

NSW Waste Avoidance and Resource Recovery Strategy 2013–21

DRAFT

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Published by:

Environment Protection Authority

59 Goulburn Street, Sydney NSW 2000

PO Box A290, Sydney South NSW 1232

Phone: (02) 9995 5000 (switchboard)

Phone: 131 555 (environment information and publications requests)

Fax: (02) 9995 5999

TTY users: phone 133 677, then ask for 131 555

Speak and listen users: phone 1300 555 727, then ask for 131 555

Email: info@environment.nsw.gov.au

Website: www.epa.nsw.gov.au

Report pollution and environmental incidents

Environment Line: 131 555 (NSW only) or info@environment.nsw.gov.au

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Foreword



We consume a wide range of resources in our daily activities. Most of these are precious natural resources and many, like food, clothing, wood and glass, go to waste. The population of NSW is growing and while we now recycle more than ever, we are also generating more waste. This places increasing pressure on the environment to provide more natural resources for new materials and to absorb our waste. When our environment suffers, our community does too.

We often think of waste as having no value, but it is actually a valuable resource. Most of the materials in our waste can be reused, recycled or recovered in some way. As individuals and as a community, we are all responsible for reducing the amount of waste we create. Business, industry, government, households and communities need to work together to identify opportunities for waste reduction and resource recovery in all areas of our daily lives.

We need to continue our shift in thinking and treat our waste as an asset, allowing us to make the most of our state's valuable resources and reduce the pressure on our environment. The NSW Government has set a strong agenda for action in this area and is leading the way in national initiatives as well as providing clear direction for the state.

When I became Minister for the Environment, I committed to undertaking an independent review of the Waste Levy as part of the reforms outlined in *NSW 2021: A plan to make NSW number one*. Extensive public consultation on the levy provided strong evidence to bring forward the NSW Government's waste and resource recovery initiative, *Waste Less, Recycle More*. This substantial package provides \$465.7 million from Waste Levy revenue over the five years to 2017. It will fund a range of programs in the waste and resource recovery sector, which are outlined in this Draft NSW Waste Avoidance and Resource Recovery (WARR) Strategy.

The WARR Strategy is designed to drive more efficient use of our resources and improve the well-being of the environment, our community and the economy. It sets clear directions across a range of priority areas over the next 10 years and provides strong, stable signals to the waste industry.

The key result areas identified in the strategy aim to support investment in much-needed waste and recycling infrastructure, encourage innovation and improve recycling behaviour. They will also help develop new markets for recycled materials as well as reduce litter and illegal dumping. These priorities align with those of *Waste Less, Recycle More*.

The WARR Strategy is not just about managing a problem. Yes, there are challenges, but there are also significant opportunities for our state. Supporting the waste management industry and local government to innovate and develop infrastructure around recycling and resource recovery will help improve waste management and also create jobs. A thriving and efficient waste management sector will have enormous flow-on benefits for the state's economy.

The targets that are proposed in this strategy have set us an ambitious challenge, but it is crucial that we achieve these goals in order to grow our economy and protect our environment. We have the chance to build on the significant progress that has already been made in increasing NSW recycling from 45% in 2003 to over 63% in 2010–11. Our increased recycling efforts are heading in the right direction – we just need to get there faster.

I would like to thank the members of the Expert Reference Group that guided the development of this draft strategy. The group, comprised of members from local government, interstate and NSW waste experts and EPA Board members, provided valuable direction and built on the evidence provided by EPA-commissioned research.

Achieving our goals relies on collaborative, innovative and practical approaches. Your comments on this proposed strategy will help us develop the right focus for action within your business, industry and community.

I encourage you to participate in setting the destination for this NSW Waste Avoidance and Resource Recovery Strategy.

A handwritten signature in blue ink, reading "Robyn Parker".

The Hon. Robyn Parker, MP
Minister for the Environment

Commenting on the draft WARR Strategy

A cooperative effort across all levels of government, industry, community groups, households and individuals will be needed to achieving the goals in this strategy.

Your comments are invited and will be used to develop the final NSW WARR Strategy 2013–21, which will reach to 2021–22.

The closing date for submissions is **16 December 2013** and these should be mailed to:

NSW Waste Avoidance and Resource Recovery Strategy 2013–21

Waste and Resource Recovery Branch

Environment Protection Authority

PO Box A290

Sydney South NSW 1232

or emailed to warr.strategyreview@epa.nsw.gov.au

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Draft NSW WARR Strategy 2013–21 – at a glance

Vision

Enable the whole NSW community to improve environment and community well-being by:

- reducing the environmental impact of waste
- using resources more efficiently.

Using resources efficiently and keeping materials circulating in the productive economy can also help to create jobs and grow the NSW economy.

Objectives and targets

Avoid and reduce waste generation

By 2021–22, reduce the rate of waste generation per capita

Increase recycling

By 2021–22, increase recycling rates for:

- municipal solid waste from 52% (in 2010–11) to 70%
 - commercial and industrial waste from 57% (in 2010–11) to 70%
 - construction and demolition waste from 75% (in 2010–11) to 80%
-

Divert more waste from landfill

By 2021–22, increase the waste diverted from landfill from 63% (in 2010–11) to 75%

Manage problem wastes better

By 2021–22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide

Reduce litter

By 2016–17, reduce the number of litter items by 40% compared with 2011–12 levels and then continue to reduce litter items to 2021–22

Reduce illegal dumping

From 2013–14, implement the *NSW Strategy to Combat Illegal Dumping* to reduce the incidence of illegal dumping statewide

As part of this strategy, by 2016–17:

- reduce the incidence of illegal dumping of waste detected in Sydney and the Illawarra, Hunter and Central Coast regions by 30% compared with 2010–11
- establish baseline data to allow target-setting in other parts of the state

1. Introduction

Effective waste management is a fundamental responsibility for the NSW community as well as the global community. Without it, we risk compromising our environment, our health and our economy.

The NSW Government recognises the importance of transforming the way we think about waste and is committed to developing long-term strategies that encourage resource recovery and prevent unnecessary waste.

The NSW Waste Avoidance and Resource Recovery Strategy (the 'WARR Strategy') is a key component of the Government's vision for the environmental and economic future of the state that will be supported financially by the *Waste Less, Recycle More* initiative.

This document outlines the impact of waste on our environment, industries and economy as well as the health and well-being of our community (Section 2). The driving factors behind development of the WARR Strategy are discussed in the context of the waste hierarchy, which outlines the preferred approaches for efficient resource use (Section 3) and achieving waste management goals (Section 4), as well as the National Waste Policy (Section 5).

Draft NSW WARR Strategy 2013–21 builds and expands on previous successes. An important part of developing new long-term goals is to assess the current state of waste management in NSW and the progress made against existing targets (Section 6). The 2013–21 WARR Strategy is based on these findings and provides long-term targets across six key result areas that focus on using our resources more efficiently and reducing the environmental impact of waste (Section 7).

Long-term targets are provided for the following six key result areas in Draft NSW WARR Strategy 2013–21:

- Key Result Area 1: Avoid and reduce waste generation
- Key Result Area 2: Increase recycling
- Key Result Area 3: Divert more waste from landfill
- Key Result Area 4: Manage problem wastes better
- Key Result Area 5: Reduce litter
- Key Result Area 6: Reduce illegal dumping.

Across each key result area, specific strategies are provided that pave the way towards the target. Key measures are identified that will help us monitor progress over time (Section 8).

The WARR Strategy seeks to drive opportunity and outcomes by providing policy certainty and focus over the long term (10 years). The strategy does not work in isolation and there are key elements that set the framework for reducing the impact of waste and improving our resource efficiency:

- Implementation plans will be developed to focus action over shorter time periods. The *NSW Strategy to Combat Illegal Dumping* is the first of these and others will follow once this WARR Strategy is finalised.
- Progress towards the goals will be evaluated using a variety of methods and reported every two years in WARR progress reports.

The implementation plans will be funded through to 2017 by *Waste Less, Recycle More*. This demonstrates the NSW Government's commitment to support the entire community in working together towards achieving the targets set in the strategy. Everyone in the community has a role to play in avoiding waste and increasing resource recovery to ensure that environmental and community well-being is improved across NSW (Section 9).

Draft NSW WARR Strategy 2013–21 provides you with an opportunity to:

- learn more about past and present waste management efforts in NSW
- comment on the long-term goals that have been set and their impact on your business, industry and community
- shape the future of NSW.

Why is the WARR Strategy being reviewed?

The NSW [Waste Avoidance and Resource Recovery Act 2001](#) requires the state to have a regularly reviewed and updated WARR Strategy. This reflects the importance that the community places on minimising waste and maximising resource recovery. The Act requires the WARR Strategy to be reviewed and replaced every five years. As the current strategy was published in 2007, an update is now due.

Section 12 of the Act specifies that the strategy must:

- include targets that address waste reduction, resource recovery and diversion of waste from landfill
- be benchmarked against international best practice
- undergo a public consultation process.

The WARR Strategy has become part of the NSW landscape over time. Industry, local councils and community groups now use the strategy to set the waste agenda and focus effort and it is accepted as a fundamental component of government policy.

The WARR Strategy review provides an opportunity to reset the targets that were first established in 2003 and reaffirmed in 2007. These initial targets have either already expired or are due to expire in 2014.

This review also provides an opportunity to bring the WARR Strategy into line with new Government initiatives, such as [Waste Less, Recycle More](#) and other Government policy areas identified in [NSW 2021: A plan to make NSW number one](#).

2. Why is waste important?

The impact and importance of waste can be measured across the environment, society and the economy.

Waste drains resources from the environment and the economy

The economy depends on the environment to provide raw materials and absorb the waste and emissions we produce. Reusing, recovering and recycling these valuable materials keeps them in the productive economy for longer. This has two benefits for the environment: it lowers the demand for new resources and reduces the need to absorb waste. Disposing of waste to landfill means that valuable resources are lost and landfill space is reduced.

The amount of material entering the waste management system is large and growing

Just over 17 million tonnes of material entered the NSW waste management system in 2010–11, up from 16.3 million tonnes two years earlier. While a large percentage of this material was ultimately recycled, this still represents a significant amount of material moving through our economy as well as physically through our neighbourhoods by road and rail. Waste collection, transport, processing and recovery/disposal have a major impact on existing infrastructure and increase demand for new infrastructure. Waste management is an essential service that every community expects to benefit from.

Waste impacts on the environment

Managing and disposing of waste presents risks to the environment. These include the creation of odour, noise, dust, litter, dumping and greenhouse gas emissions and the potential contamination of land and groundwater and harm to flora and fauna. The risks to the environment rise as more waste is generated and environmental damage has repercussions for our economy. Protecting the environment will also help protect the state's long-term economic growth.

The NSW EPA's [Recyclator](#) can be used to calculate the resource benefits of recycling different materials, based on a detailed Australian life cycle analysis. For example, a business recycling 1000 tonnes of office paper can save:



670 tonnes of carbon dioxide – equal to permanently removing 161 cars from NSW roads



2630 gigajoules of energy – equal to the average annual energy used by 122 households



370 megalitres of water – equal to about 15% of an Olympic-sized swimming pool



4400 cubic metres of landfill space – equal to about 18,333 full wheelie bins.

Waste has social and health impacts

The community feels the impact of improperly managed waste in many different ways. It can be detrimental to public health as odour, noise, dust, vermin, toxic substances and wastes of particular concern, like asbestos, can cause significant health problems. The same issues can impact on the amenity of local communities to the detriment of public well-being. Waste can also pollute our environment and leach toxins or nutrients into groundwater and land.

Litter and illegal dumping can reduce the amenity of public spaces and are anti-social behaviours. Landfills remove space from the community and may compromise the use of land into the future.

Waste management is a key part of the economy

Waste management is a significant part of the economy. The Australian Bureau of Statistics estimated that the supply of waste management services nationwide in 2009–10 was worth over \$9.5 billion, including income from recycling waste products worth \$4.5 billion.¹ As NSW generates 31% of Australia's gross domestic product, the value of waste management services to the NSW economy can be estimated at \$2.9 billion – \$1.3 billion of this coming from resource recovery.

¹ Australian Bureau of Statistics 2013, *Waste Account, Australia, Experimental Estimates*, Canberra, www.abs.gov.au/ausstats%5Cabs@.nsf/mediareleasesbyCatalogue/58479FBF0D1B7171CA257B16000E1913?Opendocument

Recycling generates jobs

In 2009, Access Economics² estimated that over 22,000 full-time equivalent staff were engaged directly in recycling in Australia. Nearly 7000 staff were involved in landfill operations and more than 24,000 indirect jobs flowed from this. This means there are 9.2 full-time equivalent employees directly involved in recycling for every 10,000 tonnes of material processed, compared with only 2.8 jobs for an equivalent amount of waste sent to landfill.

Reducing waste can save businesses money

In 2012 it cost Australian businesses (excluding mining and agriculture) an estimated \$2.2 billion to manage the waste they generated through the costs of waste services.³ In addition, businesses spent an estimated \$24.3 billion on the cost of materials that were discarded as part of the creation of a product, before it left the business. For NSW businesses, this equates to about \$825 million for disposal and recycling services and \$7.8 billion in wasted materials every year. This inefficient use of resources highlights waste that could be avoided and money saved.

People in NSW have high expectations about waste and recycling

Waste-related issues have consistently been identified by the NSW community as environmental issues of concern in the *Who Cares About the Environment?* survey. The survey – which has been running since 1994 and is the only one of its kind in Australia – tracks the attitudes, knowledge and behaviour of people in relation to the environment. In 2012, the NSW community again identified waste among the leading issues they expect the Government to address. Litter was identified as a specific issue.

From this...

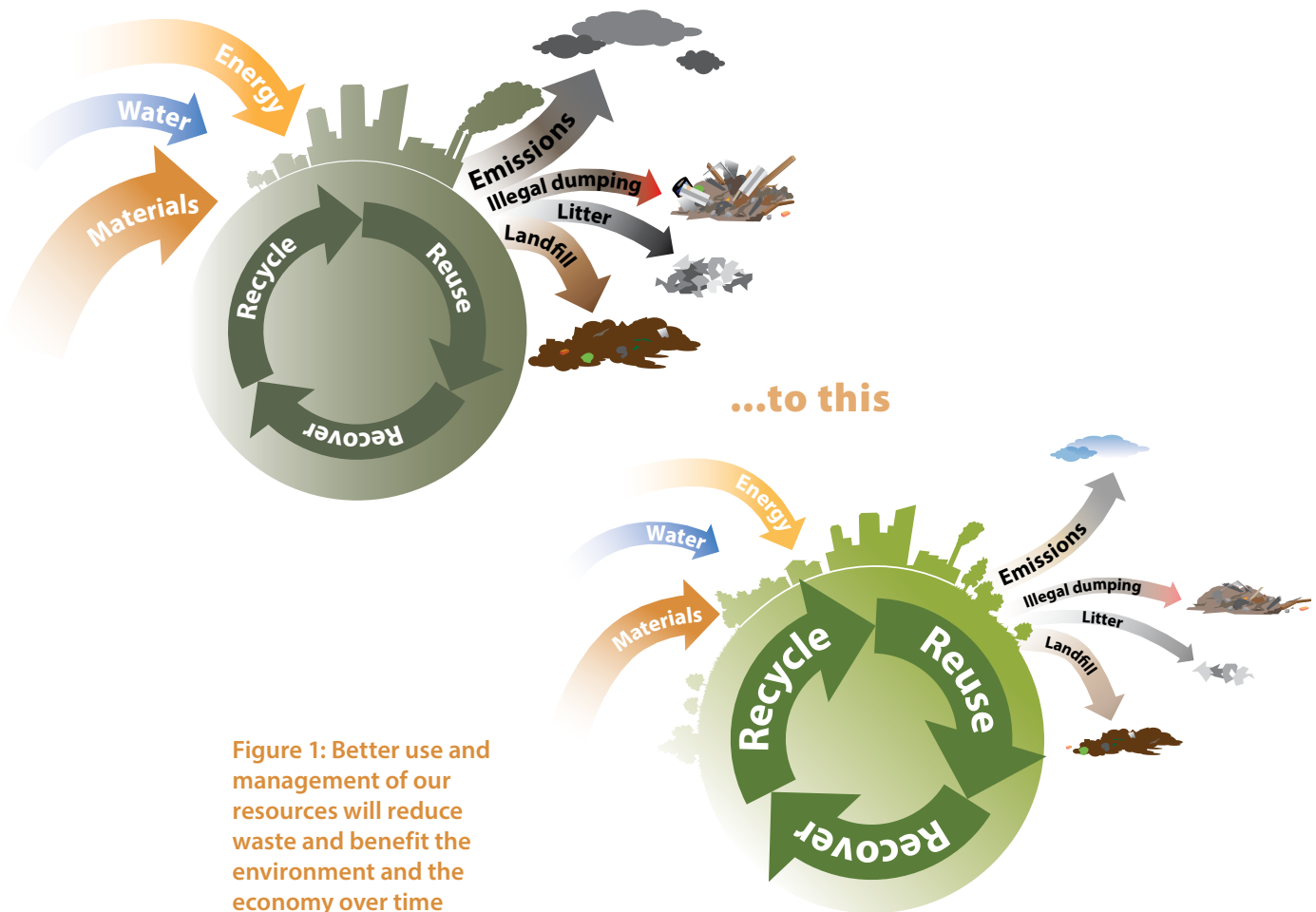


Figure 1: Better use and management of our resources will reduce waste and benefit the environment and the economy over time

² Access Economics Pty Ltd 2009, *Employment in Waste Management and Recycling*, report for Department of Environment, Water, Heritage and the Arts, Canberra

³ Encycle Consulting, SRU 2013, *Study into Commercial and Industrial (C&I) Waste and Recycling in Australia by Industry Division*, prepared for Department of Sustainability, Environment, Water, Population and Communities, www.environment.gov.au/wastepolicy/publications/commercial-industrial-waste.html

3. What drives the WARR Strategy?

The WARR Strategy is driven by our desire to improve the way we live and make sure that future generations enjoy the same or improved quality of life. This stretches across all aspects of life and covers environmental, social and economic areas. Key issues driving WARR Strategy development in 2013 included the loss of valuable resources – including space – to landfill, the rising costs of virgin material, and the impact of waste on human health.

The economic future of NSW is also a driver with the need to create employment and financial security for people living in NSW. Developing and maintaining a thriving waste and resource recovery sector will help to grow and sustain our economy. Improving the amenity of community spaces and addressing the anti-social behaviour that leads to littering and illegal dumping also drive strategy development.

The NSW WARR Strategy is informed and driven by the waste hierarchy, which also underpins the objectives of the *Waste Avoidance and Resource Recovery Act 2001*.

The waste hierarchy lists in order of preference the approaches needed to achieve efficient resource use (Figure 2).

Reducing and avoiding the generation of waste helps to preserve resources and avoid using additional resources to manage waste that would have been generated. The goal is to maximise the efficient use of resources and avoid unnecessary consumption – not to ‘do without’.

Good examples of this approach include:

- selecting items with the least packaging or that require the least resources to produce
- avoiding disposable goods
- buying products that are recycled, recyclable, repairable, refillable, reusable or biodegradable
- using leftover food rather than throwing it away.

Where reducing waste is not possible, the next most preferable option is to **reuse the materials** without further processing. Energy and other resources are required to recycle materials and reusing avoids this cost. For example, many household and industrial items can be repaired, reused, sold or donated to charity.

The next step, **recycling**, involves processing waste materials to make the same or different products. This includes composting, which recycles nutrients back into the soil. Recycling keeps materials in the productive economy and benefits the environment by decreasing the need for new materials and waste absorption. Recycling a product generally requires fewer resources than drawing virgin materials from the environment to create a new product.

Where further recycling is not feasible, it may be possible to **recover the energy** from the material and feed that back into the economy.

Some materials may be inappropriate to reuse, recycle or recover for energy and instead require **treatment** to stabilise them and minimise their environmental or health impacts.

Finally, the waste hierarchy recognises that some types of waste, such as hazardous chemicals or asbestos, cannot be safely recycled and direct treatment or **disposal** is the most appropriate management option.

There are costs associated with managing waste and community well-being is a balance between these costs and the benefits they provide. The waste hierarchy helps to focus attention and efforts where the greatest efficiencies in cost, time and resources can be achieved. Each of these approaches can be appropriate depending on the circumstances.

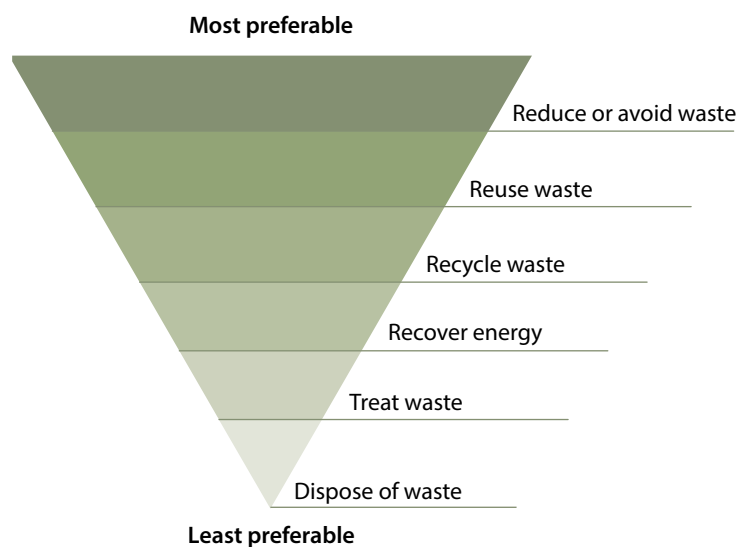


Figure 2: The waste hierarchy

4. How will we achieve the WARR Strategy objectives?

A range of approaches and solutions will be needed to achieve the WARR Strategy's objectives. We will need to work together – businesses, industry, state government agencies, local government and the broader community – to build a more sustainable and economically sound future for NSW.

Strategy and targets

The targets in the WARR Strategy clarify the state's long-term goals and priorities. These targets are recognised across the community as important drivers for change and innovation.

Implementation plans

Implementation plans will support the WARR Strategy by providing shorter term priorities, actions and milestones within each of the key result areas. These plans are designed to provide a clear path toward the strategy targets and will be reviewed and updated regularly as new opportunities arise. The *NSW Strategy to Combat Illegal Dumping* is the first of these implementation plans with more to be developed following consultation and finalisation of the WARR Strategy.

Regulations and policies

The WARR Strategy is supported by regulations and policies. The [*Protection of the Environment Operations Act 1997*](#) (POEO Act) and associated regulations work to minimise the impact of waste on human health and the environment. The POEO Act establishes the Waste and Environment Levy ('Waste Levy'), licensing requirements for waste facilities and activities, offences for illegal dumping and littering, and a pathway for recovered resources to be used on land and for fuel.

A review in 2013 of the [*POEO \(Waste\) Regulation 2005*](#) will provide an opportunity to modernise waste regulation in the context of a new WARR Strategy and the *Waste Less, Recycle More* initiative.

Waste policies provide clarity and direction on particular waste issues. These can be guidance or technical notes (such as landfill and composting guidelines), environmental standards (such as for the reuse of processed waste) and protocols. An important policy step to maximise resource efficiency is the [*NSW Energy from Waste Draft Policy Statement*](#) that was recently released for comment.

Compliance and enforcement

Compliance will only be achieved by setting clear rules and fair licensing standards, supported by diligent and consistent enforcement to both enforce and deter. This aims to reduce the risk of environmental impacts from waste and ensure a 'level playing field' so that responsible businesses can thrive. Illegal activity can compromise recycling outcomes, lead to clean-up costs for communities and have an adverse impact on human health and the environment.

Education and behaviour change

Significant improvements in resource consumption and waste management will only occur if we continue to change the way we think and act. Understanding and valuing the reasons for change is a pre-requisite for changing behaviour. Education to encourage behaviour change is fundamental to achieving the WARR Strategy goals. All implementation plans designed to deliver the WARR Strategy's targets will include an education and behaviour change element.

Investment and incentives

Continued investment in innovation and change is needed to improve our waste and environmental outcomes. The WARR Strategy sets clear priorities and provides long-term policy stability and direction as the foundation for significant private and public investment.

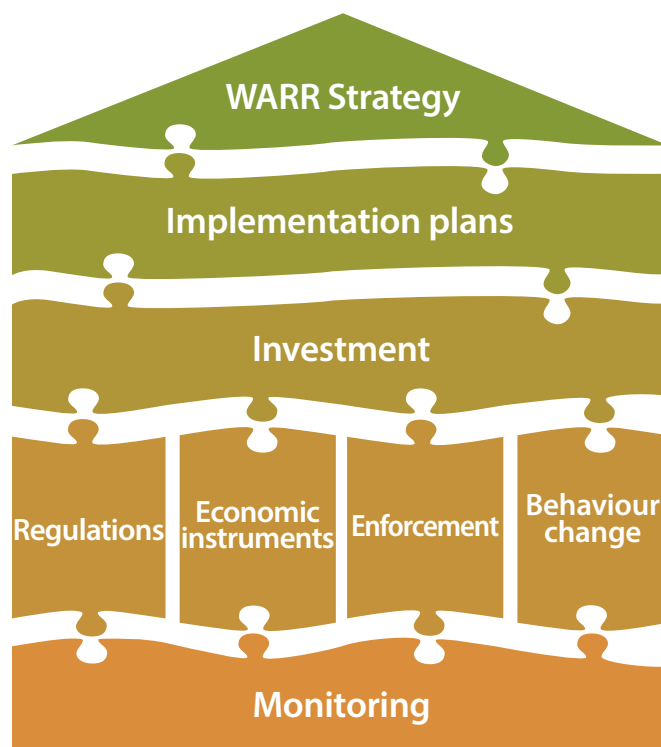


Figure 3: Elements that together will achieve the WARR Strategy objectives

Funding for waste management grants and programs will help to achieve the WARR Strategy targets and ensure compliance with legislation. Announcement of the *Waste Less, Recycle More* initiative in 2013 came as a direct result of an [Review of the NSW Waste and Environment Levy \(2012\)](#). The initiative will provide \$465.7 million from Waste Levy revenue over a five-year period to 2017 for grants and programs that align with the key result areas in the WARR Strategy. Funding will support investment in recycling infrastructure, encourage innovation, improve recycling behaviour and develop new markets for recycled materials, as well as tackle litter and illegal dumping.

Economic instruments

The Waste Levy provides a strong economic signal by reflecting some of the external environmental costs of waste disposal and making waste avoidance, reduction and recycling more competitive against disposal to landfill. It is a key policy tool for driving waste diversion from landfill in NSW and achieving the targets in the WARR Strategy.

Waste Levy revenue re-invested through *Waste Less, Recycle More* will increase the effectiveness of resource recovery and reduce litter and illegal dumping.

Monitoring and evaluation

The *Waste Avoidance and Resource Recovery Act 2001* requires progress against the targets in the WARR Strategy to be reported every two years. Reporting against the targets is critical to assess progress towards long-term objectives and provide feedback on the strategy's effectiveness, as well as making it accountable to the NSW community.

This reporting sits alongside a number of other ongoing data collection and evaluation projects.

5. How will the WARR Strategy fit with the National Waste Policy?

In 2009, all Environment Ministers within Australia agreed to the [National Waste Policy](#), which set six key areas for national focus and action:

- 1. Taking responsibility** – shared responsibility for reducing the environmental, health and safety footprint of products and materials across the manufacture-supply-consumption chain and at end-of-life
- 2. Improving the market** – efficient and effective Australian markets operate for waste and recovered resources, with local technology and innovation being sought after internationally
- 3. Pursuing sustainability** – less waste and improved use of waste to achieve broader environmental, social and economic benefits
- 4. Reducing hazard and risk** – reduction of the potentially hazardous content of wastes with consistent, safe and accountable waste recovery, handling and disposal
- 5. Tailoring solutions** – increased capacity in regional, remote and Indigenous communities to manage waste and recover and reuse resources
- 6. Providing the evidence** – access by decision-makers to meaningful, accurate and current national waste and resource recovery data that will influence the behaviour of the community.

All of these areas are consistent with, or complement, the WARR Strategy. The NSW Minister for the Environment participates in the Standing Council on Environment and Water, which oversees delivery of the National Waste Policy. The NSW Government, particularly through the EPA, contributes to national working groups delivering the policy's six key focus areas.

Most notably, the National Waste Policy has resulted in an Australian framework for product stewardship, which has been a long-standing focus in NSW. The Commonwealth [Product Stewardship Act 2011](#) was supported by all jurisdictions and provides the first national framework for voluntary or regulated product stewardship schemes. These schemes involve industry taking greater responsibility for the environmental impacts of its products, particularly where they become waste.



Televisions and computers were the first products included under the Product Stewardship Act. As a result, a growing national collection and recycling scheme for these products – paid for and managed by industry – is under development to achieve the legislated recycling targets. NSW is working with the Commonwealth and other state and territory governments to develop further national product stewardship schemes for problem wastes.

In particular, there is clear community concern about packaging waste. Australian Environment Ministers are currently examining options to increase recycling of, and reduce litter from, packaging waste. All approaches are being looked at, including industry-funded product stewardship schemes and container deposit options. The NSW Government is leading the national working group to present a Decision Regulation Impact Statement for Ministerial consideration in 2013.

NSW continues to support the development of national rather than state-based solutions in the product stewardship area because many products are sold in national markets and are problematic in all jurisdictions. Management at a national level can provide consistent action to achieve these goals effectively.

6. Where are we now?

Progress towards achieving the targets set in the 2007 WARR Strategy has been reported every two years. The most recent data from 2010-11 shows that NSW continues to make good progress towards meeting the 2014 recycling targets while overall diversion of waste from landfill continues to improve (Table 1).

Table 1: Progress towards the 2014 recycling targets by waste stream and overall waste diversion from landfill

Recycling by waste stream	2002-03	2004-05	2006-07	2008-09	2010-11	2014 recycling targets*
Municipal	30%	33%	38%	44%	52%	66%
Commercial and industrial	34%	38%	44%	52%	57%	63%
Construction and demolition	64%	62%	67%	73%	75%	76%
Overall % of waste diverted from landfill**	45%	46%	52%	59%	63%	–

*Set in NSW WARR Strategy 2003 ** Diversion through recycling alone

Other key findings

Total waste generated (waste recycled + waste disposed to landfill) continued to increase

The total amount of waste generated increased by approximately 5% from 16.3 million tonnes in 2008-09 to 17.1 million tonnes in 2010-11. Waste generation rates continued to outstrip population growth.

Successful diversion of waste from landfill

Despite continued increases in the waste generated, the amount sent to landfill fell in absolute terms from 6.7 million tonnes in 2008-09 to 6.4 million tonnes in 2010-11. The quantity sent to landfill in 2010-11 was lower than the quantity of waste landfilled in 2002-03 when the targets were first set.

Figure 4 shows the amount of waste diverted (recycled) compared with that disposed of for each waste sector in 2010-11. The tonnes of waste shown are provided as rounded figures to illustrate this relationship.

Waste recycled in 2010-11 was more than double the amount recycled in 2002-03

Recycling absorbed the additional waste generated and reduced the amount of waste sent to landfill. In 2010-11, NSW recycled 10.8 million tonnes compared with 5.3 million tonnes in 2002-03.

Recycling increased across all regions in NSW

Recycling rates in the Hunter, Central Coast and Illawarra regions increased from 59% in 2008-09 to 68% in 2010-11. Estimated recycling rates in regional and rural areas increased from 42% to 50% over the same period.

Littering decreased

Despite significant annual fluctuations, litter in NSW decreased by 28% between 2005-06 and 2011-12, while the volume of littered items decreased by 40% (see [National Litter Index](#)). The litter count in NSW is about average in comparison to other states and territories, but well below the best performing state. See the [NSW Litter Report](#) series for more information.

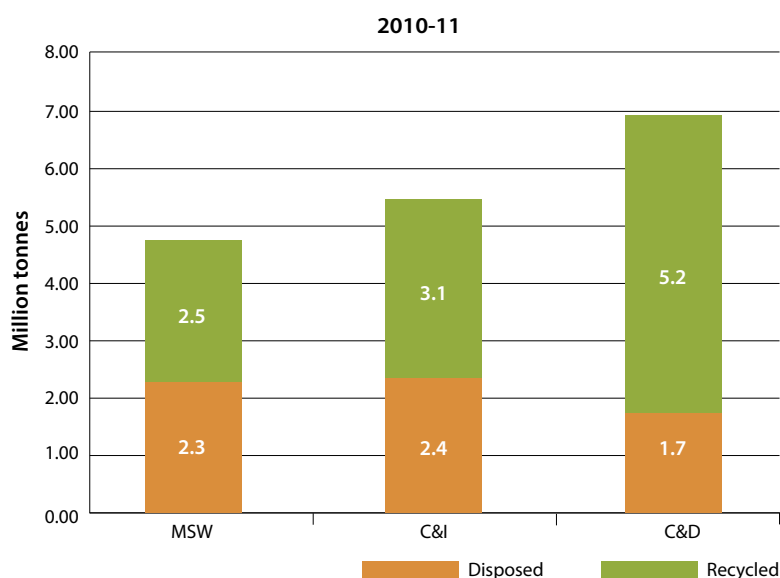


Figure 4: Amount and type of waste recycled or disposed of in NSW – 2010-11

7. How will we set and achieve our new goals?

Draft NSW WARR Strategy 2013–21 has the following six key result areas:

- **Key Result Area 1: Avoid and reduce waste generation** – reducing the amount of material entering the waste management or recycling systems by using products and materials more efficiently and avoiding unnecessary product use
- **Key Result Area 2: Increase recycling** – increasing the amount of material that is recycled within the productive economy
- **Key Result Area 3: Divert more waste from landfill** – increasing the amount of material in the waste stream that is diverted from landfill to alternative uses, such as reuse, recycling and energy recovery
- **Key Result Area 4: Manage problem wastes better** – separating and managing materials in the waste stream that hinder effective recycling
- **Key Result Area 5: Reduce litter** – reducing the presence of litter in the environment
- **Key Result Area 6: Reduce illegal dumping** – reducing the incidence of illegal dumping in the community.

These key result areas continue the intent of the 2003 and 2007 WARR Strategies, but have been broadened to enable more targeted action. Earlier strategies included four key result areas: 'diversion from landfill' was incorporated into the 'recycling' key result area and 'litter' and 'illegal dumping' were also grouped together.

Wastes may be problematic for reasons other than toxicity and so 'manage problem wastes better' replaces 'reducing toxic substances in products and materials' as a key area to reflect this change in scope. Gas bottles, which are potentially explosive in metal recycling facilities rather than toxic, are a good example of a problem waste.

Benchmarking key result areas and targets

In late 2012, the EPA commissioned an independent consultancy to undertake a benchmarking study that compared the WARR Strategy 2007 against 20 waste strategies from Australia and overseas. This study found the WARR Strategy to be comparable with best practice strategies, both in the scope of issues addressed and the types of targets set. Draft NSW WARR Strategy 2013–21 expands on the key result areas and targets of the 2007 WARR Strategy and maintains the state's position as a leader in waste management strategy.



Waste is a valuable resource and we need to identify opportunities for waste reduction and resource recovery.

Key Result Area 1: Avoid and reduce waste generation

If we use materials more efficiently and keep them out of the waste management system, we will avoid creating waste and reduce overall waste generation. By not creating waste, we will not need to use resources to collect, handle, recover and recycle or dispose of waste materials. We also avoid using other resources, such as energy and water, which are used to produce materials. Avoidance is at the top of the waste hierarchy and is a key element of Draft NSW WARR Strategy 2013–21 for these reasons.

NSW context

In NSW, waste generation refers to the total amount of material that enters the solid waste management system. This includes all materials disposed of to landfill as well as those that are recovered from the waste stream for recycling or energy recovery.

Many of our activities – living in a built environment, consuming food, buying clothes, and communicating and storing information – involve products and materials that eventually enter the waste stream and count towards waste generation, even if they are recycled and put back into the productive economy. With this in mind, a certain amount of waste generation is an unavoidable outcome of human activity.

Many of these activities could be undertaken using fewer materials, which would lead to less waste. However, waste generation needs to be seen in the context of other related environmental issues, such as the use of energy and water, and the emissions produced. Reducing the amount of material we use can lead to increases in the use of other resources.

At the same time, a certain amount of waste may be environmentally beneficial when balanced against other environmental costs. For example, the waste generated by replacing less efficient or polluting products and upgrading building stock to environmentally efficient designs can be balanced against significant environmental improvements in overall resource efficiency.

Resource efficiency is important from an avoidance perspective. Inefficient resource use increases demands on the environment to provide additional raw materials that require further resources (such as energy, water and other materials) to process. It also places more pressure on the environment to absorb these materials and emissions when they go to waste.

The goal in this key result area is to improve the efficient use of materials across the community and avoid generating unnecessary waste. However, our knowledge of which waste is 'unnecessary' and our ability to accurately predict an 'efficient' level of waste generation is very limited. Waste generation is driven by a range of factors, including population growth and economic activity, natural disasters, and public and corporate policies that encourage growth and consumption.

Other environmental issues, such as water and air quality, tend to improve as communities become wealthier, but waste generation usually rises with increased wealth and access to disposable income. Waste generation across most of Australia and other OECD countries continues to rise, placing significant demands on infrastructure and essential services. Tackling waste generation has proven to be difficult and no jurisdiction has found an effective means for significantly slowing its growth or disconnecting it from the economy.

These pressures have been no different in NSW, where the growth in waste generation has been significant over the last 10 years. The first WARR Strategy in 2003 set a target 'to hold level the total waste generated for five years from the release of the strategy'. However by 2008, waste generation had increased by 38% – from 11.8 million tonnes in 2003 to 16.3 million tonnes. By 2010–11, total waste generation had reached 17.1 million tonnes, 45% higher than the 2003 level.



Target for reducing waste generation

By 2021–22, reduce the rate of waste generation per capita

A significant amount of this increase can be attributed to improvements in the quality and scope of waste data collected. For example, data collected in 2003 did not include materials like asphalt, sawdust, biosolids and grease trap waste. In all, around 40% of the total tonnage of materials reported in 2010–11 was not within the scope of data collected in 2003. Population growth has also been a key factor with more people living in NSW having a direct impact on the total tonnage of material entering the waste stream.

However, changes in the scope of data collected and population growth are not enough to explain the increase in waste generation. Data for 2008–09 and 2010–11, where the scope of information collected remained constant, showed that waste generation per capita was about 2% higher than the population growth rate. This is despite the Global Financial Crisis and a 3% fall in per capita waste generation in the commercial and industrial sector during this period.

The proposed target of reducing the per capita rate of waste generation by 2021–22 should be considered very ambitious given past experience and the current growth in waste generation.

How will we reduce waste generation?

Significant amounts of material already circulate in the economy without entering the waste management system. For example, when a building is demolished and materials are reused on site (such as for fill or road-making), these materials do not enter the waste stream and are not included in total waste generation counts. Other examples of materials reused directly and not entering the waste management system include home-composted food scraps and products donated to charity that are resold back into the community. Product life is extended in these cases, with material kept in the productive economy and out of the waste management system. 'Doing more with less', like reducing the amount of packaging or material used to make a product (sometimes called 'light-weighting') is another example of reducing waste generation.

All of these approaches will continue to be encouraged in the key mechanisms to be used in this key result area that are outlined below.

Economic incentives

The Waste Levy will continue to provide an economic incentive for waste generators to reduce their waste management costs. This will be a particular incentive for the commercial and industrial sector and construction and demolition sector, where generators are more directly exposed to these costs.

Behaviour change

Education and behaviour change are key elements of an effective avoidance program. The goal is to encourage people to use materials more efficiently, rather than just expecting them to consume less. The successful [Love Food Hate Waste](#) program is a good example of this approach. The program focuses on giving people the skills to make better purchasing decisions, improve food storage techniques and use leftovers so that food is eaten rather than thrown away. The [Waste Less, Recycle More](#) initiative will increase funding to [Love Food Hate Waste](#).

Product stewardship

Most of a product's environmental impact is set at its design stage. Downstream waste generation can be reduced if products are designed with waste avoidance in mind, such as through light-weighting products and minimising packaging. Product stewardship is a key approach for improving product and packaging design. For example, the [Australian Packaging Covenant](#) encourages review and redesign of packaging through the [Sustainable Packaging Guidelines](#). NSW will continue to work with the Australian Government to introduce product stewardship initiatives at the national level under the Commonwealth [Product Stewardship Act 2011](#).

Industrial ecology

Industrial ecology involves using the by-products of production in one company as a resource in another. Linking these companies directly will keep these materials out of the waste stream as they can use each others' by-products. [Waste Less, Recycle More](#) will fund an expansion of industrial ecology networks in NSW.

See Section 8 for details on performance measurement in this key result area.

Key Result Area 2: Increase recycling

Recycling recovers materials from the waste stream and puts them back into the productive economy. Using recycled materials helps to reduce the waste going to landfill and can potentially save energy, water and other resources that would have otherwise been used to produce new materials. The production of competitively priced recycled materials can also help economic growth through the development of the recycling industry and the industries that use the recycled materials.

NSW context

The NSW community has widely embraced the recycling targets for 2014 set in the 2003 and 2007 WARR Strategies. The targets provoked action and provided the clarity needed to build stable, long-term investment in recycling infrastructure. As a result, a steady increase in recycling rates across all waste streams has been demonstrated as well as a significant jump in the amount of material recycled.

Since the first WARR Strategy was released in 2003, the overall recycling rate for municipal solid waste (MSW), commercial and industrial (C&I) and construction and demolition (C&D) sectors increased from 45% to 63% (2010–11). At the same time, total waste recycled more than doubled from 5.3 to 10.7 million tonnes. NSW is well on its way to achieving the 2014 targets.

With the latest review of progress against the 2007 WARR Strategy and the drafting of a new strategy, it is now time to recast the recycling targets. These will drive action and long-term investment and be supported by significant funding from the NSW Government's *Waste Less, Recycle More* initiative.

The proposed targets address all three waste streams and are based on an independent modelling study conducted on behalf of the EPA. This study assumed continued population growth, scheduled increases in the Waste Levy to 2016 and funding from *Waste Less, Recycle More*.

The study included 10 scenarios, which took into account various actions, including reducing waste generation, improved kerbside recycling, better source-separation of commercial and industrial waste, recovery of food and garden waste, development of additional alternative waste treatment (AWT) facilities and diversion of recycling residuals to energy from waste. Cumulative scenarios were also modelled, where individual scenarios were added together to estimate the recycling levels that could be achieved from combining various activities. The modelled recycling rates (**Figure 5**) were rounded to account for variability in current waste data and forward projections as well as likely improvements in systems and technologies over time.

The new targets represent a significant increase in the total tonnage that will be recycled by 2021–22, although they may appear to be only an incremental increase on the 2014 targets. Increasing the current recycling rate of municipal waste from 52% to 70% by 2021–22 will require an additional 1.2 million tonnes of materials to be recycled, when continued waste generation and population growth rates are taken into account. On top of the 2.5 million tonnes already being recycled, this represents an increase of 33% in total tonnage recycled.

Across all three waste streams, the modelling indicates an additional 3.3 million tonnes will need to be recycled to achieve the 2021–22 targets – 31% more than current levels.



Target for increasing recycling

By 2021–22, increase recycling rates for:

- municipal solid waste from 52% (in 2010–11) to 70%
- commercial and industrial waste from 57% (in 2010–11) to 70%
- construction and demolition waste from 75% (in 2010–11) to 80%

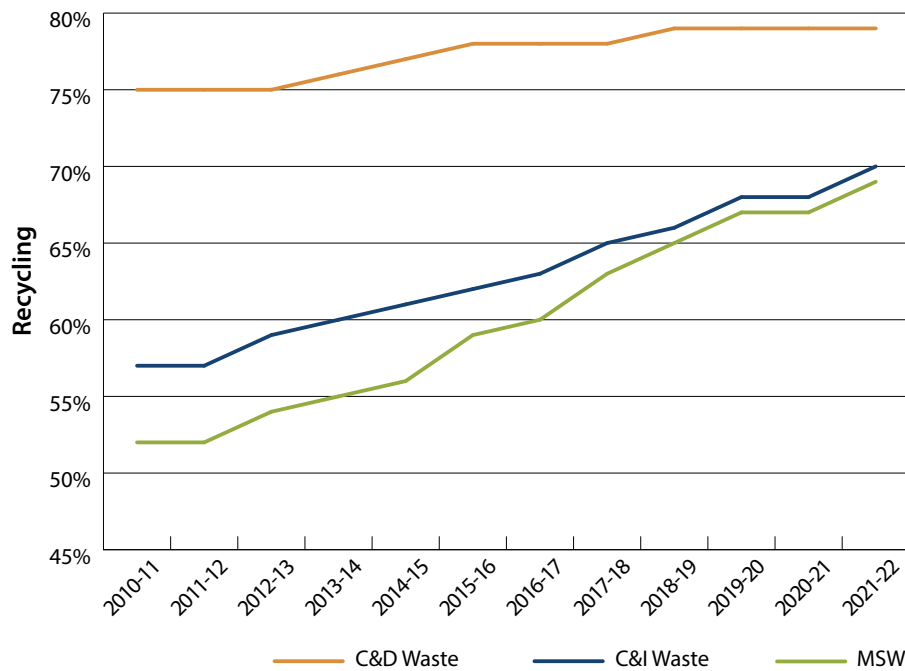


Figure 5: Predicted recycling rates to 2021–22 based on an independent modelling study

How will we increase recycling?

An analysis of the MSW, C&I and C&D waste data for 2010–11 indicates that there is significant potential to increase recycling, particularly in the first two categories.

In the MSW stream, the major untapped waste sources are food and garden organics, which account for almost half of the average household waste. Significant quantities of paper/cardboard, glass, plastics and metals in household waste bins also go to landfill. Based on this, tackling household food and garden waste and increasing the effectiveness of kerbside recycling systems are clear priorities.

Areas for priority recycling action in the C&I sector also include addressing food waste along with paper/cardboard, plastics and timber wastes.

An analysis of the C&D waste stream indicates that recycling of C&D materials is already quite high: NSW has almost reached its 2014 target already. Opportunities to improve recycling in the C&D sector are limited by the presence of contaminated soils, which are difficult to recycle and make up a significant part of the C&D waste stream. Relatively small gains can be made with concrete/brick, sand/soil/rubble and timber wastes.

Waste Less, Recycle More will provide incentives to such key stakeholder groups as local government and the waste industry to deal with these issues through education and behaviour change, system improvement and new recycling infrastructure across all three waste streams. Key approaches are discussed below.

Increase the effectiveness of kerbside recycling

Ninety-six percent of NSW households have access to kerbside recycling. This system has been very effective with increased household recycling rates, but there is still room for significant improvement. For example, 23% of the materials in the average 'red lid' household garbage bin could be recycled through the 'yellow lid' kerbside recycling bin. More of these materials could be recovered through community education and behaviour change.

The location of the collection service influences the types of materials that can be recovered through the kerbside system. Kerbside recycling rates could be further improved by standardising kerbside services across NSW and increasing the range of materials accepted for recycling.

Target food and garden organic waste in the C&I and municipal sectors

Significant quantities of garden waste continue to be discarded to landfill each year, despite well-established collection and composting in many areas. Large quantities of food waste that could be composted are also sent to landfill. Almost 1.2 million tonnes of waste disposed of to landfill in 2010–11 was food and garden waste from the municipal sector. Forty-six percent of the contents of the average red lid household garbage bin was food and garden waste. More than 500,000 tonnes of food and garden organics waste from the C&I sector are also being disposed of to landfill. Investment in new infrastructure would see significant amounts of this material collected and processed into valuable compost.

With composting on the increase, the focus will shift to finding new and expanded markets for recycled compost material. Council playing fields could be a potentially major local market for compost use in top-dressing and renovating playing fields. Five years of EPA trials have demonstrated that applications can significantly reduce the need for additional fertilisers and watering. Compost products reduce soil compaction, improve turf coverage and extend playing times. Recent analysis of catchment rehabilitation programs also revealed an unmet need for several hundred thousand tonnes of compost per year.

Invest in infrastructure for C&I recycling

The commercial and industrial waste stream presents a number of significant challenges. Different types of organisations produce very different wastes and the large numbers of small- to medium-sized enterprises also pose significant logistical challenges. *Waste Less, Recycle More* provides incentives for smaller organisations to implement infrastructure changes and improve source-separation as well as funding for larger organisations to develop industrial ecology networks.

Remove problem wastes

Waste Less, Recycle More will fund a statewide network of permanent drop-off points and collection events for common household wastes, like paint, batteries, gas bottles, fluorescent lights and smoke detectors. These materials can contaminate recycling streams and removing them will create opportunities to improve the recycling of other materials.

Develop markets and encourage innovation

Waste Less, Recycle More also provides funding to help establish new markets for recycled materials and encourage innovation in recycling technology.

Build capacity for developing regional recycling plans

Significant parts of *Waste Less, Recycle More* rely on local councils to identify recycling needs in their communities, develop regional strategies to address those needs and then apply for the funds available in the initiative to put their plans into action. Recognising that this places a significant burden on local communities, the initiative provides funds to build the capacity of local councils to develop strategies and action plans and put forward strong applications for funding.

See Section 8 for details on performance measurement in this key result area.





Target for diverting more waste from landfill

By 2021–22, increase the waste diverted from landfill from 63% (in 2010–11) to 75%

Key Result Area 3: Divert more waste from landfill

Diverting waste from landfill aims to decrease the impact of landfills on the environment and reduce the need to develop new landfills. Waste diversion refers to the alternative pathways for materials entering the system that avoid disposal to landfill, such as reuse, recycling and energy recovery.

NSW context

While the 2003 and 2007 WARR Strategies had no specific key result area or target associated with diverting waste from landfill, significant improvements were still made in this area. The total waste diversion rate increased from 45% in 2002–03 to 63% in 2010–11. Despite a 45% increase in the amount of waste generated over this period, the material sent to landfill declined from 6.5 to 6.4 million tonnes. The additional waste generated from 2003 to 2011 was either reused or recycled, as there were no significant waste-to-energy facilities as a pathway for diverting waste.

Waste incinerators operated previously in NSW and the restricted use of waste materials as a source of fuel was possible at that time. However, the EPA's 2005 Guidance Note – *Assessment of Non-standard Fuels* – set a very high bar for allowing mixed waste streams to be used as fuel, effectively restricting the development of waste-to-energy facilities in NSW. Two independent reviews – *Review of Waste Strategy and Policy in NSW* (2010) and *Review of the NSW Waste and Environment Levy* (2012) – both recommended revising the government's waste-to-energy policy.

In March 2013, the EPA released the *NSW Energy from Waste Draft Policy Statement for public comment* to provide greater clarity on the use of waste as fuel. As well as meeting stringent air emissions and thermal efficiency standards, the draft policy requires that the waste to be used complies with resource recovery standards. This means that only wastes that remain after recycling operations can be used for energy recovery, rather than as a replacement for reuse or recycling.

The policy will be finalised after broad public consultation and may significantly change the waste landscape by opening up a new means of diversion from landfill.

With this possibility in mind, an energy-from-waste scenario was included in the independent study commissioned by the EPA in 2012 that modelled recycling and diversion in NSW to 2021–22. The scenario assumed the new policy would be implemented without significant adjustment, but conservatively estimated how quickly any new facilities could move through the planning process and be built.

The resulting rates for diversion (**Figure 6**) are based on all recycling scenarios across the three waste streams and incorporate energy-from-waste diversion from 2018–19 onward. Reuse and recycling will remain the main avenues for diverting waste from landfill.

How will we divert waste from landfill?

Initially, more waste will be diverted from landfill by increasing recycling. Actions and priorities for increasing recycling are described under KRA 2. In future, diversion may also make a contribution once the NSW Energy from Waste Policy is finalised. The *Waste Less, Recycle More* initiative provides \$60 million over five years to co-fund large-scale infrastructure and bring forward viable resource recovery projects. This includes potential energy-from-waste projects.

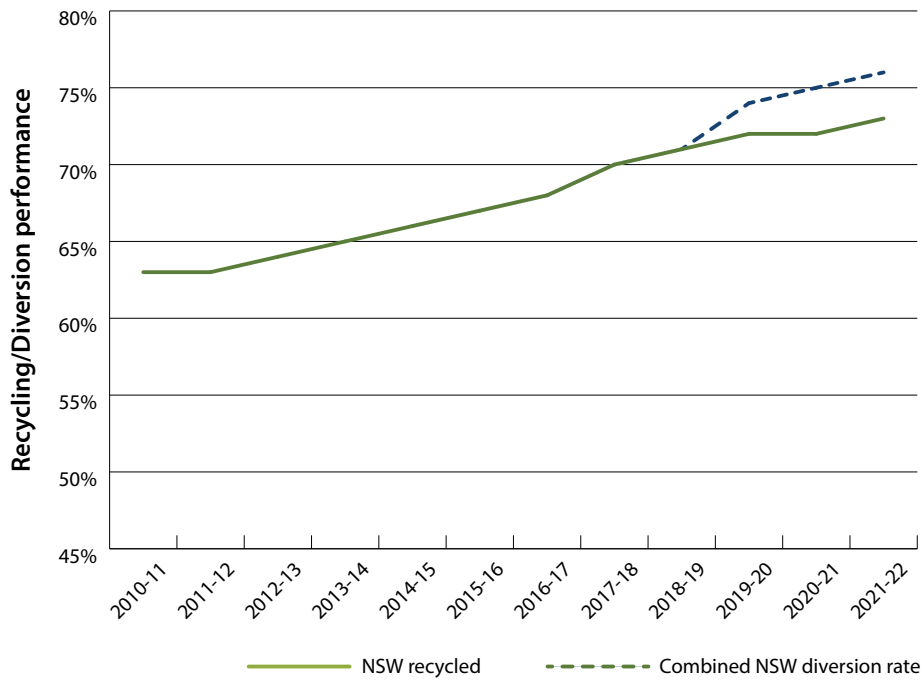


Figure 6: Predicted diversion from landfill rates to 2021–22 based on an independent modelling study

Generally, there is low community acceptance of new and expanded landfill to the extent that in some parts of NSW there is diminishing supply of approved landfill capacity. For example, two of the four major putrescible waste landfills that service Sydney will close by 2017. Increased recycling and diversion of waste from landfill will continue to offset our need for increased landfill capacity.

The EPA in conjunction with the Department of Planning and Infrastructure will investigate Greater Metropolitan Sydney’s landfill needs to ensure that there is appropriate approved landfill capacity.

See Section 8 for details on performance measurement in this key result area.



Target for managing problem wastes better

By 2021–22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide

Key Result Area 4: Manage problem wastes better

Some household products and materials cause problems in the waste and recycling streams because of their potential to harm human health and the environment. They can also make the recovery and recycling of other materials more difficult or uneconomic. The goal of this key result area is to reduce the impact of these household materials by separating them from household waste and recycling streams and treating them appropriately. Problem wastes can include paint, batteries, smoke detectors, fluorescent lamps, gas bottles, motor oils and fluids, and other toxic and hazardous household products.

NSW context

Since 2003, the NSW Government has been tackling problem wastes in two ways by:

- working with other jurisdictions and industry to establish product stewardship schemes
- organising and funding household chemical collection events.

'Product stewardship' occurs when producers take responsibility for the products they make throughout their life cycles, including at end-of-life. NSW has been a leader in the product stewardship debate in Australia and was the first jurisdiction to legislate product stewardship powers through the [Assessment of Non-standard Fuels](#). This process included identifying key products for priority action.

However, it became clear that the product groups identified for stewardship action occurred in national markets and were problematic in all jurisdictions. State-based action could lead to inconsistencies and inefficiencies and potentially contravene the *Mutual Recognition Act 1992*. For this reason, a more efficient and effective approach has been to focus on developing national rather than state-based solutions.

NSW has taken a lead role in progressing product stewardship issues at the national level and has been strongly supportive of the Commonwealth *Product Stewardship Act 2011*, which established the first national framework for product stewardship schemes. NSW has also welcomed the establishment of the TV and computer product stewardship scheme under the Act, which will roll out collection facilities across the state by the end of 2013.

NSW has also supported a number of other industries that have introduced voluntary national product stewardship schemes. These include agricultural and veterinary chemicals ([ChemClear](#)) and their packaging ([drumMuster](#)), fluorescent lamps from commercial and public lighting ([FluoroCycle](#)), mobile phones and batteries ([Mobile Muster](#)) and PVC ([Vinyl Council Product Stewardship Program](#)). NSW continues to work with these industries to improve the effectiveness of these schemes.

NSW has been actively involved in household problem waste collection across the state through periodic collection events. In the greater Sydney area (Sydney, the Hunter and Illawarra), the EPA in partnership with local councils organises collection events under the [Household Chemical CleanOut](#) program. In regional areas, the EPA supports collection events organised by regional councils. Problem waste collection is available to households once or twice a year on average.

The Household Chemical CleanOut program has been particularly successful, with collection growing at an average rate of about 10% per year and participation increasing by 13% per year. The products and materials collected range from high-volume materials, such as paints and batteries, to low-volume, but highly toxic chemicals like DDT and mercury.

Program growth has seen many events become over-subscribed, with traffic problems and long waits. Extending the events across several days tends to increase the number of people attending and the amount of materials collected, rather than dissipating the pressure. This indicates that community demand is not being met with the current model of periodic event-based offers.

The NSW Government has also committed to conducting pilot trials assessing different approaches to encourage the proper handling and disposal of the asbestos waste produced by home renovators.

The independent [Review of Waste Strategy and Policy in NSW](#) in 2010 recommended increasing service by establishing permanent drop-off sites for high-volume, low-toxicity materials that make up the bulk of the problem wastes delivered. Permanent drop-off facilities that are open on a regular basis would significantly improve service and increase the community's ability to separate problem wastes from the existing waste and recycling streams.

The Government has accepted this recommendation and incorporated a commitment in [NSW 2021: A plan to make NSW number one](#) to 'support community drop-off centres to make it easier for people to recycle and remove problem waste from bins'.

The [Waste Less, Recycle More](#) initiative has committed funding to this key area and allocated \$70 million over five years for dealing with problem wastes.

How will we improve the management of problem wastes?

The NSW Government is committed to improving the availability of community services for collecting problem wastes in [NSW 2021: A plan to make NSW number one](#) and has set aside funding in [Waste Less, Recycle More](#) to help meet this commitment. Delivery will be achieved through the following mechanisms:

- the roll-out and servicing of permanent drop-off facilities and upgrade of existing facilities throughout NSW so a consistent 'core' list of high-volume, low-toxicity materials can be more easily collected – These materials will include paint, batteries, oil, gas bottles, smoke detectors and fluorescent lamps. Funding will allow local communities to expand the facilities to collect other local priority materials, such as mattresses, expanded polystyrene and e-waste.
- continuation of event-based collections for the low-volume, high-toxicity materials, allowing occupational health and safety risks to be tightly controlled
- trialling alternative collection methods, such as mobile collection facilities, in high density areas where permanent collection sites may not be available.

The NSW Government will continue to work closely with the Commonwealth, other state and territory governments, and key stakeholders to help implement additional product stewardship initiatives at the national level.

See Section 8 for details on performance measurement in this key result area.



Household event-based collections will continue and complement new drop-off centres.



Target for reducing litter

By 2016–17, reduce the number of litter items by 40% compared with 2011–12 levels and then continue to reduce litter items to 2021–22

Key Result Area 5: Reduce litter

Litter continues to be a prime focus and concern of the community. Litter damages pride in the local environment, is linked to other anti-social behaviours, and affects land, fresh water and marine environments. Common types of litter include cigarette butts, small pieces of paper, chip and confectionery wrappers, fast-food packaging, bottle caps, plastic straws, broken glass, drink containers and plastic bags.

Littering and illegal dumping of waste are treated as separate issues in the WARR Strategy as the attitudes and behaviours behind these issues, along with the location and types of material, differ.

NSW context

Analysis of the Keep Australia Beautiful National Litter Index indicates that litter levels have been trending downward overall, although the number of litter items and litter volume measured each year has fluctuated significantly in NSW. From 2005–06 to 2011–12, the number of littered items measured in NSW decreased by 28% and litter volume by 40%. Similar trends have been measured across Australia and, while these reductions are significant, litter levels in NSW remain at about the national average, although markedly worse than the best performing states. The community remains concerned about litter, despite falling levels.

The NSW Government recognises that litter levels are still too high and has committed to further reducing the problem. The litter reduction target in [NSW 2021: A plan to make NSW number one](#) has set a goal for NSW to be the best performing state in Australia by 2016.

According to the 2011–12 National Litter Index, Victoria currently has the lowest litter count in Australia, with an average of 36 items per 1000 square metres compared with 58 items in NSW. These results reflect the investment Victoria has made in litter reduction in recent years. To better Victoria's performance, the NSW litter count of 2011–12 would need to fall by 38%. While the National Litter Index results are not directly comparable between different jurisdictions, they do indicate the performance level that is possible and the improvements NSW can and should make.

The target in Draft WARR Strategy 2013–21 reflects this aspiration and the time frame for improvement by 2016 outlined in [NSW 2021: A plan to make NSW number one](#) and seeks to continue to improve litter performance to 2021.

How will we reduce litter?

Effective litter reduction will require coordinated action by all stakeholders with an interest in, and responsibilities for, litter. The State Government's [Waste Less, Recycle More](#) initiative provides \$20 million over five years to facilitate a coordinated litter approach, backed up by a targeted strategy that will act as an implementation plan. Elements of this coordinated approach are outlined below.

Education

Changing social norms around litter behaviour through education and anti-litter campaigns is a key objective. An important aspect of the education program will focus on encouraging people not to litter, as this is far more efficient than cleaning up afterwards.

Regulation and enforcement

Increasing the number of state and local government officers with powers to enforce litter regulations will boost enforcement activity against litterers. The community will be encouraged to report litterers while opportunities to improve enforcement efforts with new technologies, such as smart phone applications, will be explored.

Infrastructure and clean-up of litter hot spots

The presence of litter provides an incentive for more people to litter. Identifying and cleaning up litter hot spots and providing litter bins and appropriate signage can reduce littering.

The NSW Government will continue to work on litter issues with other parties at the national level, including the packaging industry, through the Australian Packaging Covenant, Commonwealth and other jurisdictions. National options to increase the recovery of packaging waste and reduce packaging-related litter will be further investigated. A new method for measuring litter that will allow for more accurate comparisons of litter performance between jurisdictions will also be developed as part of this work.

See Section 8 for details on performance measurement in this key result area.



Changing littering behaviour is key to achieving our targets.



Target for reducing illegal dumping

From 2013–14, implement the *NSW Strategy to Combat Illegal Dumping* to reduce the incidence of illegal dumping statewide

As part of this strategy, by 2016–17:

- reduce the incidence of illegal dumping of waste detected in Sydney and the Illawarra, Hunter and Central Coast regions by 30% compared with 2010–11
- establish baseline data to allow target setting in other parts of the state.

Key Result Area 6: Reduce illegal dumping

Illegal dumping is the disposal of waste materials on private or public land where no planning approval or environment protection licence has been granted for the activity. Illegal dumping can range from the disposal of small bags of rubbish or household waste in an urban environment to larger scale dumping of materials, such as construction and demolition waste, in more isolated areas. This waste may also include dangerous materials like asbestos.

The attitudes and behaviours that drive illegal dumping, the type of materials involved and where it occurs differ from littering. For this reason, Draft WARR Strategy 2013–21 treats litter and illegal dumping as separate issues.

Illegal dumping can seriously pollute the environment, potentially endanger human health, harm wildlife, affect local amenity and reduce a community's pride of place. It can be expensive for local councils, landowners, land managers and the community to clean up dumped material. Illegal dumping also distorts the market by undercutting legitimate waste operators and creating an uneven playing field for business.

NSW context

The EPA and local councils both have key regulatory responsibilities in relation to illegal dumping under the [Protection of the Environment Operations Act 1997](#). The EPA also provides financial and operational support to Regional Illegal Dumping (RID) Squads. These squads bring together groups of local councils, who pool their enforcement capacity and operate across council boundaries to investigate and enforce breaches of NSW regulations on illegal dumping and landfilling. NSW currently has two active RID Squads with more under development.

Like councils, RID Squads generally deal with smaller scale illegal dumping incidents, while the EPA focuses on larger scale dumping incidents involving waste volumes of 200 cubic metres or more. The EPA also provides funding to assist in the clean-up of illegal dumping incidents in Aboriginal Land Council areas.

Gathering accurate information on the nature and extent of illegal dumping is challenging, because dumping often occurs out of sight, undetected and anonymously. As a result, information on illegal dumping in many parts of the state is limited, which makes setting statewide targets difficult. Generating good baseline data on illegal dumping is a key priority, so that illegal dumping programs can be tailored to meet local needs and progress against the targets measured.

The Draft NSW WARR Strategy 2013–21 target for dumping in the Sydney, Illawarra, Hunter and Central Coast areas reflects the availability of relatively robust baseline data for these areas.

While the target in the initial period to 2016–17 focuses on data collection and illegal dumping incidents in the greater Sydney region, efforts to reduce the problem in other regions and deal with smaller scale incidents will continue during this period.

The NSW Government has identified illegal dumping as a key priority in [NSW 2021: A plan to make NSW number one](#) and has committed \$58 million over five years in the [Waste Less, Recycle More](#) initiative to combat illegal dumping across the state.

How will we reduce illegal dumping?

Dealing with illegal dumping will require a multi-pronged response involving those with regulatory powers (state and local government) working together with landowners and managers, industry and local communities.

Key action areas will include:

- establishing strong and collaborative partnerships between the State Government, local councils, RID Squads, industry and the community to increase opportunities for people to look after their own environments
- building capacity at the local level so that councils, landowners, land managers and the community have the knowledge and expertise to implement practical regional solutions
- ramping up compliance and enforcement activities to detect, investigate and prosecute illegal dumping
- conducting education campaigns to inform the community about the impacts of illegal dumping and correct disposal options
- recognising and promoting cooperative efforts and regional successes so that other communities can learn from these activities and illegal dumpers will understand that illegal dumping is being targeted
- building a robust evidence base through data collection and analysing illegal dumping incidents, attitudes and behaviour to help communities identify, prioritise and target local needs as well as monitor and evaluate the effectiveness of their actions.

In March 2013, the EPA released a [*Draft NSW Strategy to Combat Illegal Dumping*](#) for public comment which sets out a strategy covering each of these action areas. It is anticipated to be finalised later in 2013 and will function as an important implementation plan under NSW WARR Strategy 2013–21.

See Section 8 for details on performance measurement in this key result area.

8. How will we know if the WARR Strategy is working?

Progress against the NSW WARR Strategy will be reported every two years as required under the *Waste Avoidance and Resource Recovery Act 2001*. Each progress report will provide an assessment of performance against the targets in each key result area. The parameters for measuring progress against each of the key result areas are provided and discussed below.

Key Result Area 1: Avoid and reduce waste generation

Target

By 2021–22, reduce the rate of waste generation per capita

Measurement

- Waste generation is measured in tonnes.
- Waste generation is the sum of the tonnage of all materials sent to landfill plus the tonnage of all materials diverted from landfill through a resource recovery processor.
- Materials that do not go to landfill or through a resource recovery processor are considered to be avoided because they have not entered the waste management system. Thus when materials are reused without being processed (such as at a second-hand clothing store), they are not counted in the waste generation measurement.
- Growth in waste generation is the difference between the total tonnes of waste generated in the current period minus total tonnage of waste generated in the last period divided by the total tonnage of waste generated in the last period. Since progress towards the WARR Strategy targets is measured every two years, growth in waste generation is measured in two-year increments.
- NSW population growth is determined by the Australian Bureau of Statistics (ABS).

Key Result Area 2: Increase recycling

Target

By 2021–22, increase recycling rates for:

- municipal solid waste from 52% (in 2010–11) to 70%
- commercial and industrial waste from 57% (in 2010–11) to 70%
- construction and demolition waste from 75% (in 2010–11) to 80%

Measurement

- The recycling rate for a particular waste stream (MSW, C&I, C&D) is the proportion of all materials recycled from that waste stream in a given year (measured in tonnes) compared with the sum of all waste generated from that waste stream in the same year.
- Measurement of waste generation is described under KRA 1.

More detail on the collection of data and calculation of recycling rates can be found in the [Quality Declaration: Waste Avoidance and Resource Recovery Strategy Recycling Rates](#).

Key Result Area 3: Divert more waste from landfill

Target

By 2021–22, increase the waste diverted from landfill from 63% (in 2010–11) to 75%

Measurement

- The diversion rate is the proportion of all materials (measured in tonnes) that are either recycled or otherwise recovered (such as through an energy-from-waste facility) compared with total waste generation in a given year.
- Measurement of waste generation is described under KRA 1.

Key Result Area 4: Manage problem wastes better

Target

By 2021–22, establish or upgrade 86 drop-off facilities or services for managing household problem wastes statewide

Measurement

Establishment or upgrade of 86 drop-off facilities or services will aim to provide a reasonable level of geographic coverage across the state by 2021–22. The location of facilities or services for the NSW community will use the following criteria as a starting point and be refined where necessary:

- one per 50,000 households in metropolitan populated clusters
- one per 20,000 households in regional population centres
- generally less than 100 kilometres between centres in remote locations.

The drop-off facilities established or upgraded will be required to collect a consistent 'core' list of materials: paint, oil, batteries, gas bottles, smoke detectors and fluorescent lamps.

The event-based collections of more hazardous materials through Household Chemical CleanOut events will continue.

Key Result Area 5: Reduce litter

Target

By 2016–17, reduce the number of litter items by 40% compared with 2011–12 levels and then continue to reduce litter items to 2021–22

Measurement

Currently, the average number of littered items in NSW is measured using the Keep Australia Beautiful National Litter Index methodology, which is based on two visual surveys per year at 151 sites in NSW, normalised against a 1000-square metre area.

A new national litter methodology is being developed, which is expected to be completed in 2013–14. This methodology will replace the National Litter Index and establish a different means of measuring litter levels in NSW. Once the new methodology is applied, a revised baseline will be established and further reductions then compared against this.

Key Result Area 6: Reduce illegal dumping

Target

From 2013–14, implement the *NSW Strategy to Combat Illegal Dumping* to reduce the incidence of illegal dumping statewide

As part of this strategy, by 2016–17:

- reduce the incidence of illegal dumping of waste detected in Sydney and the Illawarra, Hunter and Central Coast regions by 30% compared with 2010–11
- establish baseline data to allow target-setting in other parts of the state

Measurement

- The number of illegal dumping incidents will be based on the number of such incidents greater than 200 cubic metres detected by the EPA. This includes incidents that are detected as a result of the EPA's own searches or those reported to the EPA by local government, other agencies, RID Squads and community members.
- Databases for smaller scale illegal dumping incidents and incidents outside the Sydney, Illawarra, Hunter and Central Coast regions will be developed as part of the strategy. Once completed, they will allow a baseline to be established against which further reductions in illegal dumping can be measured.

9. What role do I have?

Everyone can help to reduce the impacts of waste and move towards a more sustainable future. We are all critical to delivering a new vision for NSW – where our valuable resources are kept cycling in the economy and not sent to landfill.

Every sector of the community has a role to play in effective waste management and these responsibilities are outlined below. If we meet our responsibilities and change our waste management behaviours quickly, then we will reach our goals at a faster rate.

Commonwealth Government

Partner with all jurisdictions to deliver the agreed objectives under the [*National Waste Policy*](#).

NSW Government agencies

Responsibilities generally applicable to all agencies:

- support the WARR Strategy through complementary policies and programs, including sustainable procurement
- incorporate resource recovery and waste reduction objectives in their own operations
- comply with regulations.

Environment Protection Authority

- Provide clear and consistent regulations for waste disposal, recovery and recycling
- Collaborate and build partnerships with key stakeholders in government, industry and the community to reduce waste, increase recycling and tackle litter and illegal dumping
- Provide information and support to help build capacity, knowledge and skills in the community to tackle waste, littering and illegal dumping
- Provide support to local communities to tackle problem wastes
- Undertake research, data collection and analysis to ensure a robust evidence base is available for decision-making
- Report back to the community on waste and resource recovery issues and performance
- Enforce environmental regulation

Environmental Trust

- Provide grants to local government, industry, research institutes, community groups and other stakeholders to help reduce the impact of waste and achieve the targets in the WARR Strategy
- Provide grants to industry as an incentive for investment in waste, recycling and recovery infrastructure as well as improved collection systems

NSW Department of Planning and Infrastructure

- Plan for waste and resource recovery as essential services in our communities
- Establish a coordinated planning assessment process for major resource recovery infrastructure projects
- Identify areas where resource recovery facilities could be situated to maximise value from available land and infrastructure

NSW Trade and Investment

Assist the resource recovery industry to identify suitable locations and develop new resource recovery infrastructure and jobs in NSW

Local government

- Work collaboratively with neighbouring local government areas to develop and implement regional waste and resource recovery strategic plans that provide a clear pathway for delivering the outcomes in the WARR Strategy

- Provide their communities with best practice waste and resource recovery services, including (where appropriate) kerbside collection systems, public place litter infrastructure, drop-off facilities for problem wastes, resource recovery infrastructure and well-managed landfill
- Provide information and work with their communities to improve waste and resource recovery outcomes
- Ensure compliance and enforcement of waste, litter and illegal dumping regulations
- Provide timely assessment of local planning and development applications for resource recovery operations and infrastructure
- Tackle litter and illegal dumping
- Specify and purchase recycled materials, such as compost for use on parks and playing fields
- Comply with regulations

Environment and community groups and non-government organisations

Provide information and work with the State Government, local government, industry and the community to change attitudes and behaviour towards waste, resource recovery, litter and illegal dumping

Industry and businesses

- Reduce and avoid waste generation through improved resource efficiency measures and industrial ecology partnerships
- Separate recycling streams at source to enable collection separate from residual waste
- Work with suppliers to reduce packaging and waste in supply chains
- Implement and maintain best practice resource recovery systems
- Actively seek other businesses that may use your waste as an input material in their business
- Ensure that waste and recycling streams are collected by legitimate operators and taken to appropriate facilities
- Specify and purchase recycled materials
- Work with other producers to take responsibility for the end-of-life management of problem wastes
- Comply with regulations

Waste and resource recovery industry (such as collectors, waste managers, recyclers)

- Provide best practice resource recovery and waste services
- Work with businesses and industry to improve resource recovery outcomes
- Invest in new and upgrade existing resource recovery infrastructure to recover additional types of material and increase the amount of material put back into the productive economy
- Comply with regulations

Individuals

- Reduce and avoid waste generation by making smart purchasing decisions, such as purchasing products with less packaging, rejecting plastic bags, only purchasing food that is needed and storing and using perishable goods appropriately and within use-by dates
- Ensure that waste and recycling materials are deposited in the correct bins at home or in public places to avoid contamination and maximise recovery
- Avoid littering
- Support local businesses that recycle material and create local jobs
- Use drop-off locations for problematic wastes such as e-waste
- Provide authorities with the details and accounts of illegal dumping or other fraudulent waste activities
- Comply with regulations

Glossary

Alternative waste treatment (AWT)	Generally refers to a facility that applies a combination of mechanical, biological and (sometimes) thermal processes to separate organic materials from a mixed residual waste stream (usually household waste)
Commercial and industrial waste (C&I waste)	Solid waste generated by businesses, industries (including shopping centres, restaurants and offices) and institutions (such as schools, hospitals and government offices), but not C&D waste or MSW
Construction and demolition waste (C&D waste)	Solid waste sourced from construction and demolition works, including building and demolition waste, asphalt waste and excavated natural material
Diversion rate	The proportion of all recycled materials or those otherwise recovered (through an energy-from-waste facility) compared with total amount of waste generated. For further detail on measuring waste diversion see Section 8.
Energy from waste	The process of recovering energy from waste materials: the energy is used to produce useable heat, steam, electricity or a combination of these
E-waste	End-of-life electronic equipment, such as televisions, computers, mobile phones, stereos and small electrical appliances (but not whitegoods)
Industrial ecology	Refers to using the by-products from the production process in one company as a resource in another
KRA (key result area)	Refers to the key outcomes the strategy seeks to achieve
Materials recovery facility	A materials recovery facility (MRF) handles a range of recyclables which typically have already been separated from other waste streams (such as by householders or businesses at the collection stage). At the MRF, the materials are sorted into individual material streams before being sent for recycling. Components of the incoming material which are not suitable for recycling will be separated as 'contaminants' at the MRF.
Municipal solid waste (MSW)	Solid waste from households and local government operations, including waste placed at the kerbside for local council collection and waste collected by councils from municipal parks and gardens, street sweepings, council engineering works and public council bins
Problem wastes	Some household products and materials in the waste and recycling stream that pose potential harm to the environment and human health and/or make the recovery and recycling of other materials more difficult or uneconomic
Recycling rate	Proportion of an overall waste stream which is reprocessed, recycled and put back into the economy
Red lid bin	Refers to the Australian Standard (AS 4123.7-2006 Mobile Waste Containers – Part 7: Colours, markings and designation requirements) bin-lid colours for household kerbside waste and recycling bins. The 'red lid' bin is for residual waste.
Reducing waste	Refers to reducing waste generation by avoiding or preventing the creation of waste where possible along the various parts of the supply chain. The aim is to use less material to achieve the same or equivalent outcome.
Resource recovery	In NSW this currently refers to the recycling of waste material. Recovery may also include extracting embodied energy from waste through thermal processes.
Solid waste	Refers to unwanted solid materials and does not include liquid waste
Waste avoidance	Waste that does not enter the waste management system
Waste management system	Waste materials from MSW, C&I and C&D sectors that are collected at the kerbside, recovered from the waste stream for recycling or energy recovery or disposed to landfill
Yellow lid bin	Refers to the Australian Standard (AS 4123.7-2006 Mobile Waste Containers – Part 7: Colours, markings and designation requirements) bin-lid colours for household kerbside waste and recycling bins. The 'yellow lid' bin is for 'dry' recyclable materials. Generally, dry recyclables include paper, cardboard, glass, some hard plastics and ferrous and non-ferrous metals. The type of recyclable materials collected in the yellow lid bin can vary depending on the facility where the materials are taken for further separation and the availability of further downstream markets for the materials.

