80% to 2026-27 (instead of 2021-22). See Table 1 below.

Table 1: Original and Revised Recycling Targets 2012-13 to 2026-27

| Year | Original Targets | Revised Targets |
|---------|------------------|-----------------|
| 2012-13 | 30% | N/A |
| 2013-14 | 33% | N/A |
| 2014-15 | 35% | N/A |
| 2015-16 | 37% | 50% |
| 2016-17 | 40% | 58% |
| 2017-18 | 48% | 62% |
| 2018-19 | 56% | 64% |
| 2019-20 | 64% | 66% |
| 2020-21 | 72% | 68% |
| 2021-22 | 80% | 70% |
| 2022-23 | 80% | 72% |
| 2023-24 | 80% | 74% |
| 2024-25 | 80% | 76% |
| 2025-26 | 80% | 78% |
| 2026-27 | 80% | 80% |

(Source: 2014-15 Operational Review Issues Paper, data tables pp 29-31; 2015 RIS, pp 3-4)

Despite the changes in 2015, target trajectory continues to be an issue of concern for stakeholders. There is a view among some liable parties and co-regulatory arrangements that the targets are unrealistically high and will cause the scheme to become unsustainable:

"Targets for the IT industry must be measured differently to take into account [of] the large amount of second hand material legitimately exported. This has the potential to break the scheme, increase costs and bring the scheme into disrepute. 80% of

available waste as currently calculated is completely unachievable. Overseas figures are very much lower."

(Source: Liable party survey response)

"[R]educe the targets to a realistic level. A large percentage of EOL [end of life] machines will never make it to the waste stream."

(Source: Liable party survey response)

"[L]ook at targets that are too high. The co regulatory companies have dropped out because the system is unsustainable in its current form."

(Source: Liable party survey response)

"Scaling factor must reflect the level of waste arising in the country, as target increased further, the Scheme will become unsustainable and in view of the light weighting of ITE [information technology equipment]"

(Source: Liable party survey response)

"The methods to calculate waste arising and the collections targets are inaccurate and misguided and industry and the community would be far better served if industry were to guide and drive the scheme focusing primarily on diversion of waste from land fill and reuse targets."

(Source: Liable party survey response)

"We have to look at the scaling factors, targets are now greater than the waste available."

(Source: Co-regulatory arrangement interviewee)

We were advised that it is likely that one co-regulatory arrangement will not meet its recycling target for 2016-17. While some stakeholders have alleged that this supports their view that the target trajectory is unsustainable, we believe it is too soon to draw conclusions and there may be other contributing factors which are not yet known.

Nevertheless, based on stakeholder concerns and market experience, we are of the view that the NTCRS target trajectory should be revisited to ensure that the program remains sustainable and is able to meet its projected outcomes.

In addition to achieving increased volumes of e-waste recycling and material recovery, one of the key objectives of the NTCRS is to provide access for households and small businesses to industry funded recycling services. Many stakeholders have identified this as a need which is not being well met by the current scheme. Some stakeholders believe that the co-regulatory, market-based design of the scheme, did not properly address the disparity between jurisdictions in terms of population distribution, geographic distances and transport costs. As noted in our findings under other KEQs, equity of access to collection services is an issue which requires further consideration and action.

Efficiency

2. How efficiently has the NTCRS been managed and implemented?

In looking at this question we have focused on the way in which the NTCRS has been managed and implemented by DoEE, as opposed to other scheme participants. The way in which other

scheme participants have handled their respective responsibilities is covered in our responses to other KEQs.

As an overall comment, we note there was a broad recognition among stakeholders that DoEE officers are doing the best they can with very limited resources:

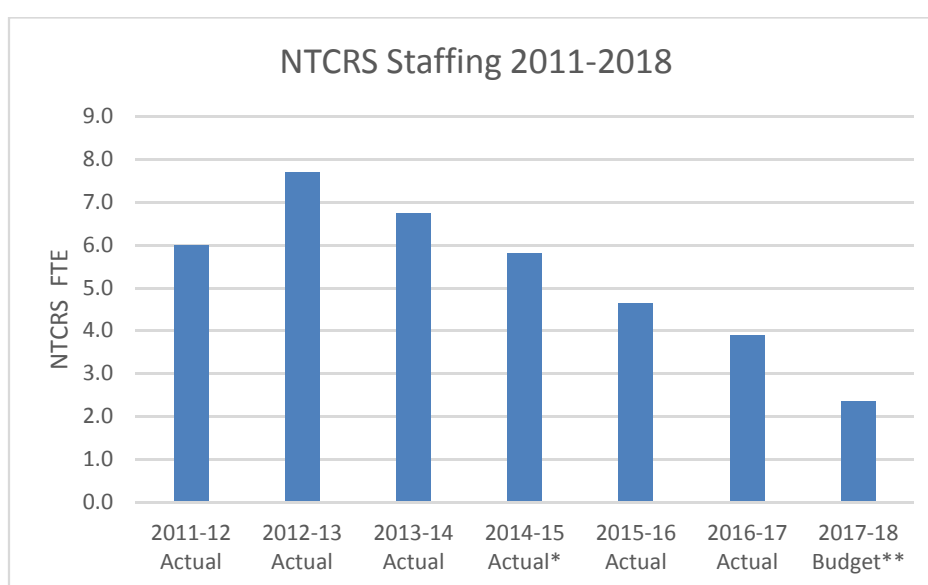
“Departmental personnel are very good, very helpful. A delight to work with even when dealing with hard issues.”

(Source: Co-regulatory arrangement interviewee)

a. To what extent were available resources used to the best effect?

Budget figures provided by DoEE show that full-time equivalent (FTE) staffing resources for the NTCRS generally have been declining over the five years of its operation.

Chart 1: NTCRS Staffing 2011-2018



* Includes FTE and expenses to conduct operational review

** Includes FTE and expenses to conduct statutory review

(Source: DoEE budget figures)

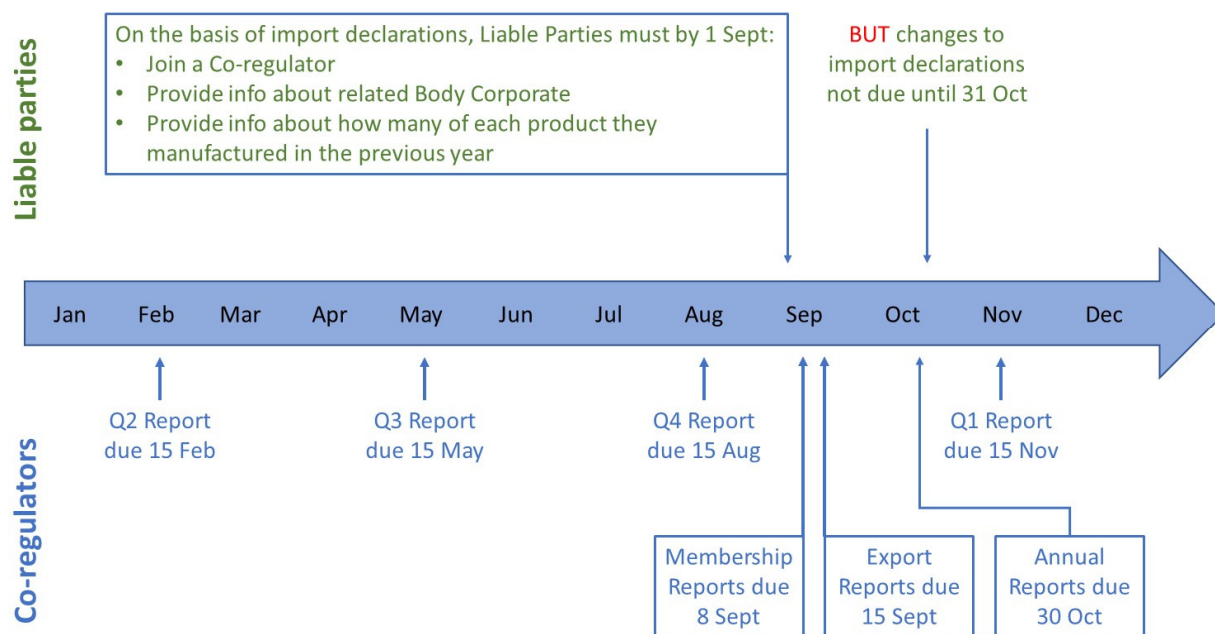
From a high of 7.7 FTE in 2012-13, DoEE NTCRS staffing has declined to 2.4 FTE in the 2017-18 financial year. DoEE staffing levels for the scheme reflect the declining financial resources.

We were advised that despite the decline in FTE resources, DoEE has continued to meet the ongoing administrative requirements for the NTCRS – including liable party notifications, co-regulatory arrangement oversight and liaison through quarterly meetings, data analysis and outcomes reporting.

However, the lack of available resources means that additional activities, which in the view of DoEE officers and other stakeholders would enhance the operation and effectiveness of the NTCRS, have not been able to be undertaken to date.

A particular area of concern relates to DoEE's reporting timeline. As shown in the chart below, liable parties have to join a co-regulatory arrangement and provide relevant information by 1 September each year. But their import declarations – which are used to determine whether or not an importer is or is not a liable party – are not finalised until 31 October each year. Thus some liable parties join a co-regulatory arrangement on the basis that they *might* be a liable party.

Chart 2: NTCRS Reporting Timeline



(Source: DoEE interviewees)

Similarly inefficient is the cluster of reports due in September and October. The data in the export reports, for example, is required to be independently audited and these audits often must be arranged in the short time between a liable party having to join a co-regulatory arrangement (on 1 September) and the export report falling due (15 September). Some of these timelines are legislated, while other are internally set by DoEE. While we have not undertaken a detailed process mapping exercise, there are some obvious points at which the timelines are very tight, and any slippage in one will inevitably have a cascading effect onto the others.

Missing from the above timeline chart are the multiple points at which DoEE reaches out to the liable parties: at least three formal notifications are sent out, plus additional time spent answering questions by phone and email. Rather than the liable parties providing information to DoEE about their import and export activities, DoEE provides that information to *them*.

According to the stakeholders we interviewed, the data which DoEE uses to identify liable parties is provided by DIBP. DIBP has no single resource dedicated to providing this data and, to a large extent, DoEE depends on the goodwill of DIBP staff to provide it.

The proper administration of the NTCRS is heavily dependent on the accuracy and timeliness of the data supplied by DIBP, by the co-regulatory arrangements and by the liable parties. We were advised that these data sets don't always match up, requiring DoEE officers to conduct manual checks of the data supplied to them and then follow up with scheme participants to

verify and correct any discrepancies. This was the reason given for the time taken for DoEE to issue its annual outcomes report, which is usually several months after its receipt of annual reports from the co-regulatory arrangements. At the time of this evaluation, DoEE had not issued its annual outcomes report for 2015-16.

NTCRS data is collected, collated and managed within software that DoEE calls PS Online. Although PS Online was originally built specifically for the NTCRS, the requirements of the scheme have become more complex since its inception. While the software has been modified and improved over time, it does not consistently perform the tasks it was designed to do, and is often broken, preventing DoEE from administering the scheme more effectively. DoEE officers reported that they need to manually check the data in the system due to concerns about reliability and accuracy, and they spend an inordinate proportion of their time trying to manage and maintain the system.

It was not within the scope of this evaluation to undertake a detailed process mapping exercise of DoEE's administration of the scheme, but on a high-level analysis we believe that there may be opportunities for process improvement.

3. How efficient has the NTCRS been in delivering its intended outcomes?

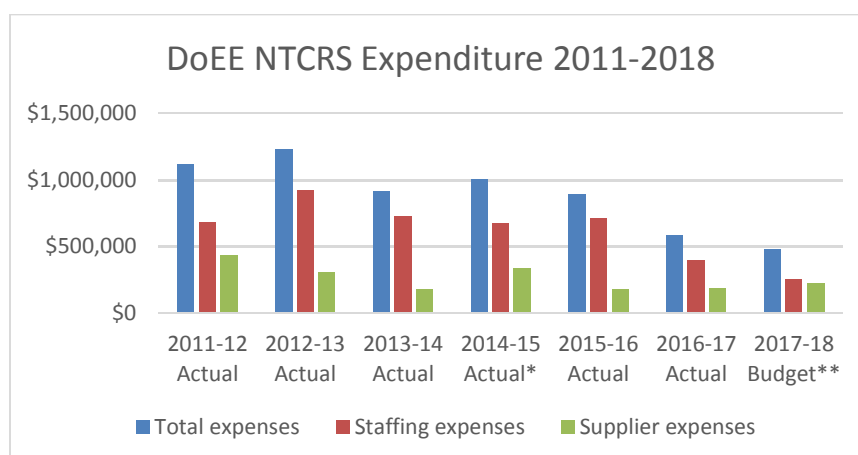
a. To what extent are the costs of program delivery justifiable against its results?

Noting that a detailed cost-benefit analysis was beyond the scope of this evaluation, our finding is that the costs of program delivery are clearly justifiable against its results, and represents good value for money for the Australian Government.

We were provided with DoEE budget figures for NTCRS expenditure from 2011-12 to 2017-18. Total actual expenditure for the period 2011-12 to 2016-17 was \$5,744,532 (comprising staffing and supplier expenses). The budgeted figure for 2017-18 is \$478,491.

As illustrated in Chart 3 below, Government expenditure on the NTCRS has been steadily decreasing over time, as would be expected for a program which has been operating for several years.

Chart 3: DoEE NTCRS Expenditure 2011-2018



* Includes FTE and expenses to conduct operational review

** Includes FTE and expenses to conduct statutory review

Note: This evaluation is not funded from the NTCRS budget

(Source: DoEE budget figures)

Despite the decrease in budget, DoEE maintains that it has managed to deliver the scheme with high compliance results and good customer satisfaction rates. DoEE's annual outcomes reports from 2011-12 to 2014-15 demonstrate that the scheme has mostly achieved the three key outcomes specified in the Regulations: the provision of reasonable access to collection services in metropolitan, regional and remote areas; annual recycling targets; and a material recovery target.

Table 2: Key NTCRS Outcomes by Year

| Year | Access to Services | Annual Recycling Targets | Material Recovery |
|---------|-----------------------------------|---|---|
| 2012-13 | 635 collection services provided | Target: 30% (41,327 tonnes) Achieved: 40,813 tonnes Target not met (98.8% achieved) | N/A – material recovery target not in effect |
| 2013-14 | 1181 collection services provided | Target: 33% (43,430 tonnes) Achieved: 52,735 tonnes Target exceeded | N/A – material recovery target not in effect |
| 2014-15 | 1677 collection services provided | Target: 35% (42,653 tonnes) Achieved: 44,730 tonnes Target exceeded | Target: 90% Achieved: All co-regulatory arrangements reported meeting the target |

(Source: DoEE annual outcomes reports 2012-13 to 2014-15)

NTCRS team members have informed us that since 2014-15 the overall total of e-waste collected and recycled has increased to more than 230,000 tonnes.

The 2015 RIS estimated the costs to industry over the first three years of the scheme 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.

Total industry costs for the period 2012-2015 were \$133.7 million compared with total government (DoEE) expenditure over the same period of \$3,154,036. On this basis, the NTCRS can be regarded as highly cost-effective as far as government expenditure is concerned. This can be attributed to the fact that the scheme was deliberately designed to make industry bear most of the costs, in line with product stewardship principles.

We found that the degree to which the NTCRS was considered to be cost-effective for other stakeholder groups was variable. Some local councils have been pleased to see their own costs come down, as the combination of market competition, increasing recycling targets and declining volumes of e-waste has put them in a strong position to negotiate favourable collection arrangements.

However, not all local councils reported such positive financial outcomes. One interviewee explained that prior to the NTCRS, their council had negotiated an e-waste collection service in their area at very low consumer charges (\$2-\$10). The council discontinued the service when free collection under the NTCRS was introduced, but discovered that they now have to pay higher rates for the collection of e-waste that is not included in the scheme such as VCRs and microwaves (i.e. non-scheme e-waste) in their area – which, being a regional area, accounts for a greater proportion of e-waste than is collected under the scheme. So in this stakeholder's experience, the NTCRS is far less cost-effective than their previous arrangement.

Perhaps not surprisingly, some of the liable parties who responded to the survey questioned whether the scheme is cost-effective, suggesting that the scheme has had a negative cost impact:

"It has raised the consumer price of relevant electronic goods, and reduced shareholder returns on those goods. It has imposed a taxation on free trade, for no benefit whatsoever to the economy, or the environment."

(Source: Liable party survey response)

"The total costs of recycling have significantly increased due to the rapid increase of targets even though the unit price for recycling has been coming down."

(Source: Liable party survey response)

"PC importers are extremely disadvantaged by the scheme to the extent that they are subsidizing the cost to recycle TV industries products."

(Source: Liable party survey response)

"Costing us a lot of money for what I see as little result to waste."

(Source: Liable party survey response)

While not discounting these criticisms, it is important to note that the majority of liable parties who responded to the survey thought that the scheme is working well and is having a positive impact. Of course, believing that the scheme is a good thing is not necessarily the same as believing that the scheme is cost-effective, or more cost-effective than other options. However, we would suggest that the high rates of liable party compliance indicate that, while not all companies may be happy about paying them, the costs are not overly burdensome. We note that 91% (31 out of 34) of liable party survey respondents expected that they would still be a liable party in 2017-18, which implies that they will continue to import sufficient units to meet the scheme threshold.

During stakeholder consultations, it was suggested to us that a few smaller companies may have gone out of business as a result of the NTCRS. We note that the information was hearsay and we were unable to verify whether this had in fact happened, or whether the companies' business problems were a direct result of the NTCRS. The product importation thresholds (5,000 units for televisions, 5,000 units for computers and 15,000 for computer peripherals) would rule out many very small businesses anyway.

We further note that the total number of liable parties identified by DoEE in the first three years of the scheme remained relatively stable: 131 in 2012-13, 141 in 2013-14 and 130 in 2014-15. We understand that some companies have dropped in and out during that time. A comparison of the number of liable party members for each co-regulatory arrangement in 2013-14 and

2014-15 (data was not available for 2012-13) indicates that there is a degree of movement between co-regulatory arrangements. See Table 3 below.

Table 3: Number of Liable Party Members per Co-Regulatory Arrangement in 2013-14 and 2014-15

| Co regulatory Arrangement | No of Liable Party Members in 2013 14 | No of Liable Party Members in 2014 15 |
|---------------------------|---------------------------------------|---------------------------------------|
| ANZRP | 67 | 45 |
| DHL | 37 | 34 |
| E-cycle Solutions | 11 | 13 |
| EPSA | 6 | 16 |
| Reverse E-waste | 18 | 22 |
| Total | 139 | 130 |

(Source: DoEE annual outcomes reports 2013-14 and 2014-15)

To understand the degree of flux between co-regulatory arrangements, we analysed EPSA which increased its members from six in 2013-14 to 16 in 2014-15. Our analysis showed that EPSA lost two members and gained 12 members (resulting in the net gain of ten). Of the 12 new members, eight had previously been members of other co-regulatory arrangements, while four were new liable parties in 2014-15.

Although we have not undertaken a full cost-benefit analysis, we believe that the NTCRS has proven to be cost-effective. Taking into consideration all stakeholders involved, including government, industry, business and consumers, we consider that the NTCRS represents good value for money from a broader societal view. This is discussed further in our findings under the 'Effectiveness and Impact' and 'Sustainability' KEQs below.

b. To what degree is the scheme cost-effective compared to other like programs or other options that address the same needs?

Whether the costs to government and industry would be higher or lower under comparative programs is difficult to assess due to the fact that there are no other "like programs" to the NTCRS. There are product stewardship e-waste recycling programs in overseas jurisdictions that feature some of the same elements of the NTCRS, however they cannot be regarded as directly comparable to the NTCRS due to differences in type of regulated products, market conditions, environmental law and regulation, geographic location and economies of scale.

In evaluating the cost-effectiveness of the NTCRS, it is useful to give some consideration to what would have happened in the absence of a national, co-regulatory scheme for television and computer e-waste. Based on information provided by interviewees, our view is that state, territory and local government jurisdictions would have continued or commenced their own e-waste collection and recycling schemes. This would have resulted in an ad hoc, piecemeal approach and is unlikely to have achieved national coverage in the same way that the NTCRS has done. It is also unlikely that individual jurisdictions would have been able to secure the support and cooperation of industry for a product stewardship scheme like the NTCRS.

Effectiveness and Impact

4. Were communication and education activities adequate?

The design of the scheme envisaged that DoEE would communicate primarily with co-regulatory arrangements, and the co-regulatory arrangements would be responsible for communicating with their liable party members. An exception to this general rule is that DoEE directly advises all liable parties of their scheme liability each year.

We were advised that DoEE has undertaken the following communication and education activities in relation to the NTCRS:

- Publishing FAQs, reports and other content on the [NTCRS homepage](#) on the Departmental website. This includes some information which is specifically targeted at scheme participants.
- Operating a Product Stewardship information line and email inquiries service.
- Conducting a national roadshow in 2014 to engage with state, territory and local governments.
- Conducting semi-regular meetings with state and territory governments.
- Individual contact and follow up with all liable parties, multiple times during the scheme year.
- Regular contact with all co-regulatory arrangements.

We were not provided with comprehensive information about the communication and education activities undertaken by other stakeholder groups, however we were advised that:

- Co-regulatory arrangements maintain regular communication with their recyclers and liable parties, as a necessary part of scheme administration.
- Co-regulatory arrangements and/or recyclers communicate with the local councils that they service under the scheme.
- Some state and territory governments have provided information to co-regulatory arrangements about the regulatory requirements within their jurisdiction.
- Most, if not all, local councils produce information for residents about e-waste recycling services in their area.
- One Local Government Association facilitated a meeting of local councils, recyclers and co-regulatory arrangements in 2015.

a. How were the target audiences for education and information determined and to what extent were they reached?

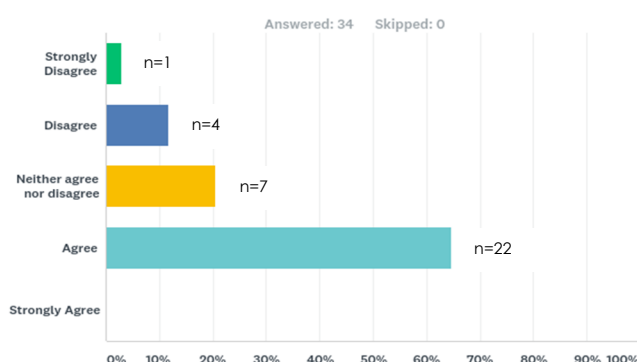
We have evaluated the education and communication activities under three target audience categories: Industry – including co-regulatory arrangements, liable parties and recyclers; Government – including state, territory and local government; and general public.

Industry

As noted under KEQ 2a on page 24, DoEE undertakes extensive communication with liable parties during the scheme year. We understand this communication is focused on making liable parties aware of their liability under the scheme, and providing them with information to help them to comply with their obligations. A majority of liable party survey respondents (64.71%) agreed that communications from DoEE helped them become aware of their liability under the NTCRS.

Chart 4: NTCRS Evaluation Liable Party Survey Question 5

Q5 Communications from the Australian Government Department of the Environment and Energy helped my organisation to become aware of its liability under the NTCRS



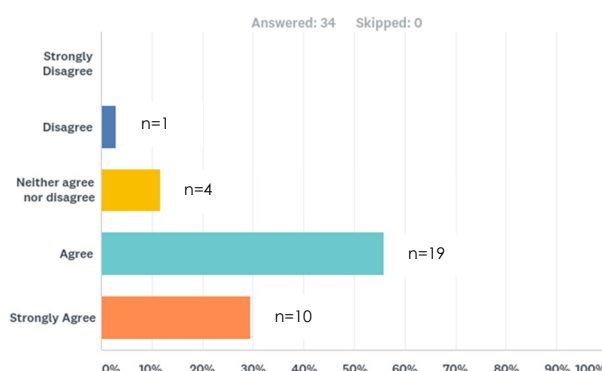
(Source: NTCRS evaluation liable party survey, July 2017)

The high compliance rates for liable parties (see Table 3: *Liable Party Numbers by Year* under KEQ 3a on page 29) can also be regarded as a measurement of how well that particular target audience has been reached.

The survey of liable parties indicated a high level of satisfaction with respect to communication with their co-regulatory arrangement (85.29% agree or strongly agree that communication from their co-regulatory arrangement helped them to comply with the NTCRS).

Chart 5: NTCRS Evaluation Liable Party Survey Question 6

Q6 Communication with the Co-regulator helped my organisation to comply with its NTCRS liability.

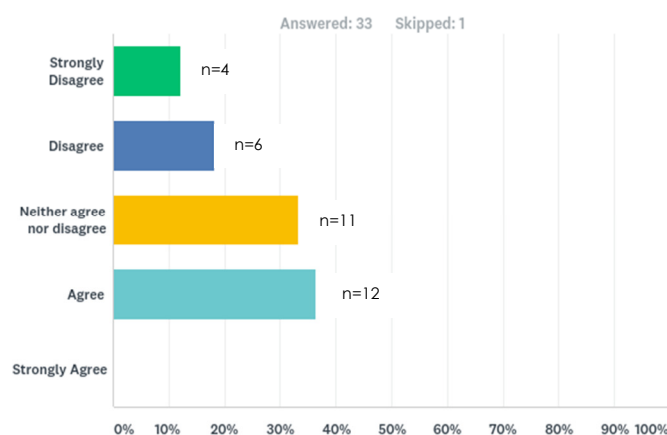


(Source: NTCRS evaluation liable party survey, July 2017)

The surveys also indicated that approximately one-third of liable parties (36.36%) and two-thirds of recyclers (61.54%) who responded to the survey thought that the level of understanding of the NTCRS within their organisation is strong.

Chart 6: NTCRS Evaluation Liable Party Survey Question 4

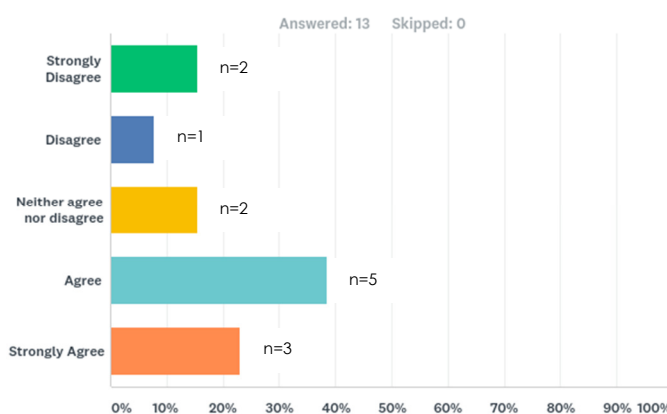
Q4 I think the level of understanding of the NTCRS within my organisation is strong.



(Source: NTCRS evaluation liable party survey, July 2017)

Chart 7: NTCRS Evaluation Recycler Survey Question 6

Q6 I think the level of understanding of the NTCRS within my organisation is strong.



(Source: NTCRS evaluation recycler survey, July 2017)

Government

Government stakeholders had mixed views on the adequacy of communications and education activities in relation to the NTCRS.

Of the state and territory government officials we interviewed, most advised that their communication with DoEE had improved significantly since the scheme was introduced, and that DoEE had been responsive to the concerns they raised in the first years of the scheme and as part of the 2014-15 Operational Review. Some state government officials commented that

the information they receive about the NTCRS is not as regular or as comprehensive as they would like, especially with respect to how the scheme is operating within their own jurisdiction.

State and territory government officials were somewhat uncertain about the extent to which they were expected to communicate directly with scheme participants. For example, some mentioned that they were surprised to discover when the NTCRS was first introduced, that co-regulatory arrangements seemed to be unaware of the different environmental regulations in each jurisdiction. Some states and territories advised that they provide information about the NTCRS on their websites, and one advised that they ran an advertising and social media campaign when the NTCRS was introduced, however in general they do not consider it their role to engage in active promotion of the scheme.

Local council interviewees advised that they received most of their communications about the NTCRS from a co-regulatory arrangement and/or recycler, and that these communications were adequate for the purposes of understanding and fulfilling their role under the scheme. However, we were advised that the quality of communications between co-regulatory arrangements and local councils varies across the country. It was suggested that DoEE should provide national guidance or a central feed to help improve the consistency and accuracy of communications to local councils.

General public

We did not undertake any general public consultation as part of this evaluation, but all stakeholders were asked for their opinion on public awareness of the NTCRS. We note that 'educating public and importers about the scheme' is one of the activities listed in DoEE's program logic (Appendix D), with 'raised awareness' listed as a subsequent outcome.

There was a strong consensus view that public awareness of the NTCRS is very low. However, stakeholders had mixed views about the extent to which the public needs to know about the scheme.

On the one hand, some stakeholders considered that the public doesn't need to know about the NTCRS per se, they just need to know what they can recycle, and how they can access recycling services. If the assumption that the general public doesn't need to know detailed information about the NTCRS is accepted, then we would regard the current levels of communication to be adequate, based on the simple measures that scheme targets are being met and collection services are well used, as demonstrated by statistics in co-regulatory arrangements' annual reports and DoEE annual outcomes reports.

On the other hand, some stakeholders believed that public knowledge of the scheme is important, and more should be done to improve it:

"National awareness raising should be more effectively implemented by Department rather than individual co-regulatory arrangement[s], so that the message is consistent and [does] not pose confusion."

(Source: Liable party survey response)

If this view is accepted, then based on the majority view of stakeholders we would conclude that communications to the general public is currently inadequate. Stakeholders put forward different reasons why this might be the case. For example, the quote above cites problems with inconsistent or confusing messaging from different co-regulatory arrangements. Some

stakeholders pointed out that it is not in the commercial interests of co-regulatory arrangements to engage in general advertising and promotion of the NTCRS, for two reasons:

- They are naturally averse to doing anything that costs them money and which might end up benefitting their competitors.
- They don't want to attract excessively higher volumes of e-waste to their collection services than they need to meet their annual recycling target.

There appears to be an expectation on the part of some stakeholders that local councils will play a role in public communication. However, one local council interviewee explained that it is not necessarily in their interest to do so:

"Council is reluctant to overly promote the scheme because the more we promote, the more it costs us [to dispose of non-scheme e-waste]."

(Source: Local council interviewee)

In looking at communications to the general public, at least one liable party has taken the opportunity presented by the NTCRS to enhance its own marketing and communications:

"The scheme also enabled us to develop our own branding to take back equipment for recycling. This enabled our business to own and champion this program."

(Source: Liable party survey response)

5. Were the activities and their resourcing adequate to ensure the delivery of the planned outputs?

In responding to this KEQ, we have referred to the program logic table developed retrospectively by DoEE to reflect the planned action and intended changes in early 2017. A copy of the program logic is provided at Appendix D. The program logic lists the agreed activities and planned outputs for the NTCRS.

Our overall assessment is that the activities and their resourcing has been mostly adequate to ensure delivery of the majority of planned outputs, as explained in further detail below.

a. Were the activities that were delivered adequate in achieving the planned outputs?

We have answered this question together with KEQ 5b below.

b. Were the resources provided adequate to achieve the planned outputs?

Table 4 below records the activities and outputs that were listed in DoEE's program logic. Against each, we have made a combined high-level assessment of:

- The adequacy of DoEE activities in achieving the planned outputs. The activities were considered adequate if the output was achieved, and not adequate if the output was not achieved.
- The adequacy of DoEE resources in achieving the planned outputs. Again, the resources were considered adequate if the output was achieved, and not adequate if the output was not achieved.

Where there are questions or issues about the adequacy of DoEE resourcing or activities, or both, we have provided additional commentary.

To summarise the findings presented in the table below:

- DoEE activities in achieving the planned outputs were and are adequate. The desired outputs have all been achieved as planned, with the exception of stakeholder engagement (which has been achieved to some extent, but not through the delivery of the planned outputs).
- DoEE resources for achieving the planned outputs were adequate. However, the consistent decline in available resources has contributed to DoEE's inability to fully engage with key stakeholders and has also led to substantial inefficiencies in data collection, assessment and management.

Table 4: Assessment of NTCRS Outputs

| Activities | Planned Outputs | Assessment of Adequacy of Achievement |
|--|--|---|
| Regulate using a co-regulatory approach | Product Stewardship Act and Regulations | Adequate. Relevant legislation and regulations have been enacted. |
| Establish incentives for compliance | Provide civil penalties for non-compliance with Act/regulations | Adequate. Liable party compliance is very high. Relevant civil penalties are in place for non-compliance (according to interviewees, these have not been applied to date). |
| Import and analyse customs data to establish targets and liability | (Annual) scheme target and co-regulators' share of the scheme target (final sent to co-regulators in November) | Adequate. Co-regulatory arrangements are notified each November. Some stakeholders noted concerns with timing, and would prefer notification about target share to occur earlier. But as targets rise, it will be less likely that co-regulatory arrangements will meet or exceed their individual targets prior to November. |
| Assess liability and notify liable parties | Statements of advice (liability) sent to liable parties in May and July, with final in November. | Adequate. Liable parties are sent relevant notifications at specified times. Additional information and support is also provided to liable parties by phone and email. |
| Assess and approve co-regulators | Approved co-regulatory arrangements | Adequate. Co-regulatory arrangements were assessed according to the Regulations and, as appropriate, approved. As new co-regulatory arrangements have sought to join the scheme, they have been similarly assessed and approved. |

| Activities | Planned Outputs | Assessment of Adequacy of Achievement |
|--|--|--|
| Assess and approve co-regulators' quarterly and annual reports (through PSO) | Approved co-regulators reports | <p>Adequate. Co-regulatory arrangements' quarterly and annual reports are assessed and approved.</p> <p>As identified in our response to KEQ 2a on page 24, delays occur when the co-regulatory arrangements' annual reports do not tally with the separate figures provided to DoEE (by the co-regulator arrangements themselves). These delays are sometimes exacerbated by PS Online, in which co-regulatory arrangements may experience problems entering or uploading data.</p> |
| Engage and collaborate with key partners | <p>Consultative /reference group</p> <p>Quarterly visits to co-regulators</p> <p>Conference papers and presentations</p> | <p>Not adequate. DoEE does engage with key stakeholders (as discussed under KEQ 4 on page 30) but not through all of the planned outputs articulated here.</p> <p>A formal consultative /reference group does not exist.</p> <p>DoEE liaises with state and territory governments on an ad hoc basis (approximately annually), and there is no regular liaison with local government.</p> <p>Engagement with co-regulatory arrangements is generally undertaken on a quarterly basis, including site visits to co-regulatory arrangements' offices (there have been a couple of exceptions).</p> <p>Conference papers and presentations were planned, particularly at the annual conferences of state-based peak bodies for local government but have never been undertaken due to DoEE resourcing constraints (according to DoEE interviewees).</p> |
| Monitor and report on scheme implementation and outcomes | <p>Annual scheme outcomes report</p> <p>Assessment of co-regulators' annual reports</p> | <p>Adequate. DoEE has produced an annual scheme outcomes report for 2011-2012, 2012-13 and 2014-15, assesses the co-regulatory arrangements' annual reports and provides input to the DoEE annual report.</p> |

| Activities | Planned Outputs | Assessment of Adequacy of Achievement |
|---|---|--|
| | DoEE annual report input | As noted under KEQ 2a on page 24, delays in the publication of the 2015-16 outcomes report are due to the need for DoEE officers to check and reconcile data inaccuracies. |
| Educate the public and importers about the scheme | Website content, Product Stewardship information line & written responses to queries in E-waste inbox | <p>Adequate. DoEE provides comprehensive website content including information targeted at scheme participants, a Product Stewardship information line and written responses to queries in E-waste inbox.</p> <p>As noted in response to KEQ 4 on page 30, many stakeholders indicated that they are keen for DoEE to provide a more cohesive communications strategy, rather than relying on four competing co-regulatory arrangements.</p> |

6. To what extent has the NTCRS been implemented as intended?

a. Has adequate resourcing been provided to the NTCRS?

As previously noted in our response to KEQ 2a on page 24, we were advised by DoEE interviewees that despite the decline in FTE resources, DoEE has continued to meet the ongoing administrative requirements for the NTCRS. However, the lack of available resources means that additional activities have not been able to be undertaken to date (also noted in our assessment of program outputs in *Table 4: Assessment of NTCRS Outputs* under KEQ 5 on page 34).

DoEE provided us with a comprehensive risk management plan for 2017-18. This risk management plan adequately covers the requirements of the program but the risk management plan will be difficult (if not impossible) to fully implement without additional staff and resources. In our discussions with DoEE officers it became clear that many of the risks identified are addressed only by maintaining a watching brief, rather than through direct risk mitigation activities.

b. What outputs has the NTCRS delivered?

The outputs delivered by the NTCRS, listed in the DoEE program logic, are provided in *Table 4: Assessment of NTCRS Outputs* under KEQ 5 on page 35.

Refer also to *Table 2: Key NTCRS Outcomes by Year* (under KEQ 3a on page 27).

c. How consistent has the implementation been across organisations and target audiences?

Both the Government and industry participants are responsible for implementing the NTCRS.

Our findings on the way in which the scheme has been implemented by the Government are detailed under KEQs 2a (page 24) and 5 (page 34). We have found that the implementation of the NTCRS by DoEE has been of a consistently high standard, taking into account declining resources since the scheme was introduced.

Based on the outcomes of the scheme to date (discussed in more detail under KEQ 7 on page 38) and views expressed by stakeholders, implementation has been of a consistent standard across industry participants and target audiences. DoEE officers reported that the majority of liable parties and co-regulatory arrangements have a good understanding of how the scheme works and how to comply with their obligations – this is supported by the high compliance rates of liable parties (97-99% over the life of the scheme). However, implementation has not always been entirely consistent across the industry. One co-regulatory arrangement withdrew from the scheme in 2015 after DoEE conducted a review of its operations, identifying apparent shortcomings in its performance.

d. What were the barriers to, and enablers of, implementation activities?

In the wake of the 2015 changes to the scheme, DoEE's implementation activities have focused largely on liable party and co-regulatory arrangement compliance. These activities have been carried out effectively despite barriers including:

- substantial inefficiencies in data collection, assessment and management (via the use of PS Online);
- a downward trend in DoEE resourcing of the NTCRS over the period 2012-13 to 2017-18; and
- anomalies in the reporting timeline mandated by the Regulations (as outlined previously in our response to KEQ 2a on page 24).

As we have noted throughout this report, resourcing constraints currently prevent DoEE from providing a similarly high level of focus towards stakeholder engagement (particularly with states, territories and local councils).

An important enabler of the NTCRS implementation activities is the DoEE officers themselves. Many of the stakeholders we interviewed expressed dissatisfaction with parts of the scheme but just as many (and indeed many of the same people) made a point of noting the professionalism and dedication of the DoEE NTCRS team. In our interviews with those officers we were impressed by their depth of knowledge and, perhaps just as importantly, by their enthusiasm for and belief in the anticipated outcomes of the scheme.

Some liable parties and recyclers reported that they were required to invest more in staffing and administration to implement their responsibilities under the scheme – some viewed this as a positive impact on their business capability, others as a negative cost imposition.

7. How effective has the NTCRS been in achieving its intended outcomes?

a. What outcomes have been achieved to date?

The NTCRS program logic (compiled by DoEE and provided at Appendix D) identified a number of intended outcomes:

- short-term (i.e. first year) immediate outcomes, focused on learnings: awareness, knowledge, skills, motivations;
- medium term (i.e. after three years) intermediate outcomes, focused on action: behaviour, practice, decisions, policies; and
- long-term (i.e. after five-ten years) outcomes, focused on consequences: social, economic, environmental.

Drawing on information from the DoEE annual outcomes reports, the co-regulatory arrangements' annual reports, the 2014-15 Operational Review, the 2015 RIS and stakeholder consultation, we have assessed the outcomes achieved to date in the following table.

Table 5: Achievement of NTCRS Outcomes

| | Intended Outcome | Assessment | Source |
|----------------------------|---|--|---|
| Short term outcomes | | | |
| 1 | Increased knowledge about objectives and penalties | Outcome has been achieved. Relevant stakeholders have demonstrated their increased knowledge through participation and compliance. See discussion of KEQ 4 (page 30) and 5b (page 34) | Statements in co-regulatory arrangements' annual reports and in DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS |
| 2 | Liable parties aware of their liabilities | Outcome has been achieved. Liable party awareness of, and compliance with, their obligations is high. See discussion of KEQ 4a (page 30) and 5b (page 34) | Liable party compliance statistics and statements in DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS Stakeholder interviews and survey responses |
| 3 | Liable parties join an approved co-regulatory arrangement | Outcome has been achieved. Liable parties have joined approved co-regulatory arrangements. See discussion of KEQ 4a (page 30) | Liable party compliance statistics in DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS |
| 4 | Co-regulatory arrangements provide | Outcome has been achieved. Access to | Collection service statistics in co-regulatory arrangements' |

| | Intended Outcome | Assessment | Source |
|-----------------------------|--|--|---|
| | reasonable access to collection, recycling and recovery services | collection, recycling and recovery services is available in each state and territory. However some stakeholders indicated that access by people in regional and rural locations could be further improved. See discussion of KEQs 9a (page 53) and 9b (page 56) | annual reports and DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS |
| 5 | Co-regulatory arrangements meet their reporting, governance and other matters required under legislation | Outcome has been achieved. Co-regulatory arrangements do meet their legislative requirements. However the reporting process and timelines could be improved. See discussion of KEQ 2a (page 24) | Statistics and statements in co-regulatory arrangements' annual reports and DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS |
| 6 | Effective relationship established between DOEE, states and territories, and co-regulatory arrangements | Outcome has not been achieved. Relationship between DoEE and co-regulatory arrangements is adequate but DoEE's relationships with state and territory governments is inconsistent. See discussion of KEQ 5b (page 34) and Effectiveness and Impact (page 70) | Stakeholder interviews |
| Medium term outcomes | | | |
| 7 | Increased awareness and knowledge about scheme performance | Outcome has been achieved. DoEE publishes the co-regulatory arrangements' annual reports and its own annual outcomes reports detailing scheme performance. See discussion of KEQ 4a (page 30) | Co-regulatory arrangements' annual reports and DoEE annual outcomes reports Stakeholder interviews and survey responses |
| 8 | Broader awareness of e-waste recycling collection services | Outcome has been achieved. E-waste recycling collection services are well used, and stakeholders | Collection service statistics in co-regulatory arrangements' |

| | Intended Outcome | Assessment | Source |
|--------|---|---|---|
| | | <p>indicated that there was a demand for additional services.</p> <p>See discussion of KEQ 5b (page 34) and Effectiveness and Impact (page 70)</p> | <p>annual reports and DoEE annual outcomes reports</p> <p>Stakeholder interviews and survey responses</p> |
| 9 & 10 | <p>Increased compliance with the scheme by co-regulatory arrangements and liable parties.</p> <p>Liable parties comply with regulations</p> | <p>Outcome has been achieved. Co-regulatory arrangement and liable party awareness of, and compliance with, scheme obligations is consistently high.</p> <p>See discussion of KEQ 4a (page 30) and 5b (page 34)</p> | <p>Liable party compliance statistics and statements in DoEE annual outcomes reports</p> <p>Stakeholder interviews and survey responses</p> |
| 11 | Co-regulatory arrangements achieve share of recycling targets as they increase to 80% and recovery targets | <p>Insufficient evidence to assess whether outcome has or has not been achieved.</p> <p>While co-regulatory arrangements are currently meeting their targets (except for one in 2016-17), there is insufficient evidence to assess whether co-regulatory arrangements will continue to achieve their share of targets as they increase over time.</p> | N/A |
| 12 | Improved management of recycling performance and OH&S responsibilities | <p>Insufficient evidence to assess whether outcome has or has not been achieved.</p> <p>We note the introduction of AS 5377 is intended to help achieve this outcome, but assessment of recyclers' performance and OH&S responsibilities was beyond the scope of this evaluation.</p> | N/A |
| 13 | Effective collaboration between DOEE, states and territories and co-regulatory arrangements | Outcome has not been achieved. Collaboration between DoEE and co-regulatory arrangements is adequate but DoEE's relationships with state and | Stakeholder interviews |

| | Intended Outcome | Assessment | Source |
|---------------------------|---|---|--|
| | | territory governments is inconsistent. See discussion of KEQ 5b (page 34) and Effectiveness and Impact (page 70) | |
| 14 | Increased use of performance information to improve scheme | Outcome has been achieved. DoEE has demonstrated a willingness to continually review and improve the scheme. | 2014-15 Operational Review issues paper 2015 RIS Stakeholder interviews |
| 15 | Increased use of performance information by states and territories to improve policies and planning | Insufficient evidence to assess whether outcome has or has not been achieved. Assessing the use of performance information by states and territories was beyond the scope of this evaluation. | N/A |
| 16 | Broader use of e-waste recycling collection services | Insufficient evidence to assess whether outcome has or has not been achieved. Assessing 'broader use' of waste recycling collection services was beyond the scope of this evaluation. (Further, we note the term "broader use" is vague and therefore difficult to assess) | N/A |
| Long term outcomes | | | |
| 17 | Reduced waste (by weight) to landfill, specifically the hazardous materials found in e-waste | Outcome is in process of being achieved. Relevant targets have been achieved each year. | Statements and recycling statistics in co-regulatory arrangements' annual reports and DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS Stakeholder interviews and survey responses |

| | Intended Outcome | Assessment | Source |
|----|---|---|--|
| 18 | Increased recovery of reusable materials in a safe, scientific and environmentally sound manner | Outcome is in process of being achieved. | Statements and recovery statistics in co-regulatory arrangements' annual reports and DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS Stakeholder interviews and survey responses |
| 19 | Increased recycling, including by households and small business, as a result of access to fair and equitable industry funded recycling schemes available nationally | Outcome is in process of being achieved. | Statements and recycling statistics in co-regulatory arrangements' annual reports and DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS Stakeholder interviews and survey responses |
| 20 | Increased efficiency, quality and coverage through national rollout of the scheme | Outcome is in process of being achieved. Access to collection, recycling and recovery services is available in each state and territory. However some stakeholders indicated that access by people in regional and rural locations could be further improved. See discussion of KEQs 9a (page 53) and 9b (page 56) | Statements in co-regulatory arrangements' annual reports and DoEE annual outcomes reports 2014-15 Operational Review issues paper 2015 RIS Stakeholder interviews and survey responses |
| 21 | Other businesses using a standardised approach to ensure that high volume collection and management of end of life e-waste is conducted in a safe, | Insufficient evidence to assess whether outcome has or has not been achieved. Assessing whether businesses used a standardised approach was beyond the scope of this evaluation. (Further, we note the term | N/A |

| | Intended Outcome | Assessment | Source |
|----|---|--|--|
| | environmentally friendly way | "other businesses" is vague and therefore difficult to assess.) | |
| 22 | Increased responsibility taken by industry/importers for products throughout and at end of a product's life | <p>Insufficient evidence to assess whether outcome has or has not been achieved.</p> <p>However we note that the fact that liable parties are funding the scheme and targets are being met is perhaps an indication that this outcome is in the process of being achieved.</p> <p>We also note comments by some stakeholders that some manufacturers have made changes to product design and packaging since the NTCRS was introduced.</p> | <p>Liable party compliance statistics and statements in DoEE annual outcomes reports</p> <p>Stakeholder interviews</p> |
| 23 | Scheme expanded to include other e-waste products such as VCRs and faxes | <p>Outcome has not been achieved</p> <p>See also discussion of KEQ 9f (page 61)</p> | Current NTCRS Regulations |

(Source: DoEE program logic)

b. What demonstrable progress has been made towards achieving longer term outcomes?

As indicated in the table above, clear and demonstrable progress has been made towards achieving the following intended long-term outcomes identified in the NTCRS program logic:

- Reduced waste (by weight) to landfill, specifically the hazardous materials found in e-waste (see *Table 2: Key NTCRS Outcomes by Year* under KEQ 3a on page 27).
- Increased recovery of reusable materials in a safe, scientific and environmentally sound manner.
- Increased recycling, including by households and small business, as a result of access to fair and equitable industry funded recycling schemes available nationally.
- Increased efficiency, quality and coverage through national rollout of the scheme.

There is insufficient evidence to assess whether there has been demonstrable progress towards the remaining long-term outcomes of the scheme, although they were not anticipated to be achieved until five to ten years after establishment:

- Other businesses using a standardised approach to ensure that high volume collection and management of end of life e-waste is conducted in a safe, environmentally friendly way.
- Increased responsibility taken by industry/importers for products throughout and at the end of a product's life.
- Scheme expanded to include other e-waste products such as VCRs and faxes.

While these long-term outcomes are not yet evident, the achievement (or progress towards achievement) of the short and medium term outcomes of the scheme will contribute towards the ultimate achievement of long term outcomes in future. For example, this evaluation is a first step in exploring the potential for further expansion of the scheme to include other e-waste products.

c. What, if any, unintended outcomes (positive and/or negative) have been observed?

Many stakeholders reported outcomes which they claimed were unintended. In our evaluation, we have drawn a distinction between outcomes that were genuinely unintended as opposed to outcomes that particular stakeholders did not expect or did not like.

Stakeholders identified the following negative unintended outcomes of the NTCRS (note that many of these have been discussed in more detail in our response to other KEQs):

- **Early market instability.** When co-regulatory arrangements met their recycling targets sooner than expected in the first years of the scheme, there were significant negative impacts on some scheme participants, as detailed under KEQ 1. This problem was raised and investigated as part of the 2014-15 Operational Review of the scheme, leading to the adjustment of recycling targets from 1 July 2015.
- **Impact on local councils.** Local councils were one of the parties most affected by the early market instability mentioned above – many were left to cover the cost of disposing large volumes of non-scheme e-waste. While this was a one-off problem for many councils and they have since been able to secure beneficial arrangements under the scheme, the situation has not improved for many other councils, especially those in rural and remote areas.
- **Impact on social enterprise and charitable recycling services.** We understand that these services were disproportionately affected by the early problems with market instability, and some may have gone out of business altogether. These issues were raised in the 2014-15 Operational Review, along with concerns about the adequacy of health and safety of workers in these facilities, many of whom are disabled or socially disadvantaged. A detailed investigation into these services was beyond the scope of our evaluation, although anecdotal evidence from stakeholder interviews suggested that it is no longer a problem since the scheme was changed following the 2014-15 Operational Review.
- **Co-regulatory arrangement competition.** While the design of the NTCRS allowed for multiple co-regulatory arrangements to be approved, DoEE officers advised that they did not anticipate there would be as many as four or five in the market. This has led to greater downward pricing pressure in the market, raising concerns that services and standards are being compromised, particularly when it comes to downstream services.

In addition, some stakeholders raised concerns about potential level playing field and conflict of interest issues arising from co-regulatory arrangements which are also recyclers – it was not clear to us whether this scenario was identified in the original design of the NTCRS and if so, what risk mitigation was considered.

- **Secondary market in e-waste.** Some stakeholders have raised concerns that e-waste is becoming a commodity, leading to cherry-picking of high value e-waste products and e-waste being sold to the highest bidder. Again, it was not clear to us whether the development of a secondary market in e-waste was envisaged during the development of the NTCRS.

Two of the negative unintended outcomes outlined above – early market instability and the impact on social enterprises – were raised as part of the 2014-15 Operational Review, and have been (or are in the process of being) addressed by the changes to the scheme that were introduced in 2015.

This is not to say that all unintended outcomes were negative – to end on a positive note:

"The scheme actually tidied up the import data [collected by the Department of Immigration and Border Protection]"

(Source: DoEE interviewee)

d. To what extent is the NTCRS having an impact, or is likely to have an impact in the longer term, on reducing the negative environment, health and safety impacts of the products that it regulates?

On the most basic performance indicator, i.e. volume of e-waste being diverted from landfill, statistics produced by DoEE and the co-regulatory arrangements demonstrate that the NTCRS is already helping to reduce the negative environment, health and safety impacts of the products it regulates. According DoEE's annual outcomes reports, by the end of financial year 2014-15 a total of 127,410.2 tonnes of material had been recycled since 2012, compared with 257,151 tonnes of material imported (noting that 2015-16 and 2016-17 figures are not yet included, although NTCRS team members have informed us that since 2014-15 the overall total of e-waste collected and recycled has increased to more than 230,000 tonnes). While the year imported and year recycled figures do not align, they roughly demonstrate that since the NTCRS was introduced, approximately half of all scheme e-waste is now being recycled.

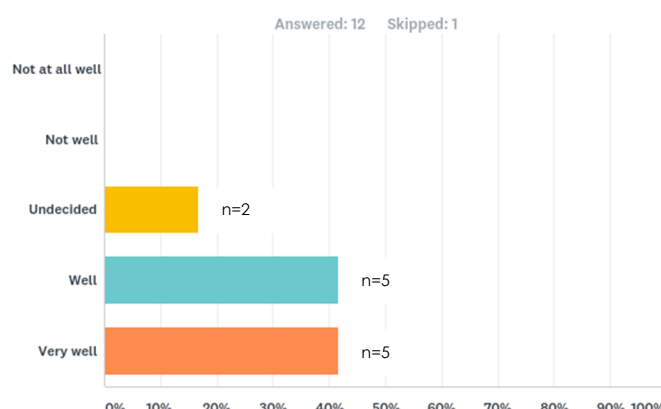
Although the products regulated under the scheme represent only a component of all waste in Australia, it is important to note that they contain some of the most hazardous materials.

Stakeholders were overwhelmingly of the view that the NTCRS has been successful in reducing the negative environmental and health and safety impacts of television and computer e-waste. This was clearly reflected in stakeholder interviews, the survey responses from recyclers (83.34% thought the NTCRS is helping to reduce negative impacts well or very well) and to a lesser extent the survey responses from liable parties (58.82% thought the NTCRS is helping to reduce negative impacts well or very well).

Responses from recyclers are shown in the chart below, and from liable parties in the chart that immediately follows.

Chart 8: NTCRS Evaluation Recycler Survey Question 16

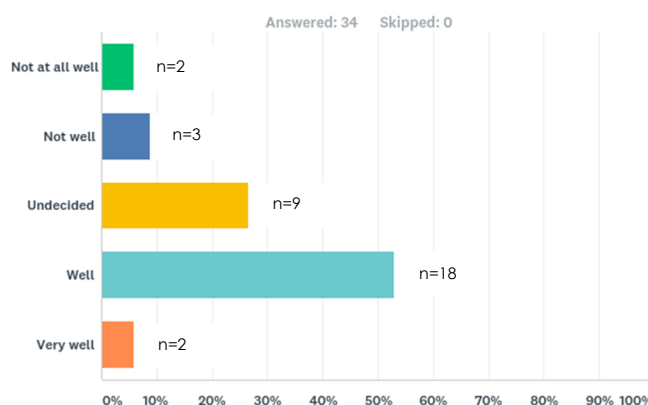
Q16 How well do you think the NTCRS is helping to reduce negative environment, health and safety impacts of discarded television and computer products?



(Source: NTCRS evaluation recycler survey, July 2017)

Chart 9: NTCRS Evaluation Liable Party Survey Question 17

Q17 How well do you think the NTCRS is helping to reduce negative environment, health and safety impacts of discarded television and computer products?



(Source: NTCRS evaluation liable party survey, July 2017)

For some stakeholders, while the recycling and recovery statistics were important measurements of success, just as important was the positive public perception of the scheme. Acknowledging that the general public's knowledge of the details of the NTCRS is probably very low, stakeholders recognised that Australians have embraced the ability to recycle their e-waste and believe it to be "the right thing to do":

"[The scheme has] been really embraced. Recycling levels are significantly higher than prior to scheme. High feeling that it's the right thing, among councils and consumers. [There] would be a strong backlash if the scheme ended."

(Source: State government interviewee)

Sustainability

8. To what extent is the scheme sustainable in the future, with respect to:

a. Resources: what is the adequacy of future financial arrangements for implementing the program?

As noted in our response to KEQ 3a and elsewhere in our findings, DoEE resourcing of the scheme has steadily declined since 2011. If this downward trend continues, DoEE seems likely to face substantial difficulties in administering the scheme effectively. Indeed many stakeholders noted that DoEE was already under-resourced and that the effectiveness of the scheme was suffering as a result.

"Inadequate resources in the Department. Has been a revolving door."

(Source: Co-regulatory arrangement interviewee)

"If I had a magic wand? I'd increase [Departmental] staffing. I'd provide resourcing for more compliance and better systems. There's no dedicated person at customs to extract data, so that costs the Department time and lost productivity. Staff turnover is leading to inefficiencies, because they have to constantly train people there as to what they need. It wouldn't be all that expensive in the scheme of things."

(Source: Local government interviewee)

DoEE under-resourcing has contributed to: ongoing software and data collection problems; less than optimal communication and engagement activities; and less than optimal compliance activities. We were advised that DoEE officers are focused on liable party compliance – to good effect – but a decrease in DoEE oversight of the co-regulatory arrangements and the activities of recyclers would necessarily lead to increased risk that environmental and health and safety outcomes could be compromised.

In responding to this question, we also considered the adequacy of industry resources to ensure the future sustainability of the scheme. We did not have sufficient information to make an assessment with respect to co-regulatory arrangement resources, although we have made some findings about the organisational capacity and capability of co-regulatory arrangements under the next KEQ 8b.

Based on available evidence, liable party resourcing of the scheme seems appropriate. This conclusion arises from the following indicators:

- The modelling and targets that underpin the scheme ensure that the financial liability of each party is directly linked to their commercial activities. The modelling and targets were adopted in the first place in close consultation with industry, and subsequently amended with similar close consultation.
- Recycling targets have, to date, been met with relative ease. Liable parties have not, therefore, paid for more recycling than was actually occurring.
- The ongoing high levels of liable party compliance with the scheme is an indicator that liable parties find their role in resourcing the scheme to be not unreasonable.

"Because there is a level playing field, all importers are equally affected. [There are some] competitors who are prepared to take the cheapest option but in the scheme of things this is not significant."

(Source: Liable party survey response)

"Despite popular opinion the cost of recycling has been absorbed within the product margin and not passed on the consumer."

(Source: Liable party survey response)

b. Organisational capacity and capability: what is the adequacy of institutional or structural arrangements for implementing the program in the future?

Given the relatively large number of organisations involved in the scheme, and the future focus of this question, our response can only be indicative.

Recyclers

Just over half the recyclers (54%) who responded to the survey believed the NTCRS had a negative impact on competition within their industry. Concerns were raised about downward pricing pressure and the risk that this may lead to sub-standard processes and poor downstream controls:

"The market place has become very competitive. [W]hilst not adverse to competition in the industry we are concerned that competitors may engage in unethical practice to undercut prices to retain contracts with co regulatory arrangements, which in turn drives the market rate down to unsustainable levels."

(Source: Recycler survey response)

"Although we have tighter regulations and certification requirements, we still are faced with competition for the vastly unregulated 'metal recycler' industry. Facilities still exist that do not recycle at above 90% and therefore can make a higher profit."

(Source: Recycler survey response)

Similar concerns were also raised by a liable party survey respondent:

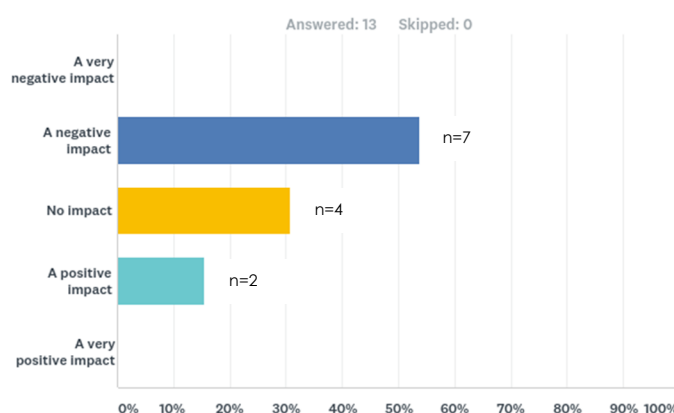
"Uneven playing field for recyclers, ie those doing the right thing and can account for all the downstream processes are penalised by a cost driven model."

(Source: Liable party survey response)

Other recyclers who responded to the survey felt the NTCRS had no impact (31%) or a positive impact (15%). See Chart 10, that follows.

Chart 10: NTCRS Evaluation Recycler Survey Question 11

Q11 In your opinion, what impact has the NTCRS had on competition within your industry?

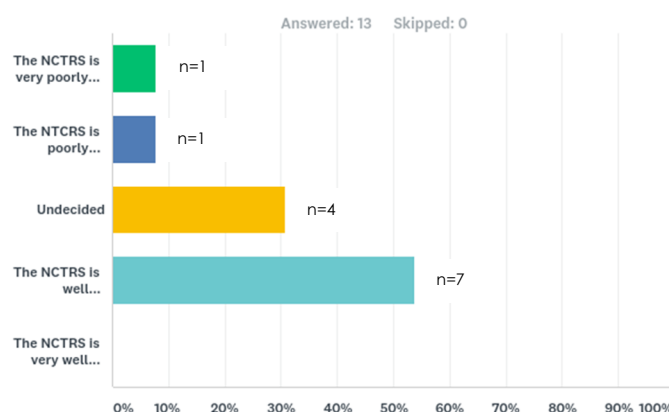


(Source: NTCRS evaluation recycler survey, July 2017)

Despite the mixed views on the impact of competition on their industry, the majority of recyclers (54%) also indicated that the NTCRS has been well implemented. A further (31%) were undecided. Only one recycler thought the NTCRS has been poorly implemented and only one other thought it had been very poorly implemented.

Chart 11: NTCRS Evaluation Recycler Survey Question 8

Q8 From your industry perspective, how do you think the NTCRS has been implemented?



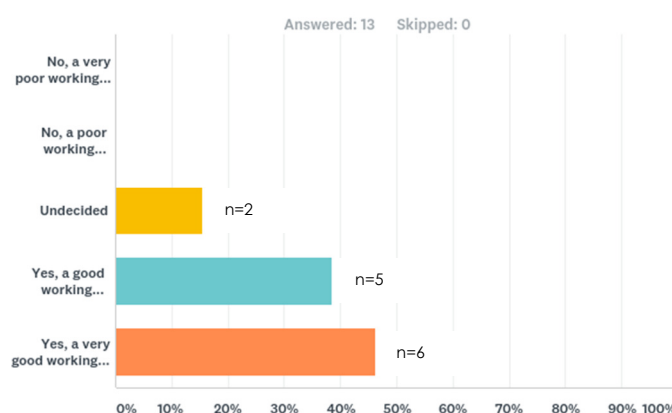
(Source: NTCRS evaluation recycler survey, July 2017)

In addition, the majority of recyclers (85%) also expect to continue to be part of the scheme in the 2017-18 financial year.

These responses from recyclers indicate that institutional or structural arrangements for implementing the program in the future are adequate. Most recyclers expect to maintain their current arrangements and a large majority (84%) feel they have a good or very good working relationship with the NTCRS co-regulatory arrangements.

Chart 12: NTCRS Evaluation Survey of Recyclers Question 5

Q5 Does your organisation have a good working relationship with the NTCRS co-regulator/s?



(Source: NTCRS evaluation recycler survey, July 2017)

However this sector also indicated that it would like to see some non-structural changes, including expanding the scheme to include additional e-waste products. The recyclers' suggestions for improvements are discussed in our response to KEQ 9 on page 53.

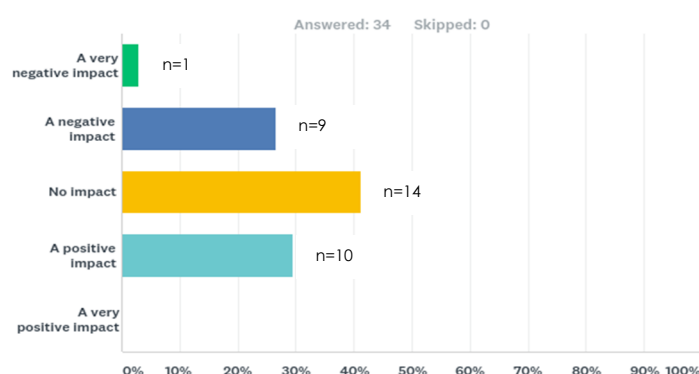
Liabe parties

Overall, the liable parties have a positive view of the NTCRS and their individual survey responses indicate that they wish to see it continuing for the foreseeable future, albeit with many suggestions for improvement (discussed in our response to KEQ 9 on page 53).

The majority of liable parties that responded to the survey believed the NTCRS had a positive impact (29%) or no impact (41%) on competition within their industry. A minority believed the NTCRS had a negative impact (26%) and only one respondent (3%) believed the NTCRS had a very negative impact. Survey comments suggest that some respondents think that the impact is effectively neutral because it applies equally to all parties.

Chart 13: NTCRS Evaluation Liable Party Survey Question 12

Q12 In your opinion, what impact has the NTCRS had on competition within your industry?



(Source: NTCRS evaluation liable party survey, July 2017)

Liable parties do incur some administrative costs in addition to their NTCRS financial liability, but most of the administration and data management activities fall to DoEE, which calculates and informs the relevant parties of their liability.

The responses from liable parties indicate that their own internal institutional or structural arrangements for implementing the program in the future are adequate. As noted under KEQ 3b, most liable parties (91%) expect to continue to be a liable party in the 2017-18 financial year.

Co-regulatory arrangements

Overall, the structure of the co-regulatory arrangements is believed by respondents and interviewees to work effectively.

Since the start of the scheme the number of co-regulatory arrangements has gone from three, to five and now to four. Stakeholders had mixed views on the optimum number of co-regulatory arrangements:

"Having three or four co-regulators is probably sustainable, although having only one would probably work too. But having three or four pushes the competition and innovation and creativity."

(Source: Co-regulatory arrangement interviewee)

"[We want] [m]ore co-regulatory arrangements to make it more competitive."

(Source: Liable party survey response)

Many interviewees also noted that the co-regulatory arrangements are beginning to find it difficult to get the volume of e-waste necessary to meet the target. They believe that existing consumer stockpiles have been exhausted. However the targets do take into account imported weights averaged over the previous three years so even though there is a percentage increase in the target, the total target weight remains quite steady. Many interviewees, including the co-regulatory arrangements themselves, acknowledged that all would have to work harder, in particular to access e-waste in regional and remote areas. Most, if not all, of the co-regulatory arrangements look set to meet their current targets, so it is too soon to say whether the future targets remain appropriate.

Industry responses indicate that institutional or structural arrangements for implementing the program in the future are adequate, but need not necessarily remain static.

Government

As indicated earlier, if the trend towards reducing NTCRS resourcing within continues, DoEE seems unlikely to be able to continue to oversee the scheme effectively. This is the key risk to the ongoing sustainability of the scheme.

c. Context: the effects of reasonably foreseeable social, economic, technical or environmental change that may impact the need for the program or organisation's ability to deliver the program.

The contextual changes that seem most likely to impact the scheme, or DoEE's ability to deliver the scheme are:

- **Political.** Although the scheme is legislated, its ongoing operation may be subject to changes in government policy in future.
- **Technical.** This includes changes to the products themselves, as well as to industry's ability to recycle them. Changes to the size and weight of electronic devices will continue to affect the scheme targets, but the current method of setting targets based on the average weight of imports over the past three years should largely ameliorate the issue. The recycling industry continues to expand and recycling mechanisms will continue to emerge and evolve. The competitive nature of the scheme, with the multiple co-regulatory arrangements, seems likely to ensure that recycling innovations will be captured and used to best effect.
- **Economic.** Any potential economic impacts seem, in the short term, largely to do with DoEE's ability to continue to be able to resource the scheme. Without DoEE oversight, liable party compliance may fall and the scheme may be at risk of failing completely, or of failing to deliver outcomes which meet community expectations. In the longer term, technological innovation and market forces will almost certainly have implications for the recycling market – the former likely reducing the cost of recycling and the latter likely increasing demand for it. But the assessment and forecasting of any such economic forces is beyond the scope of this evaluation.
- **Social.** Interviewees noted that community enthusiasm and support for recycling is strong, and seems likely to increase over time. Community pressure may, in future, be brought to bear to:
 - Encourage expansion of the scheme to other e-waste products.
 - Encourage better downstream tracking of exported recycled products (as in the fashion industry, for example, with consumers keen to know how, where and under what circumstances imported products are produced).
 - Enhance e-waste collection activities in regional, rural and remote communities.

Improvement

9. What lessons have been learned that can inform improvements in the NTCRS?

a. What has worked for whom, why and how?

We have categorised our findings under this question by stakeholder group.

Co-regulatory arrangements

The co-regulatory arrangements we interviewed were highly supportive of the scheme and believe that it works well overall. They were pleased with the rate of liable party sign-up. They also thought that the process for becoming a co-regulatory arrangement was appropriately thorough:

“A rigorous and effective process – good practice. It takes resources... to engage liable parties, set up collection networks, negotiate recycling contracts, etc.... A significant barrier to entry, but not unjustified.

(Source: Co-regulatory arrangement interviewee)

Recyclers

Recyclers who responded to the survey also reported high satisfaction rates with the scheme, with the majority reporting that they have a good or very good working relationship with their co-regulatory arrangement (see *Chart 12: NTCRS Evaluation Recycler Survey Question 5* under KEQ 8b on page 51).

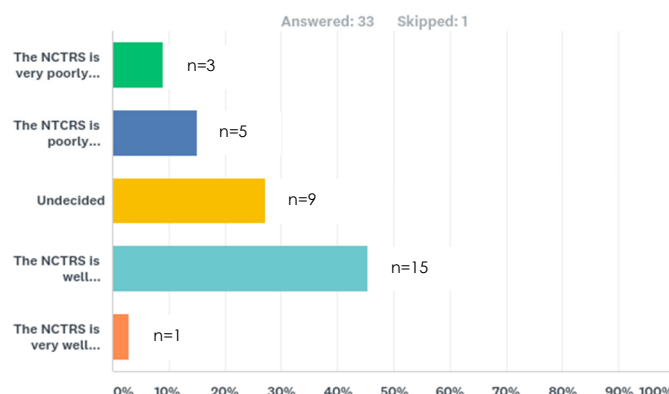
Some recyclers cited increased volume of recycling, increased employment and general business growth as things that have worked well for them.

Liable parties

Almost half of the liable parties who responded to the survey thought the NTCRS had been well or very well implemented (48.48%), although just over a quarter (27.27%) were undecided.

Chart 14: NTCRS Evaluation Liable Party Survey Question 8

Q8 From your industry perspective, how do you think the NTCRS has been implemented?



(Source: NTCRS evaluation liable party survey, July 2017)

Similarly, 70% of liable parties believed that the NTCRS has had no impact or a positive impact on competition within the industry (see *Chart 13: NTCRS Evaluation Liable Party Survey Question 12* under KEQ 8b on page 51).

Survey respondents identified a number of specific aspects of the scheme which work well for them:

"Having a choice of co-reg arrangements"

(Source: Liable party survey response)

"1. Cooperation and communication between the Scheme regulator and co-regulatory arrangements. 2. Government establishment and administration of the Scheme. 3. Tracking of importer of regulated products."

(Source: Liable party survey response)

"1. the established infrastructure to recover e-waste via the CA's 2. the focus on reuse and diversion from land fill of e-waste 3. the commitment and support of industry in the establishment of what is now a mature Scheme requiring little ongoing regulation."

(Source: Liable party survey response)

"Create a level playing field when the Material Recovery and Australian standard AS/NZS5377 for safe handling of e-waste becomes mandatory"

(Source: Liable party survey response)

"The continuing fine tuning of the product 'deemed' weight/ conversion factor."

(Source: Liable party survey response)

"Flexibility of collection model."

(Source: Liable party survey response)

State and territory governments

What worked well for state and territory governments depended to some extent on the circumstances within each jurisdiction. Most of the state and territory governments who we interviewed said that the scheme now appears to be working well overall, after some unexpected negative impacts in the first couple of years – this view is largely based on anecdotal evidence from councils and recyclers, and an absence of consumer complaints. Most also said that they are happy with the current level of consultation and communication from DoEE.

Local government

Several stakeholders, inside and outside local government, made the point that the NTCRS had created winners and losers as far as local councils are concerned. The scheme has worked well for those councils who, due to their size and location, are in a position to secure beneficial commercial terms with co-regulatory arrangements.

With 546 local councils around Australia, it would be unreasonable to assume that they would all be happy with the NTCRS. Despite the limitations of our consultations with local councils, it appeared from our consultations with local government peak bodies and state and territory governments that many councils are happy with the scheme. But the most satisfied councils are in the main, large, metropolitan, well-resourced councils. Smaller councils, especially those in rural, regional and remote locations, expressed resentment – they felt left out of the scheme, and (at least in the early days) confused by it.

The early problems of the scheme seemed to hit councils particularly hard, with many left worse off financially. Some already had processes for collecting e-waste when the NTCRS scheme began; processes for which many councils charged a small fee. With the introduction of the scheme the fee was waived. Then, when the co-regulatory arrangements met their targets early and abruptly ceased delivering the scheme, the councils felt obliged to continue to meet community expectations by providing a free service.

It is entirely possible that at least some councils misunderstood their role in the scheme, or the partial nature of the collecting targets, but any such misunderstanding speaks to a failure of communication and engagement. Even now that many of the early challenges of the scheme

have been resolved, the subsequent market arrangements have meant that some councils have prospered at the expense of others.

"Initially there was lot of toing and froing with contractors, and lots of mixed messages from contractors about who was part of it, who wasn't. Once we started getting on top of that were in a good position because we are so large, with four resource recovery centres. We just about used up the [State] quota by ourselves, so I guess our involvement was detrimental to other councils."

(Source: Local government interviewee)

We were informed that some councils had struck better bargains with the co-regulatory arrangements than had their neighbours while others, particularly those in remote locations, had very little to do with the scheme at all.

So while at a national level the NTCRS seeks to ensure equitable access to the scheme for all Australians, at the local level access is quite uneven.

DoEE

In terms of how the scheme is administered, DoEE officers cited their pro-active approach and management of liable parties and co-regulatory arrangements as a particular strength. This view was supported by the co-regulatory arrangements and most liable parties who were consulted as part of the evaluation process.

b. What factors (internal and external) have facilitated or impeded the achievement of intended outcomes?

Refer to Table 5: Achievement of NTCRS Outcomes under KEQ 7a on page 39.

Based on available evidence, we found that the following key factors facilitated the achievement of intended outcomes:

- **Engagement of liable parties.** As noted elsewhere in the report, liable party compliance rates have been consistently high at 97-99%. This has facilitated the achievement of outcomes 1, 2, 3, 9 and 10.
- **Performance of co-regulatory arrangements.** Similarly, co-regulatory arrangements have performed their role within the scheme to a consistently high standard. This has facilitated the achievement of outcomes 1, 2, 3, 4, 5, 7, 9 and 10.
- **Public willingness to recycle.** Several stakeholders noted the strong degree to which the public has embraced e-waste recycling, which is borne out by the volumes of e-waste collected each year. This has facilitated the achievement of outcomes 8, 17, 18 and 19.

Based on available evidence, we found that the following key factors impeded the achievement of intended outcomes:

- **Timing of scheme introduction.** The unfortunate coincidence of timing between the introduction of the NTCRS and the Digital TV Switchover, combined with an underestimated volume of existing stockpiles of e-waste products, meant that the scheme was not as effective as it could have been in the first years of operation and led to some negative impacts on scheme participants. Our consultations with

stakeholders indicate that this is no longer an issue, now that the introductory period is concluded.

- **Lack of communication.** This applies to communications to and between scheme stakeholders, and communications to the general public. The lack of a clear communications strategy or campaign has impeded the achievement of outcomes 6, 7, 8, 13 and 14.
- **Access and equity issues in rural and remote areas.** The large distances and high transport costs in rural and remote areas have meant that there is not equity of access to e-waste collection services in all parts of Australia. The failure of the scheme design to address this issue has impeded the achievement of outcomes 8, 16, 17, 18, 19 and 20. This remains one of the key issues for scheme stakeholders, with several calling for improvement in this area.
- **Lack of council support and promotion in some areas.** Support for the scheme among local councils varies widely across the country, and many councils do not provide or promote the scheme in their area. The lack of council support in some areas has impeded the achievement of outcomes 7, 8, 17, 18, 19 and 20. This issue is linked to the preceding one on equity of access – i.e. councils would see little reason to support or promote a scheme that does not benefit them or their residents.

c. What lessons (from success or failure) could be shared among co-regulators for the purpose of improvement?

Refer to our response to KEQ 10 on page 61.

d. In what ways could the efficiency of implementation be improved?

We have answered this question together with KEQ 9e below.

e. In what ways could the effectiveness of the scheme be improved?

We received many suggestions for improvement which go to both the efficiency of implementation and the overall effectiveness of the scheme, which we have grouped according to theme below.

All of the improvement themes generally, as well as many of the specific improvement suggestions, warrant further investigation and consultation. Some improvements would be within the control of stakeholders to implement within the existing parameters of the scheme, while others would require formal or legislative amendment to the scheme before they could be implemented.

Regulation

Almost all stakeholders recognised the importance of ensuring that the scheme is well-regulated and that compliance by scheme participants is enforced to the greatest extent possible. This goes to not only the efficiency and effectiveness of the scheme, but also to its credibility with industry and the general public.

DoEE officers advised us that they would like to undertake more activities directed towards strengthening the regulation and enforcement of the scheme, but they are constrained by current resource levels.

Stakeholders who commented on this issue tended to speak in general terms about the need for “more auditing” or “more monitoring”, especially in relation to downstream arrangements where there is currently very little visibility or accountability.

There were some specific improvement suggestions in relation to AS 5377 certification:

“Enforce the co-regulators to only utilise AS 5377 accredited collectors and recyclers. Charitable and disability organisations currently being utilised by co-regulators should also be certified to AS 5377.”

(Source: Recycler survey response)

“Certification process of recyclers [should be improved], certification companies need to be better managed, huge variability. Recyclers getting certified that should not be.”

(Source: Co-regulatory arrangement interviewee)

“Only JAS ANZ appointed auditors [should] be permitted. Should be more policing of recyclers/exports to ensure compliance to the standard and legislation.”

(Source: Recycler survey response)

Competition

Market competition has not necessarily produced good outcomes for all stakeholders. The main focus of improvement suggestions was on reducing the number of co-regulatory arrangements, and ensuring that they themselves do not provide recycling services in competition with their recyclers:

“We’d have one co-regulatory arrangement. Competition has not worked – only driven down the recyclers’ prices. Probably need two, but not four.”

(Source: Co-regulatory arrangement interviewee)

“Ensure that a Co regulatory arrangement can not be a recycler and vice versa. While this may be good for Co regulatory arrangements, it creates an accountability issue and also undermines the viability of recyclers.”

(Source: Recycler survey response)

Equity of access

While one of the intended, positive outcomes of the scheme has been increased provision of e-waste collection services, reliable access to these services varies between jurisdictions with some of the more rural and remote areas of Australia missing out altogether. This was an issue that several stakeholders raised as requiring urgent improvement, in order to maintain the national effectiveness and credibility of the scheme. A number of stakeholders put forward different suggestions on how to improve access to collection services in rural and remote areas, such as setting regional targets or sharing services:

“Scheme should facilitate investment in infrastructure to support lower cost of e-waste recovery in all jurisdictions (especially in more remote areas).”

(Source: State government interviewee)

“Force people to collect from remote regions as a percentage target – although you can’t break it down by town. Need to have more collections from remote councils. To comply with regulations you need only have a bin in a remote location one day of the year. The locations should be permanent, in the spirit of the scheme.”

(Source: Co-regulatory arrangement interviewee)

"Rationalisation of regional and remote services to promote equity of services, different ways of consolidating efforts and sharing costs."

(Source: Co-regulatory arrangement interviewee)

"Rules around reasonable access for each co-reg, for example each co-reg should not have to have their own individual drop off point in regional areas. Access to regional area access points should be shared amongst the co-regs fairly."

(Source: Liable party survey response)

"Suggest state based or, even better, regional based targets. Having some genuineness about reasonable access targets, not just tick a box."

(Source: Local government interviewee)

Communications

As discussed under KEQ 4a on page 30, communications about the scheme have been less than optimal. Communications was cited by stakeholders across all groups as an area that needs improvement.

There were several specific suggestions for improving general communications to the public, focused on education and awareness raising:

"Put in place high level general awareness consumer education, requirements on industry to include stuff in their point of sale packaging, educating retail staff very effective, got to get the information in the right form."

(Source: Co-regulatory arrangement interviewee)

"Increase education and awareness about product stewardship generally. 'Go to a recycler near you' – currently no site that does this."

(Source: Co-regulatory arrangement interviewee)

There were also some suggestions for improving information sharing and exchange among industry participants:

"New information/news/annual reports/non-compliances, recycling industry development etc should be proactively communicated to liable parties but they are not."

(Source: Liable party survey response)

"More industry consultations/seminars/meetings. Good examples are those run for NICNAS and GEMS."

(Source: Liable party survey response)

Scheme mechanics

By 'scheme mechanics' we mean any improvements relating to scheme targets, product codes and weights, import thresholds, life span of products.

As would be expected, liable parties were the most vocal stakeholder group in putting forward specific improvement suggestions with a particular focus on recalculating product weights, scheme targets and thresholds:

"In future it is probably worth looking at the thresholds for importing computer parts – if the numbers are too small the cost to [government] of dealing with the small firms is more than the input they provide to the scheme."

(Source: Liable party survey response)

"When setting targets, take into account the influx of smaller and lighter devices into the market that are replacing the current suite of heavier and larger devices"

(Source: Liable party survey response)

"Need to revisit the weight breaks and how the import codes are used to determine the weight of products."

(Source: Liable party survey response)

"Liability [should be] actual weight of product imported. also, do not factor in non-liable party's importation. Also set a standard rate for the liable parties- there is too much need for negotiation."

(Source: Liable party survey response)

Also refer to our response to KEQ 1b on page 21 for stakeholder views and suggestions in relation to scheme targets.

Scheme administration

Refer to our response to KEQ 2a on page 24 for suggestions in relation to scheme administration by DoEE.

Expanding the scheme

The potential to expand the NTCRS to include other e-waste products was a specific area of improvement that was raised with stakeholders, as one of the KEQs for this evaluation. Several stakeholders suggested that expanding the scheme to include other e-waste products would improve its efficiency and effectiveness:

"The scope of the scheme should be expanded to provide solutions for consumers of a much broader range of products, this would add economies of scale to the industry and reduce overall recycling costs while promoting a recycling oriented culture."

(Source: Liable party survey response)

"It is quite simple to make it easier, more efficient and effective. Include ALL e-waste under the Product Stewardship Act."

(Source: Recycler survey response)

Stakeholder suggestions for expanding the scheme are discussed in more detail under the next KEQ 9f.

f. If the scheme is expanded, what e-waste products should be included as a priority?

The majority of stakeholders were in favour of expanding the NTCRS (or establishing another NTCRS-like scheme) to include other e-waste products. There were many suggestions about the type of e-waste products that might be included in an expanded scheme, listed below in order of popularity:

- **Home entertainment products (e.g. DVD players, Xbox/Play Stations, sound boxes, radio/stereo equipment).** This was the most frequently cited category of e-waste for inclusion in the existing scheme, on the grounds that they are most closely related to televisions and computers – in terms of the type and nature of the e-waste material contained in the products, the identity of the manufacturers and distributors, and consumer views and expectations.
- **Whitegoods (e.g. fridges/freezers, washing machines, air conditioners).**
- **Small household appliances (e.g. microwaves, toasters, kettles, coffee machines, hair dryers, vacuum cleaners, fans, toys).** A number of small appliance products were mentioned by stakeholders, that we have grouped together under this category. This is not to imply that all stakeholders agreed that all products within this category should be included in an expanded scheme.
- **Batteries.** Some stakeholders specified “handheld batteries”, others referred more generally to batteries or household batteries.
- **Power tools.**

While some stakeholders favoured a “take everything” approach (i.e. all products with an electrical cord/cable, or an electrical circuit board), other stakeholders were more cautious and thought that further analysis should be done on the nature of the e-waste material and the hazard it presents. This issue is further explored under KEQ 10b on page 64.

10. What lessons have been learned that could inform potential co-regulatory approaches for other (non e-waste) products?

a. What lessons from the NTCRS are translatable to other regulatory schemes?

The lessons arising from the NTCRS that are translatable to other regulatory schemes fall under three areas:

Design of program

We were provided with verbal accounts of the initial policy development and design of the NTCRS by DoEE officers and other stakeholders who were involved at the time. The fact that it was the first scheme of its type to be introduced under product stewardship legislation was a point well noted by stakeholders, who understood the need to adopt an approach that prioritised environmental outcomes but in a way most likely to receive support and cooperation from industry.

Within this context, there is broad consensus among stakeholders that a co-regulatory scheme like the NTCRS is the best way to achieve the desired outcomes of product stewardship. The majority of stakeholders, including liable parties, agreed that a scheme which requires industry to bear the lion's share of the responsibility and cost is both fair and reasonable, and also in

line with public expectations. Several stakeholders, across all groups, were of the view that a voluntary or self-regulatory scheme would not be expected to achieve the same high rates of compliance by industry participants.

In reflecting on the initial design of the NTCRS, many stakeholders highlighted the fact that the original recycling target rate of 30% was too low. Some stakeholders claimed that they raised these concerns with DoEE at the time, however the countervailing view was that industry may not be in a position to meet a higher target rate at the outset of the scheme. In hindsight, almost all stakeholders agreed that the initial recycling target rate of 30% was far too low and caused significant negative impacts on many scheme participants. One stakeholder suggested the lesson to be learned for other similar schemes:

"Once [a scheme] is announced, the industry will expect it to happen and will be ready. [Government needs to] recognise that the industry will have jumped forward of the modelling, and design the targets accordingly."

(Source: State government interviewee)

Several interviewees noted that as the first scheme established under the *Product Stewardship Act 2011*, the NTCRS provided a useful and effective pilot for other possible schemes. Some wondered if the NTCRS would eventually become an umbrella structure for other recycling schemes.

"Can't keep doing single product schemes, the overheads are too high. There has to be an amalgamation or at least some logical groupings in and around product stewardship."

(Source: Co-regulatory arrangement interviewee)

Implementation of program

With respect to the implementation of the NTCRS, several stakeholders were critical of the timing of its introduction. This criticism was on a couple of grounds. Firstly, some state and territory jurisdictions noted that the (in their view) delayed introduction of the NTCRS affected the timing of their own activities in relation to e-waste (in some cases, forcing them to extend activities beyond their original deadline). It is, however, possible that state and territory expectations about the timing of the implementation of the scheme were unrealistic.

Secondly, the introduction of the NTCRS unfortunately coincided with the Digital TV Switchover, resulting in much greater volumes of old cathode ray tube (CRT) televisions coming onto the recycling market than would normally be the case. The lesson for other similar schemes is, to the greatest extent possible, be aware of the broader context and how the timing of a new scheme might impact, or be impacted by, other government initiatives and market developments.

On similar lines, another lesson arising from the implementation of the NTCRS is to ensure that the rollout of a national scheme takes into account the differences between state and territory jurisdictions in terms of regulatory environment, existing infrastructure and market conditions. We suggest that this could in part be addressed through more regular consultation and communication between all levels of government. A more centralised public awareness and education campaign run by government(s) may also help to improve national consistency, as opposed to the approach taken with the NTCRS to make communications primarily an industry responsibility. In making these observations we would note that, while the Commonwealth

needs to take a leading role, all jurisdictions must take their share of responsibility for ensuring successful outcomes on a national level.

Our final observation with respect to lessons to be learned from the implementation of the NTCRS concerns the impact on industry competition and regulation. The scheme was designed to allow for multiple co-regulatory arrangements, so that liable parties and recyclers were able to shop around for the best commercial deal for them. Not all stakeholders believe that this led to the best outcome, particularly in the early years of the scheme. There was a suggestion that competition between co-regulatory arrangements has driven down recycling prices and put those services under pressure:

"Competition meant the co-regulators had the perception that they had to madly rush to market. This was a good thing for competition, but not a good outcome overall. The ability for manufacturers to change co-regulators means there's been a race to bottom on price."

(Source: State government interviewee)

There are currently four approved co-regulatory arrangements (previously five – one arrangement left the scheme in 2015). Some stakeholders suggested that the number of co-regulatory arrangements is higher than the market can bear, and that this will be exacerbated over time as recycling targets increase and volumes of e-waste decrease:

"Since the reduction of CRT TV's which contributed heavily towards the high volumes in the early years of the NTCRS, there are too many co-regulators contracting to recyclers to secure e-waste. Especially in the council landscape this is creating fierce competition within the market as all the co-regulators are competing for the same piece of the pie which has significantly become smaller. This is resulting in downward pricing pressure on all recyclers which may also lead to cutting corners... The number of co-regulators needs to be reduced to 2 x co-regulators..."

(Source: Recycler survey response)

Picking up on the comment above about cutting corners, there is a perception among some stakeholders that the current level of regulatory oversight of the scheme is not adequate (also discussed in the next section).

Administration of program

There are two lessons to be learned from the ongoing administration of the NTCRS.

The first is to conduct an operational review of the scheme within an appropriate timeframe – we would recommend two to three years after introduction – and be prepared to make changes to the scheme to address any identified problems, and to improve its overall efficiency and effectiveness. We found that the 2014-15 Operational Review of the NTCRS, and the resulting changes made to the scheme in 2015, were very well received by stakeholders. Not only did the review and subsequent changes address the problems raised by stakeholders, it also enhanced the credibility of both the scheme and DoEE amongst all stakeholder groups.

The second lesson to be learned from the ongoing administration of the NTCRS is that there must be sufficient government resources provided in order to ensure effective enforcement of the scheme. As mentioned previously, DoEE has achieved NTCRS liable party compliance rates

of 97-99%. This effort is highly commendable, especially in light of the fact that DoEE resources generally have been declining since the scheme was introduced.

However, making sure liable parties meet their obligations under the NTCRS is only one of the activities that go towards enforcing the scheme and making sure it is achieving its stated aims and intended outcomes. Several stakeholders raised concerns about the lack of visibility of downstream arrangements and the risk that not all e-waste material is being handled in accordance with hazardous waste obligations and standards, but DoEE currently does not have the resources to investigate this further. These issues are contributing to a perception among some stakeholders that current regulation of the scheme is not adequate.

b. What factors should inform expansion of the scheme to other e-waste?

As mentioned under KEQ 9f above, the majority of stakeholders were in favour of expanding the NTCRS (or establishing another NTCRS-like scheme) to include other types of e-waste.

In considering whether or not to expand the scheme, we recommend that the following factors should be taken into account:

- **Nature of hazardous waste.** Not all e-waste products are equally hazardous. From an environmental policy point of view, it makes sense to try and deal with the most hazardous types of e-waste as a priority. Some stakeholders recommended that further analysis be undertaken to determine which products pose the most serious risk to the environment, health and safety, and then consider whether the risk profile is best addressed through an expanded NTCRS, or whether a different approach is warranted.
- **Nature of products.** The range of products suggested by stakeholders (listed under KEQ 9f) varies widely in terms of size, weight, manufacturer/distributor, and life cycle. Clearly, these differences would need to be taken into account in designing an expansion to the NTCRS (or designing a new NTCRS-type scheme). For example, it is relatively simple for consumers to take their television or computer to a transfer station, but it would not be so easy for consumers to transport their fridge or washing machine. Similarly from the recyclers' point of view, storing numbers of small appliances would require far less physical space than storing numbers of whitegoods.
- **Stakeholder capacity.** Consideration would need to be given to the capacity of stakeholders to manage their responsibilities under an expanded scheme. For example, to what extent would recyclers be able to accept and process increased volumes and different types of e-waste? To what extent would co-regulatory arrangements be able to manage increased numbers of liable party members, from different industry sectors?

The number of liable parties under an expanded scheme potentially could run into the thousands, who would all need to be identified and contacted in the same way that DoEE does with current NTCRS liable parties. There would likely also be an increase in the number of co-regulatory arrangements. DoEE would require significantly more resources to handle regulatory oversight and scheme administration.

- **Impact on market.** Increased volumes of e-waste may help to stimulate competition and bring recycling costs down, especially in regional and remote areas of the country. Different types of e-waste may promote more opportunities and greater innovation in recycling, material recovery and re-use, which would also help to stimulate competition and market growth.

The potential for more market competition and growth would need to be balanced against increased challenges around market regulation and business sustainability. It is important to note in this regard that most recyclers expressed concerns that they are already experiencing downward pricing pressure, and several stakeholders were sceptical about the effectiveness of current regulation in keeping “dodgy operators” out of the industry.

- **Consumer confusion.** Although consumer awareness about the NTCRS specifically is estimated to be fairly low, most stakeholders agree that the NTCRS has resulted in consumers having a general awareness that e-waste can be (and should be) recycled. For this reason, many stakeholders believe that the easiest approach from a consumer perspective would be to channel all e-waste products through a single Product Stewardship scheme like the NTCRS. This would simplify the communications to local councils and consumers, and avoid consumer confusion about what to do with different types of e-waste products.

Given the complexity of some of the issues outlined above, and the wide variety of suggestions from stakeholders, we recommend that further analysis and consultation be undertaken prior to determining whether the NTCRS should be expanded to include other types of e-waste.

11. What are the key elements and lessons from the evaluation of the NTCRS that are potentially useful in other regulatory evaluation settings and could inform development of a consistent approach to evaluation of regulation administered by the Department?

Our comments on this topic are based not only on our experience of this evaluation project, but also on ACIG's many years' experience in performing evaluations of government programs.

a. What worked well in the evaluation?

The Approach to Market (ATM) brief issued by DoEE was comprehensive – it contained all the relevant information, and was very clear about the objectives, and purpose of the evaluation. Including the budget in the ATM allowed respondents to be very clear about the evaluation scope and scale.

Having the project managed by a DoEE officer with sound understanding and experience of evaluation frameworks and methodology was highly beneficial, and facilitated an efficient and effective working relationship between DoEE and ACIG.

The majority of stakeholders suggested by DoEE were very knowledgeable about the NTCRS and offered good insights into the program. As a result, we gained some important and useful information from stakeholder interviews and surveys which greatly assisted our evaluation and helped to frame our findings.

b. What did not?

Having said that the stakeholder consultation worked well, we must qualify this statement with the observation that some of the stakeholders who were suggested by DoEE turned out to be unidentifiable and/or uncontactable.

In all evaluations, we factor in the likelihood that one or two stakeholders will not be readily available within given timeframes. We note that in this evaluation, for some of the suggested stakeholder groups, the time taken to identify the relevant person, obtain correct contact details and chase up non-responses was far greater than expected.

DoEE's need to clarify whether or not stakeholder contact details could be used for the purpose of the evaluation also delayed the survey going out to recyclers and liable parties.

c. What were the limitations in practice of the approach?

The problems with identifying and contacting stakeholders meant that we were unable to conduct as many interviews as we originally planned – 17 interviews of 25 stakeholders, instead of 25 interviews. To overcome this limitation, we drew on our own contacts to identify stakeholders, and we conducted an additional survey.

As mentioned above, the stakeholder consultations that we were able to undertake were of a high quality, and we were able to discern many common themes and consensus views on key issues. Therefore we are confident that the reduced number of interviews did not have a detrimental effect on the evaluation, nor did it constrain our findings in any way.

d. What improvements can be made for future evaluations?

Our main recommendation for improvement of future evaluations addresses our comments above in relation to stakeholder consultation. We recommend that to the greatest extent possible, DoEE line areas should ensure that all stakeholders have been clearly identified and their contact details are able to be provided to the evaluators at the outset.

We suggest that DoEE officers should consider ways in which they might leverage their well-known stakeholders in order to facilitate contact and communications with other, less well-known stakeholders. For example, we discovered through the course of the evaluation that some of the co-regulatory arrangements were prepared to facilitate direct contact with their recyclers and liable parties.

In considering improvements for future evaluations, we also have some comments regarding the program logic developed by DoEE for the NTCRS. We consider that the program logic reasonably represents the NTCRS, and overall, the theory of change that informs the model is sound. However, as was shown by the way the NTCRS was revised in 2015, DoEE regulators and program administrators need to remain flexible and responsive to the market (as, in fact, they have done).

We suggest there are some further refinements that DoEE may wish to consider for the next iteration of the program logic:

- One of the activities included in the program logic is “educate the public and importers about the scheme”. But many stakeholders questioned the extent to which the public actually needs to be educated about the scheme. It is perhaps more accurate to argue that the public should be educated about where and

how to recycle their e-waste products, with information available about the NTCRS should any individual wish to know more.

- Some of the outcomes included in the program logic are expressed in vague terms which will be difficult to define and measure in future evaluations of the NTCRS. For example, the underlined terms in these outcomes: "broader awareness of e-waste recycling collection services", "broader use of e-waste recycling collection services", "other businesses using a standardised approach to ensure that high volume collection and management of end of life e-waste is conducted in a safe, environmentally-friendly way".
- As a general rule, it is good practice to articulate assumptions in the program logic. There seems to be an assumption, for example, that if information is on a website that people will read it, understand it and act upon it. But the extent to which awareness is raised by the mere existence of the material on a website is difficult to evaluate. It is often useful to consider assumptions and risks in tandem. Given that the DoEE risk management plan is reasonably comprehensive, it may not be necessary to articulate assumptions in the program logic if it is agreed that they are adequately addressed in the risk management plan.

Conclusions and Recommendations

The Department of the Environment and Energy (DoEE) has stated that the purposes of this evaluation are to:

- determine the overall quality and effectiveness of the NTCRS;
- identify lessons learned and recommend areas for improvement of the NTCRS;
- recommend whether the NTCRS should be expanded to include other e-waste products;
- identify lessons learned for potential co-regulatory approaches for other (i.e. non e-waste) products; and
- identify key elements and lessons learned for evaluating the effectiveness of other regulations.

In this chapter we address each of the above points in turn.

Overall Quality and Effectiveness of the NTCRS

Taking into account the early challenges faced (and to a large extent resolved), the current overall quality and effectiveness of the NTCRS is good.

Since its inception the scheme has more than doubled the rate of e-waste recycling in Australia. Formal reports published so far (up to 2014-2015, see also pages 27 and 46) indicate that 127,410 tonnes has been collected and recycled, and NTCRS team members have informed us that since then the overall total has increased to more than 230,000 tonnes of television and computer e-waste collected and recycled that would otherwise almost certainly have gone to landfill. The scheme has:

- Reduced waste (by weight) to landfill, specifically the hazardous materials found in e-waste (see *Table 2: Key NTCRS Outcomes by Year* under KEQ 3a on page 27).
- Increased recovery of reusable materials in a safe, scientific and environmentally sound manner.
- Increased recycling, including by households and small business, as a result of access to fair and equitable industry funded recycling schemes available nationally.
- Increased efficiency, quality and coverage through national rollout of the scheme.

In the previous chapter, we evaluated the NTCRS in terms of: Appropriateness, Efficiency, Effectiveness and Impact, Sustainability, and Improvement. To follow is a summary of our findings within each area.

Appropriateness

The design of the NTCRS – including the changes made to the scheme in 2015 – has proven to be appropriate and adequately matched to the identified needs.

The fundamental needs that drove the original development of the NTCRS haven't necessarily changed, but experience in implementing and administering the scheme has better informed

the way in which the needs can be met. The fact that the scheme has been changed and adapted since its inception does not necessarily mean that the scheme was not appropriate to begin with. Rather, it demonstrates an implementation process that remained responsive to stakeholders and to market conditions.

However, there are areas where the scheme design should be revisited and potentially revised in order to ensure that the key identified needs are being met.

Two of the key objectives that the NTCRS was designed to meet was to (a) minimise the amount of e-waste going to landfill and (b) divert it into the recycling stream instead. So far the scheme has, overall, met or exceeded the stated targets (even when those targets were raised in 2015). Based on stakeholder concerns and market experience, we are of the view that the NTCRS target trajectory should be revisited to ensure that the program remains sustainable and is able to meet its projected outcomes.

In addition to achieving increased volumes of e-waste recycling and material recovery, the third key objective of the NTCRS is to provide access for households and small businesses to industry funded recycling services. Although the regulatory requirements for access to the scheme are being met, many stakeholders have identified this as an area which should be improved – to enable better access to the scheme for people in regional, rural and remote locations. Some stakeholders believe that the co-regulatory, market-based design of the scheme did not properly address the disparity between state jurisdictions in terms of population distribution, geographic distances and transport costs. It was suggested that there may be a need for government intervention to address this problem, because otherwise there is no incentive for co-regulatory arrangements and/or recyclers to service areas where the commercial return is low or non-existent.

In summary, we consider that the design of the NTCRS – including the changes made to the scheme in 2015 – has proven to be appropriate and adequately matched to the identified needs. However, there are areas where the scheme design should be revisited and potentially revised in order to ensure that the key identified needs are being met. See also the information provided below, under the heading: 'Lessons learned and recommend areas for improvement of the NTCRS'.

Efficiency

There exists a common view amongst all stakeholders that DoEE staff are doing the best they can in an environment of ever declining resources and personnel numbers. Despite the decrease in budget, DoEE maintains that it has managed to deliver the scheme with high compliance results. Our finding, supported by the available data and stakeholder views, is that DoEE's costs of program delivery are clearly justifiable against its results, and represents good value for money for the Australian Government.

Proper administration of the NTCRS is heavily dependent on the accuracy and timeliness of the data supplied by DIBP, by the co-regulatory arrangements and by the liable parties. We were advised that these data sets don't always match up, requiring DoEE officers to conduct manual checks of the data supplied to them and then follow up with scheme participants to verify and correct any discrepancies. We were also advised that there used to be a Memorandum of Understanding (MOU) between DoEE and DIBP but it is no longer in place; it may be beneficial to explore the possibility of reinstating the MOU or similar formal arrangement.

It was not within the scope of this evaluation to undertake a detailed process mapping exercise, but on a high-level analysis we believe that there remain opportunities for process improvement. As well, the lack of available resources means that additional activities, which in the view of DoEE officers and other stakeholders would enhance the operation and efficiency of the NTCRS, have not been able to be undertaken to date.

Effectiveness and Impact

The NTCRS has been effective in achieving its objectives. The scheme has demonstrably reduced waste to landfill, especially the hazardous materials found in e-waste. It has increased recovery of reusable materials in a safe, scientific and environmentally sound manner and it has provided access for households and small businesses to an industry-funded recycling service. Refer to *Table 2: Key NTCRS Outcomes by Year* under KEQ 3a on page 27.

Stakeholders were overwhelmingly of the view that the NTCRS has been successful in reducing the negative environmental and health and safety impacts of television and computer e-waste – this was clearly reflected in stakeholder interviews, as well as survey responses from liable parties and recyclers.

Overall, although the communications and stakeholder engagement could be improved (as discussed under KEQ 4 on page 30), the scheme has been effective so far in meeting its targets and has achieved a very high level of liable party compliance.

Sustainability

DoEE resourcing of the scheme has steadily declined since 2011. If this downward trend continues, DoEE seems likely to face substantial difficulties in administering the scheme effectively. Indeed many stakeholders noted that DoEE was already under-resourced and that the effectiveness of the scheme was suffering as a result.

DoEE under-resourcing has contributed to: ongoing software and data collection problems; less than optimal communication and engagement activities; and less than optimal compliance activities. We were advised that DoEE officers are focused on liable party compliance – to good effect – but any decrease in DoEE oversight of the co-regulatory arrangements and the activities of recyclers would necessarily lead to increased risk.

The scheme is just sustainable in its current form, but the DoEE trend towards reducing NTCRS resourcing is the key risk to the ongoing sustainability of the scheme. Relatively modest increases in DoEE resources could lead to substantial improvements to ongoing software and data collection problems; communication and engagement activities; and compliance.

Based on available evidence, we consider that liable party resourcing of the scheme seems appropriate and sustainable. This conclusion arises from the following indicators:

- The modelling and targets that underpin the scheme ensure that the financial liability of each party is directly linked to their commercial activities. The modelling and targets were adopted in the first place in close consultation with industry, and subsequently amended with similar close consultation.
- Recycling targets have, to date, been met with relative ease. Liable parties have not, therefore, paid for more recycling than was actually occurring.

- The ongoing high levels of liable party compliance with the scheme is an indicator that liable parties find their role in resourcing the scheme to be appropriate.

The current institutional or structural arrangements for implementing the program in the future are adequate, but need not necessarily remain static. Industry and community pressures to change and improve the scheme will likely build over time. Some stakeholders have expressed concern about the sustainability of the number of co-regulatory arrangements. All stakeholders want the scheme to continue to be improved, which will in turn require more resources.

Improvement

We received many suggestions for improvement which go to both the efficiency of implementation and the overall effectiveness of the scheme (refer to KEQs 9 and 10). All of the improvement themes generally, as well as many of the specific improvement suggestions, warrant further investigation and consultation. Some improvements would be within the control of stakeholders to implement within the existing parameters of the scheme, while others would require formal or legislative amendment to the scheme before they could be implemented.

The improvement opportunities we assess as being of the highest priority are addressed below, in the recommendations.

Lessons learned for other potential co-regulatory approaches

There are several lessons arising from the NTCRS that are translatable to other regulatory schemes.

Flexible program administration. The NTCRS has been subject to regular review, and its administrators have demonstrated flexibility in improving the scheme as required, according to market outcomes and stakeholder requirements. We found that the 2014 operational review of the NTCRS, and the resulting changes made to the scheme in 2015, were very well received by stakeholders. Not only did the review and subsequent changes address the problems raised by stakeholders, it also enhanced the credibility of both the scheme and DoEE amongst all stakeholder groups.

Sufficient DoEE resources for scheme enforcement. There must be sufficient government resources provided to ensure effective enforcement of the scheme. DoEE has achieved NTCRS liable party compliance rates of 97-99%. This effort is highly commendable, because DoEE resources generally have been declining since the scheme was introduced. However, making sure liable parties meet their obligations under the NTCRS is only one of the activities that go towards enforcing the scheme and making sure it is achieving its stated aims and intended outcomes. Other areas of enforcement within the NTCRS are far less strong, including health checks on co-regulatory arrangements, and the effective oversight of downstream recycling.

Design. There was broad consensus among stakeholders that a co-regulatory scheme like the NTCRS is the best way to achieve the desired outcomes of product stewardship. The majority of stakeholders, including liable parties, agreed that a scheme which requires industry to bear the lion's share of the responsibility and cost is both fair and reasonable, and also in line with public expectations. Several stakeholders, across all groups, were of the view that a voluntary or self-regulatory scheme would not achieve the same high rates of compliance by industry participants.

Timing. Some state and territory jurisdictions claimed that the delayed introduction of the NTCRS (in their opinion) affected the timing of their own activities in relation to e-waste (in some cases, forcing them to extend activities beyond their original deadline). Secondly, the introduction of the NTCRS unfortunately coincided with the Digital TV Switchover, resulting in much greater volumes of old cathode ray tube (CRT) televisions coming onto the recycling market than would normally be the case. The lesson for other similar schemes is, to the greatest extent possible, be aware of the broader context and how the timing of a new scheme might impact, or be impacted by, other government initiatives and market developments.

State government regulatory environments. The rollout of a national scheme must always take into account the differences between state and territory jurisdictions in terms of regulatory environment, existing infrastructure and market conditions. This could in part be addressed through stronger and more regular consultation and communication between all levels of government. While the Commonwealth needs to take a leading role, all jurisdictions must take their share of responsibility for ensuring successful outcomes on a national level.

Impact on local government. Within Australia there are 546 local councils, each playing an important regulatory and practical role, particularly in the field of waste management. Just as with state and territory governments, it is important to ensure strong engagement and regular consultation and communication.

Impact on industry. The NTCRS was designed to allow for multiple co-regulatory arrangements, so that liable parties and recyclers were able to shop around for the best commercial deal for them. Prices have dropped, at least partially as a result. Not all stakeholders believe that this led to the best outcomes, particularly in the early years of the scheme. Some raised concerns that competition and pricing pressure may cause recyclers to adopt sub-standard processes, leading to poor environmental and health and safety outcomes.

Lessons learned and recommended areas for improvement of the NTCRS

DoEE is managing the scheme effectively, despite annually diminishing resources. Additional resourcing would be required to act on the following areas of improvement (noting that the level of required resourcing would vary depending on the nature of the improvement).

Identified areas for improvements to management of the scheme

Recommendation 1. Improve or replace PS Online.

NTCRS data is collected, collated and managed within software that DoEE calls PS Online. Although PS Online was originally built specifically for the NTCRS, the requirements of the scheme have become more complex since its inception. While the software has been modified and improved over time, it does not consistently perform the tasks it was designed to do, and is often broken, preventing DoEE from administering the scheme more effectively. DoEE officers reported that they need to manually check the data in the system due to concerns about reliability and accuracy, and they spend an inordinate proportion of their time trying to manage and maintain the system.

For details refer to KEQs 1a, 5a, 5b and 6f.

Recommendation 2. Improve and formalise stakeholder engagement.

DoEE engagement with state and territory government agencies, and with local councils (including the state-based peak bodies for local government) is inconsistent. A formal consultative/reference group does not exist. DoEE liaises with State and Territory governments on an ad hoc basis (approximately annually). DoEE has far stronger relationships with some states and territories than others. DoEE's engagement with local government is even weaker, and similarly patchy. Its strongest ties lie with one or two state-based peak bodies for local government, rather than with councils themselves.

For details refer to KEQs 4a, 5a, 5b, 6f and 7a.

Recommendation 3. Prepare a communications strategy, with agreed roles, activities and outcomes, so that stakeholders and the public receive strong, consistent messages about the NTCRS.

The NTCRS is a complex scheme with multiple key stakeholders. Roles and responsibilities, especially around communications, are not always clear. An agreed communications strategy, prepared by DoEE in consultation with key stakeholders, should include: objectives; audiences; key messages; tools and activities; resources and timelines; allocated responsibilities; and opportunities for measurement and review.

For details refer to KEQs 1a, 4a, 5a, 5b, 9b, 9e and 10a.

Recommendation 4. Map and review the existing reporting timelines and associated data collection activities.

There are some obvious points at which the data collection timelines are very tight, and any slippage in one will inevitably have a cascading effect onto the others. In some cases actions are required (by the Regulations) before all the necessary data is available. A process review could also identify issues with data reliability and cross-checking, enabling DoEE to determine how best to enhance its data collection activities with the DIBP, co-regulatory arrangements and liable parties. For example, it may be possible to enter into an MOU or similar formal arrangement with DIBP.

For details refer to KEQs 1a and 6f.

Identified areas for improvements to the implementation of the scheme**Recommendation 5. Review whether current service levels provide equitable access to the scheme for consumers in rural, regional and remote locations.**

Local and state government stakeholders consistently raised the point that collection services in rural, regional and remote locations needed to be improved. A DoEE review could investigate whether the situation could be improved by setting a minimum performance standard to force higher service standards for areas currently under-served by the NTCRS. For example, a minimum collection weight of two tonnes per collection service.

For details refer to KEQs 7c, 8c, 9b and 9e.

Recommendation 6. Increase and enhance oversight of the downstream flow of recycled products.

Various stakeholders raised concerns about the lack of visibility of downstream arrangements, particularly where the by-products of recycling are exported. If e-waste material is not being handled in accordance with hazardous waste obligations and standards, there may be significant risk to DoEE, and to the community's perception of the scheme.

For details refer to KEQs 7c, 8c, 9a and 10a.

Expansion to include other e-waste products

The majority of stakeholders were in favour of expanding the NTCRS (or establishing another NTCRS-like scheme) to include other types of e-waste.

Recommendation 7. That further analysis and consultation be undertaken prior to determining whether the NTCRS should be expanded to include other types of e-waste.

In considering whether to expand the scheme, DoEE should be taken into account:

- Consumer confusion – the potential for consumers to become confused about what to do with different types of e-waste.
- Nature of hazardous waste – not all e-waste products are equally hazardous.
- Nature of products – e-waste products vary widely in terms of size, weight, manufacturer/distributor and life cycle.
- Stakeholder capacity – the capacity of stakeholders to manage their responsibilities.
- Impact on market – in terms of growth, competition, regulation and sustainability.

For details refer to KEQs 7a, 7b, 9e, 9f and 10b.

Lessons learned for evaluating the effectiveness of other regulations

Recommendation 8. Monitoring evaluation, review and improvement processes should be built into the design of a regulatory scheme at the earliest opportunity.

DoEE paved the way for the evaluation of the NTCRS by being well prepared. The development by key DoEE stakeholders of a comprehensive program logic (see Appendix D) ensured all parties agreed and were clear about the intended causal connections and relationships between the scheme's efforts and the intended results.

However we note that the program logic model was developed retrospectively by DoEE (in early 2017, in preparation for this evaluation) to reflect the existing program. The KEQs against which we have measured our findings were similarly prepared and agreed within DoEE, before this evaluation began. Ideally a program logic model, and associated monitoring, review and improvement activities, should be built into the initial design and implementation of any regulatory scheme. DoEE may also wish to consider some further refinements of the program logic to assist with the definition and measurement of outcomes in future evaluations.

For details refer to KEQs 5b, 6d, 7a, and 7b.

Appendix A: References

Both quantitative and qualitative data were collected for analysis in the evaluation. We note, however, that the quantitative data was largely limited to:

- outcomes data for 2012-13, 2013-14, and 2014-15 (with the 2015-16 data not available at the time of writing);
- annual reports published by the co-regulatory arrangements on DoEEs' website;
- the 2014-15 Operational Review of the NTCRS;
- data contained within Regulatory Impact Statements; and
- DoEE budget, risk assessment and administrative data.

Qualitative data included the above sources, as well as:

- [Regulatory Maturity Project Final Report](#) (Woodward report) and DoEE Response to the report;
- [Department's Regulator Performance Framework self-assessment report](#);
- assessments from stakeholders about how efficiently the NTCRS has been managed and implemented;
- discussion with stakeholders about outcomes and impacts (including unintended outcomes) and the factors leading to those results; and
- information from stakeholders about lessons learned, gathered through interviews and surveys.

Appendix B: Stakeholders Consulted

Interviewees

Department of the Environment and Energy

- Peter Brisbane, Director Stewardship and Waste Section
- Anne Gibson, Stewardship and Waste Section
- Katrina Spinaze, Stewardship and Waste Section
- Sian Waterhouse, Stewardship and Waste Section
- Yvette Blackman, Director Regulatory Capability Section
- Tess Burden, Regulatory Capability Section
- Gabrielle Nielsen, NTCRS Advisory Group
- Alex Taylor, formerly involved with the NTCRS
- Cass Coleman, A/g Director Data and Information Management Section

Co-regulatory Arrangements

- Chris Tangey, Managing Director E-cycle solutions
- Sandy McGregor, CEO E-cycle solutions
- Rose Read, CEO MRI OSO Pty Ltd
- Carmel Dollison, CEO ANZRP

State or Territory Government

- Tiana Nairn, Waste Reform Program Manager, SA EPA
- Rob Middlin, Senior Project Officer, SA EPA
- Henry Moore, Manager Waste Strategy and Innovation Section, NSW EPA
- Sarah Crossie, Unit Head, Waste Strategy Policy, NSW EPA
- Deirdre Badcoe, A/g Contract Manger ACT NOWaste, ACT Government
- David Riddell, Senior Contract Manger ACT NOWaste, ACT Government
- Bernard Ryan, Senior Manager Waste Policy, WA Department of Water and Environmental Regulation
- Scott McKenzie, Manager Policy, WA Department of Water and Environmental Regulation

Local Government

- Arron Lee, Manager Waste and Resource Recovery Services, Brisbane City Council
- Lyall Bond, Manager Environment and Emergency, Corangamite Shire Council (Vic)
- Rebecca Brown, WA Local Government Association
- Susy Cenedese, Strategy Manager, Environment, Local government NSW

Survey of NTCRS Liable Parties

128 liable parties were invited to complete an online survey. The response rate was 24%.

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| Acco Australia Pty Ltd | Laser Corporation Holdings Pty Ltd |
| Acer Computer Australia Pty Ltd | Lenovo (Australia & New Zealand) Pty Ltd |
| Achieva Technology Australia Pty Ltd | Lexmark International (Australia) Pty Limited |
| Advantech Australia Pty Ltd | LG Electronics Australia Pty Ltd |
| Altech Computers Corporation Pty Ltd | Mecari Pty Ltd |
| Amicroe Holdings Ltd & Desert Computer Design Inc | Medion AG |
| Anyware Corporation Pty Ltd | Microsoft Regional Sales Corporation |
| Apple Pty Limited | Mittoni Pty Ltd |
| Asus Service Australia Pty Ltd | Multimedia Technology Pty Ltd |
| Audion Innovision Pty Ltd | NCR Australia Pty Ltd |
| Australia I.T. Pty Ltd | NEC Australia Pty Ltd |
| Avico Electronics Pty Ltd | Newell Australia Pty Ltd |
| Avnet (Australia) Pty Ltd | Officeworks Superstores Pty Ltd |
| Avnet (Australia) Pty Ltd 1600 | One Laptop Per Child Australia Ltd |
| Avnet Technology Solutions (Australia) Ltd | Panasonic Australia Pty Ltd |
| Bci International Development Pty Ltd | Pegatron Corporation |
| Belkin Limited | Pendo Industries Pty Ltd |
| Benq Australia Pty Ltd | Pioneer Electronics Australia Pty Ltd |
| Bluechip Infotech Pty Ltd | PowerhousePC Australia Pty Ltd |
| Brother International (Aust) Pty Ltd | Primax Electronics Ltd |
| BSG Australia Pty Ltd | QCLNG Operating Company Pty Ltd |
| Bush Australia Pty Ltd | Qisda Corporation |
| Canon Australia Pty Ltd | Quanta Computer Inc |
| Cellnet Group Ltd | Quatius Aust Pty Ltd |
| Changhong Electric (Australia) Pty Ltd | Rectron Electronics Pty Ltd |
| Cisco Systems Australia Pty Limited | Ricoh Australia Pty Ltd |
| Com1 International Pty Ltd | Samsung Electronics Australia Pty Ltd |
| Competition Team Ireland Ltd | Sanmina-Sci Systems Australia Pty Ltd |
| Compucon Computers (NSW) Pty Ltd | Scholastic Australia Pty Ltd |
| Datalogic ADC Pty Ltd | Seiki Australia Pty Ltd |
| Dell Asia Pacific SDN | Sharp Corporation of Australia Pty Ltd |
| Dell Australia Pty Limited | Silicon Memory Technologies Pty Ltd |
| Dell Global BV (Singapore Branch) | Sony Australia Ltd |
| Dicker Data Ltd | Sony Mobile Communications AB |
| D-Link Australia Pty Ltd | Suzhou Raken Technology Co Ltd |
| DMA Unit Trust | Synnex Australia Pty Ltd |
| E3 Style Pty Ltd | T.V. Rentals Pty Ltd |
| Electus Distribution Pty Ltd | Target Australia Pty Ltd |
| Element14 Pty Ltd | Targus Australia Pty Ltd |
| EMC Information Systems International | TCL Electronics Australia Pty Ltd |
| Epson Australia Pty Ltd | Teac Australia Pty Ltd |
| Eternal Asia (Australia) Pty Ltd | Teco Australia Pty Ltd |
| Foxteq Australia Pty Ltd | Teleplan Service Solutions Asia BV |

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| Fuji Xerox Asia Pacific Pte Ltd Fujitsu Australia Ltd Funtastic Ltd Futurelogic Australia Pty Ltd Goodson Imports Pty Ltd Hewlett-Packard Australia Pty Ltd Hisense Australia Pty Ltd Hitachi Data Systems Australia Pty Ltd Home Entertainment Suppliers Pty Ltd Hon Hai Precision Industry Co Ltd IBM Australia Ltd ICT Century Pty Ltd Imation ANZ Pty Ltd Ingram Micro Pty Ltd Intermec Technologies Australia Pty Ltd King World Developments Pty Ltd Kmart Australia Ltd Kogan Australia Pty Ltd Konica Minolta Business Solutions Australia Pty Ltd Kyocera Document Solutions Australia Pty Ltd La Cie Australia Pty Ltd | Tempo (Aust) Pty Ltd The Leader Computer Wholesale Trust The Reject Shop Ltd The Trustee For The Calderara Family Trust The Trustee For The Coast RV Unit Trust The Trustee For The Olbertz Family Trust The Trustee For Thermal Take Unit Trust Thorn Australia Pty Ltd Top Victory Investments Ltd Toshiba (Australia) Pty Ltd V Max Pty Ltd V.B. Distributors Pty Ltd Verbatim Australia Pty Ltd Verbatim Australia Pty Ltd Viano Corporation Pty Ltd Wacom Australia Pty. Ltd. Westwell Australia Pty Ltd Winplus Australasia Pty Ltd Wistron Corporation Woolworths Ltd Yale Prima Pty Ltd |
|--|---|

Survey of NTCRS Recyclers (as at 2015-16)

The co-regulatory arrangements work with 19 recyclers around Australia. The survey was sent 14 of those recyclers (74%). Of those 14, 13 responded to the survey – a 93% response rate from those who received the survey, and representing 68% of the total number of recyclers that work with the four co-regulatory arrangements.

Aspitech
CDS Recycling
City Mission Launceston
Community Axis Enterprises (Axisworx)
E-Cycle Recovery
Endeavour Foundation
E-waste Recycling.Kurrajong Waratah
MRI (Aust) Pty Ltd
Outlook Environment.Sims Recycling Solutions
Tes-Amm Australia
Total Green Recycling
Tox Free (previously PGM)

Appendix C: Stakeholder Interview Guide

<interviewee name, title and date>

Preamble

- Confirm interviewee's name, position, organisation, and contact details for follow-up purposes.
- Introduce ACIG, explain our role, explain scope and purpose of NTCRS evaluation.
- Explain purpose, format and timing of interview.
- Confirm privacy and confidentiality of interview.

Interview Questions

Note: The questions below are intended to prompt and guide the conversation, to ensure that all key items are covered during the interview.

The questions are structured under the five evaluation domains in the Evaluation Framework: Appropriateness, Efficiency, Effectiveness and Impact, Sustainability, and Improvement.

Opening

- Please explain your role and experience with the NTCRS program.

Appropriateness

- In your opinion, have the needs of [industry/government] changed since the program was first designed?

Efficiency

- From your [industry/government] perspective, how well do you think the program has been implemented?
- Did you have an implementation plan for your participation in the program?
 - If so, did the plan cover everything it needed to?
- Did you have sufficient resources to implement (your part of) the program?
 - If not, what additional resources did you require?
- Did anything enable or enhance your ability to implement (your part of) the program?
 - If so, what?
- Did anything hinder your ability to implement (your part of) the program? If so, what?
- How well do you think other participants implemented their part of the program?
- Can you think of any ways that the program could have been implemented more easily, efficiently or effectively?
- From your [industry/government] perspective, do you think the cost of the program justifies the outcomes?

Effectiveness and Impact

- What do you think has been the most significant impact or outcome of the program to date?

- Has the program worked in the way you expected it to?
 - If not, in what way has it differed from your expectations?
- Have there been any unintended consequences or outcomes from the program?
 - If so, what were (are) they?
- What do you think is the level of awareness and understanding of the program, among industry and the general public?
- Do you think the communication and education activities that supported implementation of the program were adequate?
 - If not, why not?
- How well do you think the program is helping to reduce negative environment, health and safety impacts of television and computer products?

Sustainability

- After 5 years of operation, how well do you think the program has been established within the industry and government?
- Do you think that your organisation will be able to continue participating in the program in future?
 - If not, why not?
- Can you think of any reasons why the program may not be able to continue in future? (social, economic, technical, environmental)

Improvement

- To what extent do you think the program was adequately designed to match the needs of [industry/government]?
- What part/s of the program do you think work well, and why?
- What part/s of the program do you think don't work well, and why?
- Was (or is) there anything that made it difficult for you to implement and/or participate in the program?
- Are you aware of any other programs or approaches that offer a better way to address the needs of [industry/government]?
- Can you think of any ways that the program might be improved in future?
- Can you think of any other e-waste products that might be included if the program was to be expanded in future?

Conclusion

- If you could make one significant change to the program, what would it be?
- Is there anything I haven't asked you, that you think I should have?

Appendix D: Program Logic (Prepared by DoEE and provided to ACIG)

| Objective: Environmental and human health impacts of e-waste reduced/eliminated as a result of industry taking responsibility for products throughout and at the end of a product's life | | | | | | |
|---|---|---|--|--|--|---|
| Our stakeholders | What resources we have to help us (inputs) | What we are going to do (activities, strategies) | What we will produce and deliver (outputs) | What we expect to see in the short-term (i.e. in first year) (immediate outcomes) (lessons: awareness, knowledge, skills, motivations) | What we expect to see in the medium term (i.e. after 3 years) (intermediate outcomes) (action: behaviour, practice, decisions, policies) | What we expect to see in the long-term (i.e. after 5-10 years) (long-term outcomes) (consequences: social, economic, environmental) |
| <ul style="list-style-type: none"> Co-regulatory arrangements (co-regulators) (4: MRI PSO, Australian & NZ Recycling Platform, E-Cycle Solutions, Electronic Product Stewardship Australasia) State & Territory governments and environmental departments State & Territory environment ministers Importers of televisions and computer products (liable parties) E-waste recyclers Community Local government Local government associations Customs brokers Department of Immigration and Border Protection (DIBP) DoEE Minister DoEE executive DoEE Product Stewardship and Waste team SRA (Application developers for dedicated computer system - PSO) | <ul style="list-style-type: none"> DOEE Staff (4 ASL) Departmental funding Dedicated computer system (PSO) States and Territories consultative reference group DIBP import data Co-regulators membership information Product stewardship legislative framework States' & territories' waste programs and policies AS/NZS 5377:2013 | <ul style="list-style-type: none"> <u>Regulate</u> using a co-regulatory approach <u>Establish</u> incentives for compliance <u>Import and analyse</u> customs data to <u>establish</u> targets and liability <u>Assess</u> liability and <u>notify</u> liable parties <u>Assess and approve</u> co-regulators <u>Assess and approve</u> co-regulators quarterly and annual reports (through PSO) <u>Engage and collaborate</u> with key partners <u>Monitor and report</u> on scheme implementation and outcomes <u>Educate</u> the public and importers about the scheme | <ul style="list-style-type: none"> Product Stewardship Act and Regulations Provide for civil penalties for non-compliance with Act/regulations (Annual) scheme target and co-regulators' share of the scheme target (final sent to co-regulators in November) Statements of advice (liability) sent to liable parties (May July and final in Nov)* Approved co-regulatory arrangements Approved co-regulators reports Consultative/reference group Quarterly visits to co-regulators Conference papers and presentations Annual scheme outcomes report * Assessment of co-regulators' annual reports DOEE annual report input Website content, Product Stewardship information line & written responses to queries in E-waste inbox | <ul style="list-style-type: none"> Increased knowledge about objectives and penalties Liable parties are aware of their liabilities Liable parties join an approved co-regulator Co-regulators provide reasonable access to collection, recycling and recovery services Co-regulators meet their reporting, governance and other matters required under the legislation Effective relationship established between DOEE, States and Territories, and co-regulators Increased awareness and knowledge about scheme performance Broader awareness of e-waste recycling collection services | <ul style="list-style-type: none"> Increased compliance with the scheme by co-regulatory arrangements and liable parties Liable parties comply with regulations Co-regulators achieve share of recycling targets as they increase to 80% and recovery targets Improved management of recycling performance and OH&S responsibilities Effective collaboration between DOEE, States and Territories, and Co-regulators Increased use of performance information to improve scheme Increased use of performance information by states and territories to improve policies and planning Broader use of e-waste recycling collection services | <ul style="list-style-type: none"> Reduced waste (by weight) to landfill, especially the hazardous materials found in e-waste Increased recovery of reusable materials in safe, scientific and environmentally sound manner Increased recycling, including by households and small business as a result of access to fair and equitable industry funded recycling schemes available nationally Increased efficiency, quality, and coverage through national roll out of the scheme Other businesses using a standardised approach to ensure that high volume collection and management of end of life e-waste is conducted in a safe, environmentally-friendly way Increased responsibility taken by industry/importers for products throughout and at end of a product's life Scheme expanded to include other E-waste products such as VCRs and faxes. |

Appendix E: Evaluation Framework

| Evaluation Question | Sub-Questions | Measures | Data source or method |
|---|--|---|--|
| Appropriateness | | | |
| 1. To what extent has the program design proven to be adequately matched to identified needs? | 1a. Have the needs identified during the original development of the NTCRS changed over time? 1b. What evidence is there that the NTCRS program design meets or is likely to meet identified needs? | Needs analyses. Synthesis of evaluation research findings. ¹ | Document review – Department documents Regulatory Impact Statements <i>Possible source: Co-regulators may have consumer behaviour surveys/studies. ACIG to check if Co-regulators are willing to share or if DoEE can provide.</i> |
| Efficiency | | | |
| 2. How efficiently has the NTCRS been managed and implemented? | 2a. To what extent were available resources used to the best effect? | Summative assessment of evaluation findings concerning program delivery. | Evaluation synthesis of costs versus outputs achieved |
| 3. How efficient has the NTCRS been in delivering its intended outcomes? | 3a. To what extent are the costs of program delivery justifiable against its results? 3b. To what degree is the scheme cost-effective compared to other like programs or other options that address the same needs? | Program costs and benefits. Note: the evaluation will be limited to whatever cost and benefit data is currently available from the Department. Comparison of program costs and benefits with other programs (to the extent that they are available). | 2014-15 Operational Review of the NTCRS Departmental budget and administrative data Regulatory Impact Statements Evaluation synthesis of evidence on costs and benefits |
| Effectiveness and Impact | | | |
| 4. Were communication and education activities adequate? | 4a. How were the target audiences for education and information determined and to what extent were they reached? | Degree of reach to audience; website analytics trends; communications materials created and disseminated. Awareness of program objectives, penalties, liabilities (obligations under the Act) by liable parties and co-regulators. | Department documents and interviews Stakeholder survey Stakeholder interviews Stakeholder survey |
| 5. Were the activities and their resourcing adequate to ensure delivery of the planned outputs? | 5a. Were the activities that were delivered adequate in achieving the planned outputs? 5b. Were the resources provided adequate to provide all the planned outputs? | Program management's assessment of program implementation. Program management's assessment of program implementation. | Department documents and interviews Department documents and interviews |

¹ Synthesis is the process of combining multiple items of evidence to reveal an aggregate meaning in answering the evaluation question. Evaluative judgements drawn from the synthesis process are initially formed by careful examination of all the evidence cited in the 'Data source or method' column and comparing the performance evidence (quantitative and qualitative) against any documented standards or targets, rubrics based on best practice frameworks or other theoretical or empirical constructs, or agreed benchmarks. The synthesis and evaluative judgements derived from them may be reviewed by a reference group or advisory board at this stage, before development of a final report.

| Evaluation Question | Sub-Questions | Measures | Data source or method |
|---|---|---|---|
| 6. To what extent has the NTCRS been implemented as intended? | <p>6a. Has adequate resourcing been provided to the NTCRS?</p> <p>6b. Have activities been conducted? What outputs has the NTCRS delivered?</p> <p>6c. How consistent has the implementation been across organisations and target audiences?</p> <p>6d. What were the barriers to, and enablers of, implementation activities?</p> | <p>Stakeholders' assessment of resourcing adequacy.</p> <p>Program delivery evidence on: Act and Regulations; penalties and compliance; liability calculations and communication; co-regulator agreements; co-regulator visits; co-regulator annual reports assessments; annual scheme outcomes reports; consultative/reference group activities completed.</p> <p>Stakeholders' assessment of implementation.</p> <p>Stakeholders' assessment of barriers and enablers.</p> | <p>Program management interviews</p> <p>2014-15 Operational Review</p> <p>Stakeholder interviews</p> <p>Program reports, Department documents and Department interviews</p> <p>Stakeholder interviews Stakeholder survey</p> <p>Stakeholder interviews Stakeholder survey</p> |
| 7. How effective has the NTCRS been in achieving its intended outcomes? | <p>7a. What outcomes have been achieved to date?</p> <p>7b. What demonstrable progress has been made towards achieving longer term outcomes?</p> <p>7c. What, if any, unintended outcomes (positive and/or negative) have been observed?</p> <p>7d. To what extent is the NTCRS having an impact, or is likely to have an impact in the longer term, on reducing the negative environment, health and safety impacts of the products that it regulates?</p> | <p>Take-up rate of liable parties joining co-regulators.</p> <p>Accessibility of collection, recycling and recovery services.</p> <p>Quantities of e-waste collected, recycled and recovered.</p> <p>Quality of relationships between Department, States and Territories, and co-regulators.</p> <p>Awareness of e-waste recycling collection services.</p> <p>Awareness and knowledge of scheme objectives, specific liabilities, and penalties for non-compliance.</p> <p>Awareness and knowledge about scheme performance.</p> | <p>Outcomes data reports 2012-13, 2013-14, 2014-15</p> <p>Interviews with stakeholders and Department.</p> <p>Stakeholder survey</p> <p>2014-15 Operational Review</p> |
| Sustainability | | | |
| 8. To what extent is the scheme sustainable in the future? | <p>8a. How adequate are future financial arrangements for implementing the program?</p> <p>8b. How adequate are the institutional or structural arrangements for implementing the program in the future?</p> <p>8c. To what extent may reasonably foreseeable social, economic, technical or environmental change impact the need for the program or the ability to deliver the program.</p> | <p>Synthesis of evaluation research findings.</p> | <p>2014-15 Operational Review</p> <p>Outcomes data reports 2012-13, 2013-14, 2014-15</p> <p>Interviews with stakeholders and Department.</p> <p>Stakeholder survey</p> <p>Regulatory Impact Statements</p> |

| Evaluation Question | Sub-Questions | Measures | Data source or method |
|---|---|--|--|
| Improvement | | | |
| 9. What lessons have been learned that can inform improvements in the NTCRS? | 9a. What has worked for whom, why and how? 9b. What factors (internal and external) have facilitated or impeded the achievement of intended outcomes? 9c. What lessons (from success or failure) could be shared among co-regulators for the purpose of improvement? 9d. In what ways could the efficiency of implementation be improved? 9e. In what ways could the effectiveness of the scheme be improved? 9f. If the scheme is expanded, what e-waste products should be included as a priority? | Synthesis of evaluation research findings. | 2014-15 Operational Review Outcomes data reports 2012-13, 2013-14, 2014-15 Interviews with stakeholders and Department. Stakeholder survey Regulatory Maturity Project Final Report (Woodward report) and Departmental Response to the report. |
| 10. What lessons have been learned that could inform potential co-regulatory approaches for other (non e-waste) products? | 10a. What lessons from the NTCRS are translatable to other regulatory schemes? 10b. What factors should inform expansion of the scheme to other e-waste? | Evaluation synthesis of evidence. | 2014-15 Operational Review Outcomes data reports 2012-13, 2013-14, 2014-15 Interviews with stakeholders and Department. Stakeholder survey |
| 11. What are the key elements and lessons from the evaluation of the NTCRS that could inform development of a consistent approach to evaluation of regulation administered by the Department? | 11a. What worked well in the evaluation? 11b. What did not? 11c. What were the limitations in practice of the approach? 11d. What improvements can be made for future evaluations? | Assessment of lessons learned in the evaluation process. | Evaluator and Department dialogue and analysis Previous evaluations and reviews, possibly including Regulatory Maturity Project Final Report (Woodward report) and Departmental Response to the report. |

Appendix F: Glossary and List of Acronyms

| Acronym/Term | Definition |
|------------------------------|---|
| 2014-2015 Operational Review | Operational Review of the NTCRS conducted by DoEE in 2014-15 |
| 2015 RIS | "Regulation Impact Statement – NTCRS: Enhancements Arising from the Operational Review, 22 June 2015", DoEE |
| Co-regulatory Arrangement | Body corporate responsible for administering NTCRS recycling arrangements on behalf of its liable party members |
| DIBP | Department of Immigration and Border Protection |
| DoEE | Department of the Environment and Energy |
| E-Waste | Waste arising from discarded electrical or electronic products |
| FTE | Full Time Equivalent |
| KEQ | Key Evaluation Question |
| Liable Party | Corporation that imported or manufactured NTCRS regulated products in the previous financial year (i.e. televisions, computers and computer products, including internal parts and peripherals) |
| Non-Scheme E-Waste | Electrical or electronic products that are not regulated under the NTCRS |
| NTCRS | National Television and Computer Recycling Scheme |
| Product Stewardship | Where those involved in producing, selling, using and disposing of products have a shared responsibility to ensure those products or materials are managed throughout their life cycle in a way that reduces their impact on the environment and on human health and safety |
| Recycler | Corporation contracted by a co-regulatory arrangement to provide scheme e-waste recycling services under the NTCRS |
| Regulations | <i>Product Stewardship (Televisions and Computers) Regulations 2011</i> |
| Scheme E-Waste | Electrical or electronic products that are regulated under the NTCRS, i.e. televisions, computers, printers and computer products, including internal parts and peripherals |