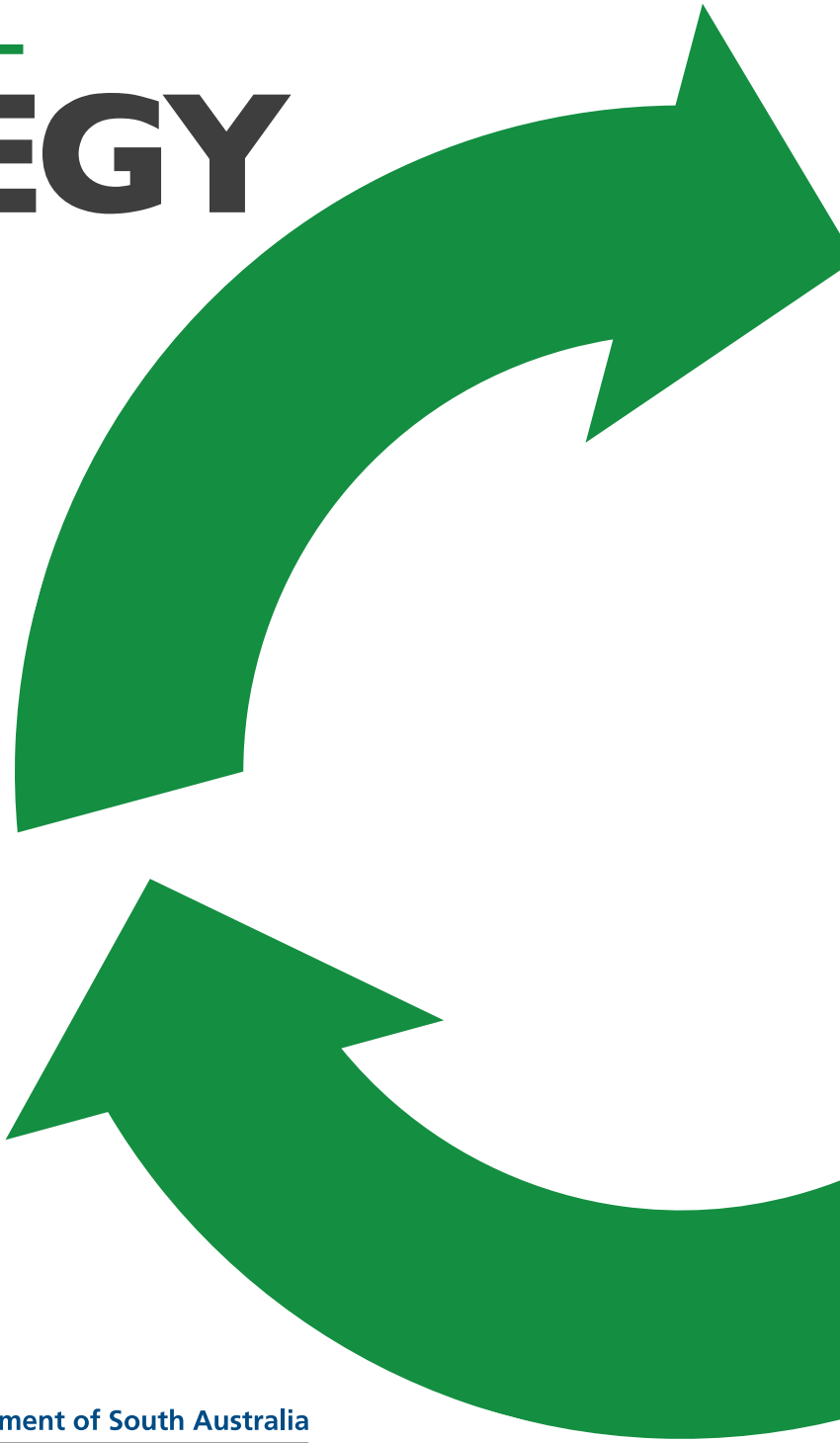
South Australia's

WASTE STRATEGY

2015-2020



SOUTH AUSTRALIA

Government of South Australia

Office of Green Industries SA

An initiative of Zero Waste SA

AVOID • REDUCE • REUSE • RECYCLE

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FOREWORD

South Australians have high expectations that our environment will be sustained for future generations. Since the State's first Waste Strategy was released more than 10 years ago, South Australians have demonstrated a strong commitment to waste reduction and recycling.

As a result, our recycling rates are amongst the world's best.

However, if we are truly serious about creating a sustainable environment for future generations, we must now turn to more complex problems.

These include waste reduction because, while we have become better at disposing of and reusing our waste, we continue to generate too much of it. We must also continue to identify innovative solutions and new responses to waste management, and to more efficiently manage our scarce resources.

The good news is that there is enormous economic potential arising from new technologies and the trend towards re-manufacturing.

Realising the economic potential from innovation in technology is the overriding ambition of our third Waste Strategy.

Our aim must be to help South Australian businesses become even more resource efficient, resilient and competitive because this will help secure South Australia's economic advantage and maintain and grow our prosperity, while at the same time protecting the environment.

The waste and resources sector is already moving in this direction spawning the growth of innovative companies that are developing new technologies for re-manufacturing products from recovered waste materials. South Australia is perfectly placed to capitalise on overseas business opportunities by supplying our expertise, knowledge and technology.

We find ourselves at a unique time in South Australia's history as Zero Waste SA has transitioned to a new authority, Green Industries SA, which began operation in 2015.

Green Industries SA will respond to the increasing challenges and complexities we face in maintaining South Australia's world-class leadership in environmental management.

In addition, the State Government will continue to attract investment, drive innovation and create jobs through transitioning to a low carbon economy and has committed to making our capital city the world's first carbon neutral city through the establishment of a carbon neutral 'Adelaide Green Zone'.

More so than ever before, the success and implementation of our Waste Strategy will require a shared responsibility across governments, business, industry and the community.

The systematic and coordinated application of policy to South Australia's waste management challenges, including focusing on identified waste reform priorities will help deliver this waste strategy.

I have no doubt that by working together South Australia will maintain its leadership in this area and its reputation as a State willing to put policies in place that will improve our health, our environment and our economy.

Ian Hunter

Minister for Sustainability, Environment and Conservation

Minister for Climate Change

"South Australians have **high expectations** that our environment will be sustained for **future generations**. To meet this expectation we all need to consider how to **reduce our rates of waste generation**."

SCOPE OF SOUTH AUSTRALIA'S WASTE STRATEGY 2015–2020

The approach to waste management advocated in *South Australia's Waste Strategy 2015-2020* (the Strategy) is an opportunity not only to avoid the detrimental impacts associated with waste, but also to recover resources, realise environmental, economic and social benefits and continue along the road to a sustainable future.

The Strategy sets out objectives, targets, priorities for action and partnerships, recognising and building on the achievements delivered through previous waste strategies (2005–2010 and 2011–2015).

The Strategy reflects the principles in the Zero Waste SA Act, namely:

- the waste management hierarchy
- ecologically sustainable development
- best practice methods and standards
- policy development through open dialogue and consultation.

In addition, several government policy initiatives and commitments have informed the development of the Strategy, notably the South Australian Government's Economic Priorities - 'South Australia is the place where people and business thrive' and *South Australia's Strategic Plan 2011*. South Australia has shown that transitioning to a low carbon economy can attract investment, drive innovation and create jobs and in relation to our capital city the Government will establish carbon neutral 'Adelaide Green Zone' – to make it the world's first carbon neutral city. The Strategy will contribute to these policy initiatives.

The *Review of South Australia's Waste Strategy 2011–2015* (the Review) is a major reference source for this Strategy. In 2013 Zero Waste SA engaged a team of international and Australian waste management experts to independently review the 2011–2015 Waste Strategy.

The key objectives of the Review were to:

- understand and analyse South Australia's waste strategy and programs
- review international best practice in waste management
- identify critical needs for the next strategy period (2015–2020)
- assess institutional delivery options to best meet these needs.

Strategy objectives

Taking into account the Review's findings, three objectives have been developed for the Strategy:

- a resource efficient economy where the best or full value is secured from products and materials produced, consumed and recovered across the State
- a stable and efficient market for investors through a clear policy framework providing a solid platform for investment decisions
- a culture enabling the South Australian community, businesses and institutions to continue and strengthen their role in implementing zero waste strategies and programs locally, nationally and internationally.

There are many environmental, economic and social benefits associated with following the direction and guidance provided in this waste strategy.

For South Australia, effective waste management is more than protecting public health, being environmentally sustainable or reducing reliance on landfill. The State's waste strategy and programs have also contributed strongly to technological innovation, business productivity, economic development and community cohesion.

The Strategy assumes that responsibility for its implementation will be shared across governments, business, industry and the community and assigns high level, but non-binding, responsibilities and tasks among the players identified (refer figure 2). The Strategy has whole of government endorsement. To achieve the Strategy's objectives, targets and priorities for action will require commitment, focus and appropriate resourcing from all sectors.

Consultation

After releasing the draft Strategy for consultation in 2015, we received 28 submissions from stakeholders and interested parties. These are listed in Appendix 1. Their comments, opinions and statements generally supported and have informed the Strategy.

Issues raised in submissions included:

- the patterns of consumption and behavioural change
- the challenges, opportunities and benefits associated with delivery of the strategy
- the impacts of higher density living
- costs and benefits of recycling and diverting waste from landfill
- the opportunities through sustainable procurement by all levels of government of recycled/re-manufactured materials and products.

Several submissions have used the consultation process to raise matters of interest and/or concern that are not strictly directed at the draft Strategy but rather at the business of government and in particular, fiscal policy. These matters have not been addressed in the Strategy.

Transition to Green Industries SA

The Strategy has been developed pursuant to Section 18 of the *Zero Waste SA Act 2004*. It has been developed during a period of transition in 2015-16 as the Government of South Australia realises its vision to establish a new authority, Green Industries SA. From 1 July 2015, following a proclamation under the *Public Sector Act 2009*, the department that supports Zero Waste SA (the Office of Zero Waste SA) was renamed as the Office of Green Industries SA. During 2015-16, legislation to establish Green Industries SA, including a definition of its functions, will be developed. During this transitional period the Zero Waste SA Act remains operational, and the Board of Zero Waste SA will be supported by the Office of Green Industries SA.

Responsibility to develop, adopt and administer the Strategy remains with the Board of Zero Waste SA until Green Industries SA is established by legislation. It is expected that this new authority will assume legislative responsibility for developing and overseeing implementation of South Australia's Waste Strategy in recognition of the important economic contribution and role played by the waste management and resource recovery industry.

It will take custodianship of **South Australia's Waste Strategy** in recognition of the **important economic contribution** and role provided by the waste management and resource recovery industry.

ACHIEVEMENTS OF THE PAST DECADE

To implement the Strategy with confidence it is important that the achievements of the past decade in waste management are understood so that we can build on our success and learnings. The achievements of this period are summarised below.

South Australia's Waste Strategy 2005–2010

The first strategy focussed on supporting local government and the waste and recycling industry to address existing issues and establish systems and infrastructure needed to meet longer term objectives. The 2005–2010 Waste Strategy guided a period of major change in waste management and resource recovery practices in South Australia. It was the first time there was an opportunity to guide and coordinate change through the use of targeted regulation and incentives. The work during this period included an economic cost benefit analysis of how well the 2005–2010 Waste Strategy was performing. This assessment demonstrated that investments and initiatives undertaken as part of the 2005–2010 Waste Strategy would deliver a net economic benefit for the State of South Australia.

Wingfield Waste Depot closure

The legislated closure of Adelaide City Council's Wingfield Waste Depot in December 2004 had significant impact on management arrangements for metropolitan Adelaide's waste. It was a key milestone in the development of South Australia's waste management sector. The Wingfield landfill was accepting 700,000 tonnes of waste and 700,000 tonnes of fill material per annum, three quarters of Adelaide's total waste stream. The closure of this site was a necessary shock to Adelaide's waste management system, opening up new competitive dynamics between landfill operators and recyclers for a share of Adelaide's waste supply.

Rural and regional initiatives

During the term of the first strategy, regional councils were increasingly expected to improve their approach to waste management. Regional and rural landfills needed to comply with landfill licence conditions of the Environment Protection Authority. Some councils decided to close landfills and join with neighbouring councils. This resulted in regional planning processes and the development of regional landfill, transfer stations and improved resources recovery and recycling facilities.

Standardised kerbside recycling

Kerbside recycling by metropolitan councils used various systems. The 2005–2010 Waste Strategy promoted standardisation of kerbside recycling services across councils to a three-bin system (recyclables, organic compostable waste and residual). The 2005–2010 Waste Strategy also worked to increase the capacity of recycling and re-processing infrastructure. The development of South Australia's waste management system through source separation of different material streams was in motion.

Waste management hierarchy

The first strategy introduced the *Waste Management Hierarchy* as an overarching guiding tool to manage these changes. The adoption of the hierarchy helped to ensure that new initiatives focussed on the 'top end' (the most preferable) methods and introduced concepts of sustainable behaviour, avoiding and reducing waste, implementing policy instruments and cooperating successfully. The hierarchy is discussed further on page 24.

South Australia's Waste Strategy 2011–2015

South Australia's second strategy built on the previous period, deepening and extending the focus and scope of interventions. The 2011–2015 Waste Strategy provided a detailed plan for priorities for action, grouped under two strategic objectives:

- to avoid or reduce the amount of overall waste
- to maximise the useful life of materials by making them last longer through re-use and recycling.

This placed focus on the top three tiers (waste avoidance, reuse and recycling) in order to tackle the 'top end' most preferable methods of the waste management hierarchy.

The *Review of South Australia's Waste Strategy 2011–2015* (the Review) assessed whether the objectives and targets outlined in the 2011-2015 Waste Strategy were appropriate and realistic and considered similar objectives statements in policy and strategy documents interstate and internationally.

The Review concluded that a shift is taking place.

> *The economic value of the sector is becoming equally important to the policy-making process, if not more important than traditional environmental and public health considerations. This is a natural trend considering the shift of focus within the industry away from 'waste' and towards 'resources'. Based on the Review the 2015–2020 Strategy proposes new objectives that recognise and reflect the economic importance of the waste management sector.*

The Review evaluated the targets in the 2011–2015 Waste Strategy and found these to be appropriate and set at realistic but challenging levels. Targets for the new strategy have regard to the Review findings, recycling activity survey data and other information obtained by Zero Waste SA. The Strategy targets are on pages 25 - 27.

Summary of achievements 2005–2015

Kerbside collection system: local council adoption of three-bin systems in all 19 metropolitan councils and 20 out of 49 regional councils, and excellent uptake by the community.

Regional infrastructure investments: investment and economies of scale in service provision for regional councils.

Recycling business: significant increases in recovered materials (from 62% in 2003–04 to 77% in 2011–12) and sales value, leading to new business and jobs.

Composting industry: establishment of a thriving and demand-responsive organics recycling industry that operates with gate fees competing favourably with landfill base-costs.

Industrial efficiency: reduced resource consumption and improved productivity, including waste/materials, water and energy efficiency.

State-wide hazardous waste management: successful household and farm chemical drop-off events that avoid long-term chemical waste storage and long-term environmental and financial liability.

Community information and awareness: a user-friendly, and widely appreciated, recycling information and advisory service, including *Recycle Right*®, website information, and a range of other communication approaches, operating at a very low unit cost, across multiple user interfaces.

Knowledge generation and research capability: the Zero Waste Centre for Sustainable Design and Behaviour, a $2 million partnership between the University of South Australia and Zero Waste SA, undertaking innovative research of global relevance including success in winning Australian Research Council Grants for projects as diverse as: measuring, understanding and reducing food waste; how work, household and community life interact to affect environmental behaviour and outcomes; mathematical modelling and design of permeable pavements; and sustainable building and design.

Savings within government: budget savings for State and local government through coordinated strategy delivery and procurement reforms such as waste management and sustainability program in Department for Communities and Social Inclusion and SA Health waste contract.

Industry competitiveness

Zero Waste SA's Industry Program improved the productivity and competiveness of a number of South Australian businesses through better resource use alongside efficiencies in material, water and energy management to produce more and better quality products at lower cost. Analysis of a representative range of projects implemented under the Industry Program reveals a net benefit of around $7.8 million at a Benefit Cost Ratio of 6.7. In other words, for every dollar invested by State Government in resource efficiency, $6.70 has been returned in direct cost savings for South Australian industry. There is scope for the work to be extended.

Infrastructure investment

The State Government, through Zero Waste SA support programs and co-investment, has been a catalyst for much of the infrastructure investment in the waste management, recycling and resource efficiency sector in South Australia. Analysis of Zero Waste SA support establishing the three-bin kerbside waste collection system across metropolitan councils indicates a net benefit of $22 million at a Benefit Cost Ratio of 2.6. Similarly, analysis of three individual regional waste management and recycling infrastructure investment projects illustrates a net benefit of $3.39 million at a benefit cost ratio of 1.4 to 11.5.

Growing the economy and creating jobs

Since the establishment of container deposit legislation (CDL) in 1977, South Australia's waste policy has been founded on source separation of waste streams. Strategic programs have expanded practical opportunities for source separation, put in place infrastructure to deal with waste streams, and helped to embed the practice as a cultural norm. Source separation, well established and widespread, has delivered economic benefits to South Australia. It provides a platform for more business opportunities in design, re-manufacturing and associated services. Zero Waste SA has supported an infant industry to become a demand-driven and highly productive sector of the South Australian economy. Helped by direct and indirect support, the South Australian composting industry has established its products in the consumer market place. There is considerable unexplored potential for industrial development in South Australia's green economy.

Saving government money

The size and importance of the state and local government sector within the South Australian economy means that interventions across government offer considerable potential for cost savings. For example, Zero Waste SA assisted a major government agency with advanced procurement of waste and recycling services at more than 300 facilities across South Australia. This intervention is forecast to generate $8–$10 million in direct savings. Implementing resource efficiency programs across the whole of government has potential to generate significant savings and be an important catalytic driver of wider economic benefits.

Reducing cost of living

Regardless of whether the specific waste management approach is collection, sorting, treatment or disposal, systems cost money to run. Therefore the generation of waste itself, whether it is recycled or not, places a cost on society. These costs represent a relatively small, but still significant, component of the everyday cost of living reflected in the price of products and council rates paid by citizens. Developing effective recycling systems has helped to reduce the costs of kerbside collection for South Australians, keeping council rates lower than they would otherwise have been. Good planning and strategic investment in resource recovery infrastructure has also reduced the costs of these waste and recycling services even further, for households and businesses alike. The waste and resources industry in South Australia is competitive, with diverse firms operating across the market. During the two waste strategies, South Australia has planned and implemented integrated waste management systems in a manner that has catalysed a step-change in performance, brought in new infrastructure and businesses, whilst guarding against fragmentation, duplication and over-capacity investment. This has ensured efficient investment that preserved market competition.

NEW DIRECTIONS FOR SOUTH AUSTRALIA

***South Australia's Waste Strategy 2015–2020**, under the custodianship of Green Industries SA, will form part of the framework of policies, strategies and plans intended to meet South Australia's priorities for economic prosperity and community well-being.*

Green Industries SA

South Australia is facing economic challenges that need new responses. These must be built on economic diversity and capitalise on opportunities within the newly expanding markets in our region[1]. Waste management and better use of resources is also a part of every government department's responsibility and every local council authority and the community.

Green Industries SA will be responsible for many functions previously undertaken by Zero Waste SA and some new areas of endeavour (see Appendix 2). As Zero Waste SA transitions to the new agency it is working in the area of green innovation in the waste, recycling and resource recovery sectors. It is also delivering on reduced waste to landfill and increasing the State's capacity for recycling.

Building on the success of Zero Waste SA, Green Industries SA will increase South Australia's capabilities and leadership in green industries. It will oversee implementation of South Australia's Waste Strategy, recognising the important economic contribution and role of the waste management and resource recovery industry (the waste sector).

The industry is a significant sector of the economy in South Australia. The waste sector has an annual turnover of approximately $1 billion, contributes $500 million to Gross State Product (directly and indirectly) and employs approximately 4,800 people. Nationally it was recently estimated that the waste sector was worth $14.2 billion per year[2].

Through investing more than $80 million from waste levy funds into the industry during the past decade, Zero Waste SA has built capacity, improved markets and assisted the development of new products and skills. Benefit cost ratios for funded projects that improve industry competitiveness achieve ratios of 6.7, and for infrastructure investment, between 1.4 and 11.5.

The South Australian State Government sees the opportunity to build upon these achievements, creating green jobs and developing new green business opportunities. These are areas of new industries and jobs which the member states of the European Union (EU) are actively developing[3] in response to the loss of manufacturing jobs, the move to services industries and the financial challenges in the EU.

It is expected that Green Industries SA will be funded from the Solid Waste Levy. Currently 50% of the levy is transferred to the Waste to Resources Fund. Zero Waste SA uses a proportion of that fund as provided for in the *Zero Waste SA Act 2004*. Additional funds are allocated through the State Government's budget process.

1 Premier of South Australia, address to CEDA luncheon, Adelaide 11 August 2014.
2 Inside Waste *Industry Report 2014-15.*
3 EEA 2014. *Resource-efficient Green Economy and EU policies. EEA* Report No 2/2014 European Environment Agency July, 2014.
4 *South Australia's economic priorities*, August 2014.

South Australia's economic priorities

The State Government released its economic priorities for South Australia in August 2014 with a vision, 'South Australia is the place where people and business thrive', and 10 priorities for action[4]:

- unlocking the full potential of South Australia's resources, energy and renewable assets
- premium food and wine produced in our clean environment and exported to the world
- a globally recognised leader in health research, ageing and related services and products
- the knowledge state – attracting a diverse student body and commercialising our research
- South Australia - a growing destination choice for international and domestic travellers
- growth through innovation
- South Australia – the best place to do business
- Adelaide, the heart of the vibrant state
- promoting South Australia's international connections and engagement
- South Australia's small businesses have access to capital and global markets.

South Australia's Strategic Plan

South Australia's Strategic Plan 2011 sets out key directions for government, and shows how policies, strategies and plans are integrated. It guides individuals, community organisations, governments and businesses to secure the wellbeing of all South Australians. The three foundations of a sustainable society, 'Our Community, Our Prosperity and Our Environment', are organising priorities for the Plan. The Plan also recognises that to nourish a sustainable society 'Our Health, Our Education and Our Ideas' are essential.

Seven strategic priorities

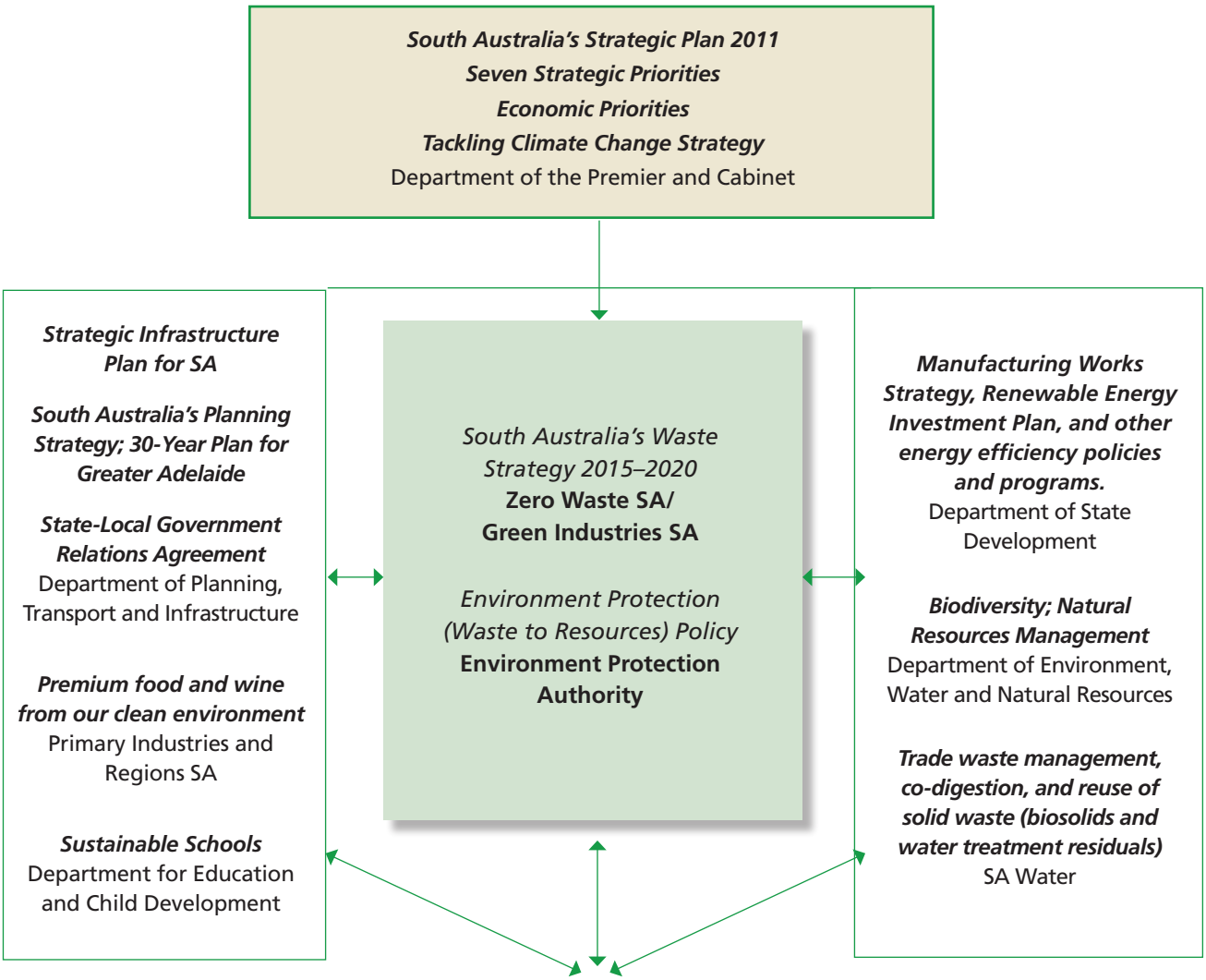
Aligned with *South Australia's Strategic Plan 2011*, the State Government has developed seven priorities for South Australia's future. These priorities identify where the most difference can be made to the community and to the future prosperity of the State. These priorities recognise that South Australia works best when there is a strong government working with strong business and a strong community:

- giving our children every chance to achieve their potential in life
- keeping our communities safe and our citizens healthy
- building our reputation for premium food and wine
- growing advanced manufacturing as the way for the future
- realising the benefits of the mining boom for all
- creating a vibrant city that energises and excites
- keeping our high quality of life affordable for everyone.

It **guides individuals, community organisations, governments** and **businesses** to secure the **wellbeing of all South Australians.**

State Government policy links

South Australia's Waste Strategy 2015–2020 is part of the framework of policies, strategies and plans that link Australian, State and local government and other organisations.



Integrated, collaborative and partnered programs

Local government: regional management plans developed by councils

Private sector: industry resource management plans, agreements, covenants industry and community investment

Non Government Organisations

Public campaign delivery such as KESAB *environmental solutions*

South Australia in a changing climate: A blueprint for a sustainable future Conservation Council of South Australia

Others

Figure 1 Key policy links for *South Australia's Waste Strategy 2015–2020*

CHALLENGES, OPPORTUNITIES AND BENEFITS

Future policy challenges and opportunities

The waste management, resource recovery and resource efficiency sector is a complex and economically significant sector of the economy. Challenges in policy presented by the waste sector differ from other sectors of the economy. It has a wide range of stakeholders, complex materials supply and value chains, diverse material types and inherent health, safety and environmental aspects.

South Australia has effective waste management infrastructure and a strong culture of environmental responsibility. However, there is still significant residual reliance on landfill and, set against the backdrop of recent introduction of mandatory resource recovery in the State, a new and extended network of resource recovery facilities will be needed.

The circular economy and the collaborative economy

The circular economy seeks to shift activity from a linear to a circular model by making better use of materials, by keeping materials in circulation through reuse and recycling, industrial symbiosis and other efforts to divert materials from landfill. It displaces some demand for new materials, but does not address the rate at which materials enter the circle, as evidenced by total material demand continuing to grow faster than the improvement in recycling rates. While it is vital to maintain a focus on bending the linear economy into a circular one, thereby addressing the 'middle rungs' of the waste management hierarchy (recover, recycle and reuse) (refer to figure 3), attention should also be focused on the most preferable 'rungs' of the hierarchy (reduce and avoid).

The rapidly growing momentum of the collaborative economy (known as sharing economy or access economy) is a means of doing this. It includes collaborative production as well as collaborative consumption, and is fundamentally reshaping how people buy and sell goods and services.

Rather than being focused on managing materials at end-of-life or on traditional resource efficiency (water, energy, waste, emissions reduction), the collaborative economy has the potential to address how the community and industry consume resources as a whole and ways in which this could result in less waste and more efficient use of resources.

It means designing systems that encourage community focused ways of enabling people to meet their needs by accessing under used assets (goods, time, space, skills). Providing access to these assets enables people, innovators and entrepreneurs to take their idea from the backyard to commercialisation and help foster new industries for the 21st century. The collaborative economy considers the design of living systems, including how food is grown and prepared, how people clothe and transport themselves, and how they might collaborate with others to meet their daily needs. It creates new patterns of behaviour in communities.

Real-time access to the elements comprising the collaborative economy requires new delivery systems. There will be increasing demand for people who can design web-driven systems[5] connecting one person's or organisation's surpluses with another's needs. The language used is around 'peer-to-peer', 'resilience', 'do-it-yourself' and 'open source' rather than 'environment', 'green' or 'sustainability'.

A South Australian example is the Share N Save[6], web platform which maps where communities are sharing across the State. It identifies activities and initiatives where swapping, sharing, lending and doing things collaboratively are taking place.

Infrastructure investment

Investment demand for additional resources recovery infrastructure, for replacement of existing asset stock, and the progressive closure of landfill space, is significant. This investment demand is likely to be in the order of $200-350 million during the next 10–15 years for municipal solid waste, potentially doubled when considering all materials/waste streams.

5 *Australia's digital pulse key challenges for our nation – digital skills, jobs and education.* Australian Computer Society, 2015 *www.acs.org.au/__data/assets/pdf_file/0006/69720/02062015-Australias-Digital-Pulse-FINAL.PDF.*

6 www.zerowaste.sa.gov.au/sharensave

A well coordinated policy and strategic and tactical approach by State and local government will be needed to attract future investment to deliver regionally distributed facilities with good economies of scale, protecting against over-capacity while securing procurement at best value for money. Zero Waste SA is preparing a State waste infrastructure plan that will provide strategic direction and recommend priorities for action. Before it is finalised a draft plan will be released for consultation with key stakeholders.

Opportunities in re-manufacturing

High performing waste management and resource recovery has significant investment and operational costs. The waste sector knows that its bottom line depends in large on the revenues it receives for the materials collected. Local markets offer ways to reduce operating costs and business risks while realising local job opportunities and environmental benefits.

This highlights business opportunities for re-manufacturing of locally harvested materials into desirable products. South Australia has a comparative advantage to attract and grow new, potentially high value added, re-manufacturing enterprises. The State has experience using a mix of support mechanisms over time that guided the fledgling compost manufacture industry from start-up to maturity.

The waste and resources sector is well positioned to deliver new, high technology and advanced industry. Establishing and creating an environment that attracts and maintains such economic growth within the state is a strategic imperative. The potential for growth in small and medium sized enterprises in the re-manufacturing sector in South Australia is worthy of policy attention and will be an area of focus for Green Industries SA.

Procurement polices and practices that support the use of re-manufactured products is a key area where all levels of government can directly influence growth in the re-manufacturing sector as well as realise environmental and social benefits such as reduced carbon emissions and increased employment. It has been estimated that the direct full time equivalent employment per 10,000 tonnes of waste is 9.2 for recycling and 2.8 for landfill[7].

Changing patterns of waste generation

The supply of household solid waste grows proportionally with population[8]. In addition, patterns of waste generation change, and so do the types of chemicals and materials used to make the products we buy. With increasing material complexity (bio-composites, conductive polymers, nanotechnology, electronics and more) current recycling processes cannot extract all the components from purchased products. We need industry innovation and investment to address this and the changing forms of manufacturing, such us home manufacturing made possible by 3D printing technology.

Developments may radically alter the nature of municipal waste generated in our homes and the distribution of waste-generating enterprises.

The City of Adelaide is experiencing a rapidly growing population directed to medium and high density residential developments which typically provide a single waste stream disposal option (general waste). Transit oriented developments and high density residential developments in other council areas are also occurring consistent with the new urban form envisaged by the 30-Year Plan for Greater Metropolitan Adelaide (the 30 year plan).

The 60% kerbside bin diversion target for municipal solid waste in this strategy (refer page 27) is tailored to a low density urban environment and may become increasingly difficult to attain and maintain with increased residential densities and mixed use developments (i.e. medium and high rise developments combining residential and commercial uses).

During the term of the 2011-2015 waste strategy an important guidance document, *Better Practice Guide - Waste Management for Residential and Mixed Use Developments* was developed to progress widespread adoption by developers, architects, planning authorities, waste consultants and industry and strata and community corporations of high performing waste management systems in such developments. Adherence to this guidance document should improve waste management services in the new urban form envisaged in the 30 year plan.

Progress in this area will also contribute towards the government's aim for Adelaide to be the world's first carbon neutral city.

7 *Employment in waste management and recycling,* Federal Department of Environment, Water, Heritage and the Arts. Access Economics, 2009.

8 'The economics of recycling', Beukering et al, in *Handbook of recycling*, Worrell, Reuter, 2014.

Appropriate policy tools, guidelines, waste management infrastructure and on-going education and awareness will need to be implemented to maintain and support high performing waste recycling systems, new recycling behaviours and influence attitudes.

Innovation in resource efficiency

A significant global challenge is how do we avoid increased consumption of material goods, which leads to more waste being generated and other serious environmental impacts. Even within the framework of a circular economy, recycling does not reduce the amount of material consumed.[9] The complex nature of the problem requires a range of interventions. "Resource recovery and the optimization of material flow can only be achieved alongside and through behaviour change to reduce both the creation of material waste and wasteful consumption."[10]

There is considerable evidence that current practices of resource consumption are unsustainable. In its 2013 year book, the United Nations Environment Programme[11] states that, while some progress towards sustainable development has been made in the past two decades, 2012 witnessed failures to protect the environment. This included increased greenhouse gases emissions and other air pollutants, growth in unsustainable consumption and production, biodiversity loss and other impacts.

The Global Footprint Network[12] offers the analogy that today we use 1.5 Earths (equivalent) resources, including to absorb waste, and by the 2030s we may need 2.0 Earths (equivalent) to maintain this lifestyle.

There is an international shift from waste to materials management and the South Australian Government's waste management policies and practices have attracted national and international interest.

There remains much work to do, shaping production and consumption practices and implementing resource efficiency through commerce, industry and levels of government. Resource efficiency means using materials, including scarce materials such as rare earth metals (used in electronics), as efficiently as possible.

Policy studies from other OECD countries estimate considerable savings and productivity gains from improved resource efficiency. Innovation in resource efficiency has potential to generate significant cost savings and productivity improvements throughout the economy.

Savings in public sector expenditure

Savings in public sector expenditure, at state and local government levels, is another important area of policy focus. Public sector expenditure in South Australia makes up a large share of the overall economic activity in the state. During the term of the 2011-2015 Waste Strategy Zero Waste SA funded re-evaluation of waste management contracting in SA Health, identifying potential for $8–10 million of savings. Although these savings are not yet banked, the case indicates scope for budgetary savings across the public sector through coordinated procurement and resource efficiency.

Waste management is a considerable proportion of local council operating budgets, including infrastructure investment and operation, delivery, contract management, education and awareness. Kerbside bin services such as recycling and organics collections are extra services and come at an extra cost. When the costs of recycling are limited to only the financial costs incurred by councils to deliver recycling services to households, whether or not this is offset by the sale of collected materials, then there is likely to be a net cost. This can lead to concerns for councils and ratepayers alike.

However, formulating decisions regarding the provision of kerbside recycling and other services solely within the framework of the financial costs incurred does not assess the full financial, environmental and social costs and benefits of such services. Environmental and social benefits include avoided costs from air and water pollution associated with landfill, avoided manufacture from virgin materials, reduced global warming impacts, landfill disposal savings and other benefits identified in this Strategy. There is considerable potential for net financial and environmental benefit to communities when viewed at a society-wide level.

9 'Squaring the circular economy, the role of recycling within a hierarchy of material management strategies', Allwood, 2014, in *Handbook of Recycling*, Worrell, Reuter, 2014.

10 'People, policies and persuasion: the future of waste reduction and resource recovery in households and urban settings', Lehmann, S., Crocker, R. *Designing for Zero Waste: consumption, technologies and the built environment,* 2012.

11 United Nations Environment Programme. 2013. *UNEP Year Book – Emerging Issues in our global environment, Kenya.*

12 Global Footprint Network. *www.footprintnetwork.org/en/index.php/GFN/.*

The high level support for recycling would suggest that the South Australian community may place higher values on the benefits from resource conservation or emission reduction of harmful pollutants than is assumed in conventional economic benefit cost analysis regarding provision of services.

Increased collaboration and optimisation of resources and effort, made possible through more consistency across municipaliites, and improvements in technology, could bring substantial savings.

However, financial and other challenges are likely in some regional areas of South Australia where councils and communities incur higher cost premiums for their waste management services due to the large distances the collection vehicles need to travel to firstly collect the waste and then secondly the large distances travelled to dispose of the waste.

For South Australia to be an attractive investment destination with global market participation and acceptance of products and services, it needs to be a leader within the public sectors too.

Working in a national context

It is likely that South Australia's direction will continue to be influenced by the 2009 National Waste Policy: Less Waste, More Resources (National Waste Policy).

The National Waste Policy, agreed by all Australian environment ministers in November 2009, and endorsed by the Council of Australian Governments, sets Australia's waste management and resource recovery direction to 2020. The National Waste Policy sets out the roles and responsibilities for each level of government against 16 waste strategies and provides a framework for jurisdictions to work together to deliver effective and efficient approaches to national waste issues.

Within this 10 year framework problems such as e-waste, hazardous materials, and product stewardship will be tackled. South Australia will continue to be a strong advocate for better national systems as well as acting independently in the State's interests.

Local, national and global economies

International trade has played an important role in the expansion of the global recycling sector. "In the recycling market, prices fluctuate according to the balance of supply and demand, the prices of materials made from primary [virgin] resources, as well as the behaviour and organisation of markets and its stakeholders..."[13] The price of recycled material (secondary resources) is influenced by primary resource values (through scarcity and /or changing production volumes and costs).

The first five-year Waste Strategy operated in a booming commodities market with increasing resource consumption, but then faced a global downturn. The prices of new and recovered/recycled commodities, particularly those like paper, metals and plastics that depended on world benchmarks, dropped by as much as 80% from their peaks. Responding to this, the 2011–2015 Waste Strategy was developed to be more flexible to adapt to changing conditions.

However, factors such as growth trends in the global and Australian economies and higher transport costs for movement of materials continue to influence waste strategy outcomes.

The 2015–2020 Waste Strategy comes at a time that needs innovative solutions to strengthen the economy, build future resilience and underpin our future prosperity. In order to grow the economy, the direction of this Strategy supports local infrastructure investment and markets while reducing wasteful consumption.

Managing climate change

Climate change is a global issue with significant local impacts. The Australian Government has committed to a target to reduce Australia's greenhouse gas emissions by 26-28% from 2005 levels by 2030. Two key policies underpin this target: a Direct Action Plan that uses a $2.55 billion Emissions Reduction Fund (ERD) to cut emissions via a 'reverse auction', awarding contracts to those who bid emissions abatement projects at lowest cost; and a large scale Renewable Energy Target (REDT), now a reduced fixed figure of 33,000 GWh by 2020.

13 'Recycling: a key factor for resource efficiency', in, *Handbook of Recycling: state-of-the-art for practitioners, analysts, and scientists,* Worrell, E.,Reuter, M., 2014.

The State Government released *Tackling Climate Change: South Australia's Greenhouse Strategy 2007-2020* in May 2007. This set out South Australia's long-term response to climate change offering strategies and an action plan for agencies.

The introduction of the *Climate Change and Greenhouse Emissions Reduction Act 2007* made South Australia the first Australian jurisdiction to enact specific climate change legislation that sets a long-term aspirational emissions reduction target and renewable energy targets.

The *Climate Change and Greenhouse Emissions Reduction Act 2007* establishes a target to reduce South Australia's greenhouse gas emissions by at least 60% of 1990 levels by 2050.

The international community has agreed to work together to reduce emissions to a level that keeps global warming below the two degrees threshold, beyond which there are likely to be increasingly severe social, economic and environmental impacts. Consistent with the goal of limiting temperature rises to within two degrees, a number of sub-national governments have recently committed to the Global Climate Leadership Memorandum of Understanding (Under2MOU) initiative, which requires them to pursue emission reductions of at least 80% below 1990 levels by 2050.

As a first step towards reducing emissions by 60% by 2050 a key priority of the Strategic Plan 2011 is limiting the State's greenhouse gas emissions to 108% of 1990 levels during 2008-12 in line with Australia's international commitments under the Kyoto Protocol[14].

South Australia has more than met the target and averaged 91% of the 1990 baseline during the period. In other words, in contrast to a target of 8% above the baseline, South Australia has achieved 9% below the baseline during the period 2008 – 2012. During this time South Australia's Gross State Product grew 60%, demonstrating that emissions can be reduced with continued economic growth.

The South Australia Government has committed to the development of a new strategy for climate change action and is conducting a review of the *Climate Change and Greenhouse Emissions Reduction Act 2007* in 2015.

In addition, the State Government will continue to attract investment, drive innovation and create jobs through transitioning to a local carbon economy and has committed to making our capital city the world's first carbon neutral city through the establishment of a carbon neutral 'Adelaide Green Zone'.

The National Waste Policy suggests that the waste sector will contribute greenhouse emissions of around 15 million tonnes of carbon dioxide equivalent per year, of which approximately 11 million tonnes is from landfill.

As well as reducing methane emissions from landfill, collecting and recycling materials can save greenhouse gas, energy and water. When a recovered material is used, it saves the energy and other inputs used to extract and refine a virgin resource. Waste avoidance and recycling benefit the climate more than waste treatment technology, even where energy is recovered during the process. How we access, use and recover resources in future is part of adapting to climate change. Assessing the way building materials flow through the economy, for example, will help us to better manage density of living, expansion, energy efficiency and sustainable design. In the meantime, to help reduce greenhouse gas emissions we can continue to reduce wasteful consumption and inappropriate disposal.

The climate benefits of waste practices result from avoided landfill emissions, reduced raw material extraction and manufacturing, recovered materials and energy replacing virgin materials and fossil-fuel energy sources, carbon bound in soil through compost application, and carbon storage due to recalcitrant materials [such as plastic and wood waste] in landfills.

Waste and Climate Change, United Nations Environment Program (UNEP) report 2010

14 Government of South Australia. 2011. *South Australia's Strategic Plan 2011*. Government of South Australia, Adelaide, <*saplan.org.au*/>.

Community views and values

Changing consumer behaviour and making our lives more sustainable continues to be a challenge. To balance environmental outcomes with lifestyle, the community looks to government and industry for signs of change, such as South Australia's ban on check-out style plastic bags, updated container deposit legislation and high performing kerbside recycling systems, including kitchen scrap recycling in some council areas. The South Australian community has embraced initiatives such as household hazardous waste drop off events, electronic waste recycling and options for recycling soft plastics, batteries and light globes through retail partnerships, particularly where these initiatives are offered for free. For more problematic and difficult to handle wastes streams, such as e-waste, mattresses, gas cylinders, photo voltaic panels and so on, the community and / or industry may need to be willing to pay for responsible recycling outcomes. With increasingly complex waste streams, on-going government support is necessary in infrastructure and behaviour change through education and awareness.

Managing costs and prices

Cost is a main factor from the moment of waste generation, to its value as a recyclable commodity, to final disposal. Businesses and organisations that make, take, recycle and dispose of waste are sensitive to capital and operational cost. Costs affecting the recycling and reprocessing sector in South Australia are:

- distance from infrastructure and markets
- scale of demand and supply
- transport logistics
- operating costs such as fuel (for transport and equipment), energy, employment, government levies and charges.

It is unlikely that 100% recycling of most products and materials is currently feasible. Striving for an optimum level of recycling, using financial and non-financial instruments, policies, targets, and approaches is likely to be more cost effective and achievable.

The global financial crisis showed that the resource recovery industry is vulnerable to sharp drops in commodity prices, demand for resource types and available finance. However, the government can also apply market-based tools, such as:

- policy for setting landfill levies, advance disposal and recycling fees, and deposit-refund and subsidy schemes
- incentives, grants and loans to promote change and efficiency, enhance environmental performance and innovation, and reward desired behaviours
- producer responsibility measures, including future recycling costs in purchase prices, influencing buying decisions and supporting effective recovery of valuable resources.

Many Australian state governments use landfill levies as the main economic instrument tool to manage waste.

"Cost is a main factor from the moment of waste generation, to its value as a recyclable commodity, **to final disposal**."

PARTNERSHIPS

Achieving the Strategy's objectives and targets needs sharing of responsibility and consulting, cooperating and partnering with a range of stakeholders.

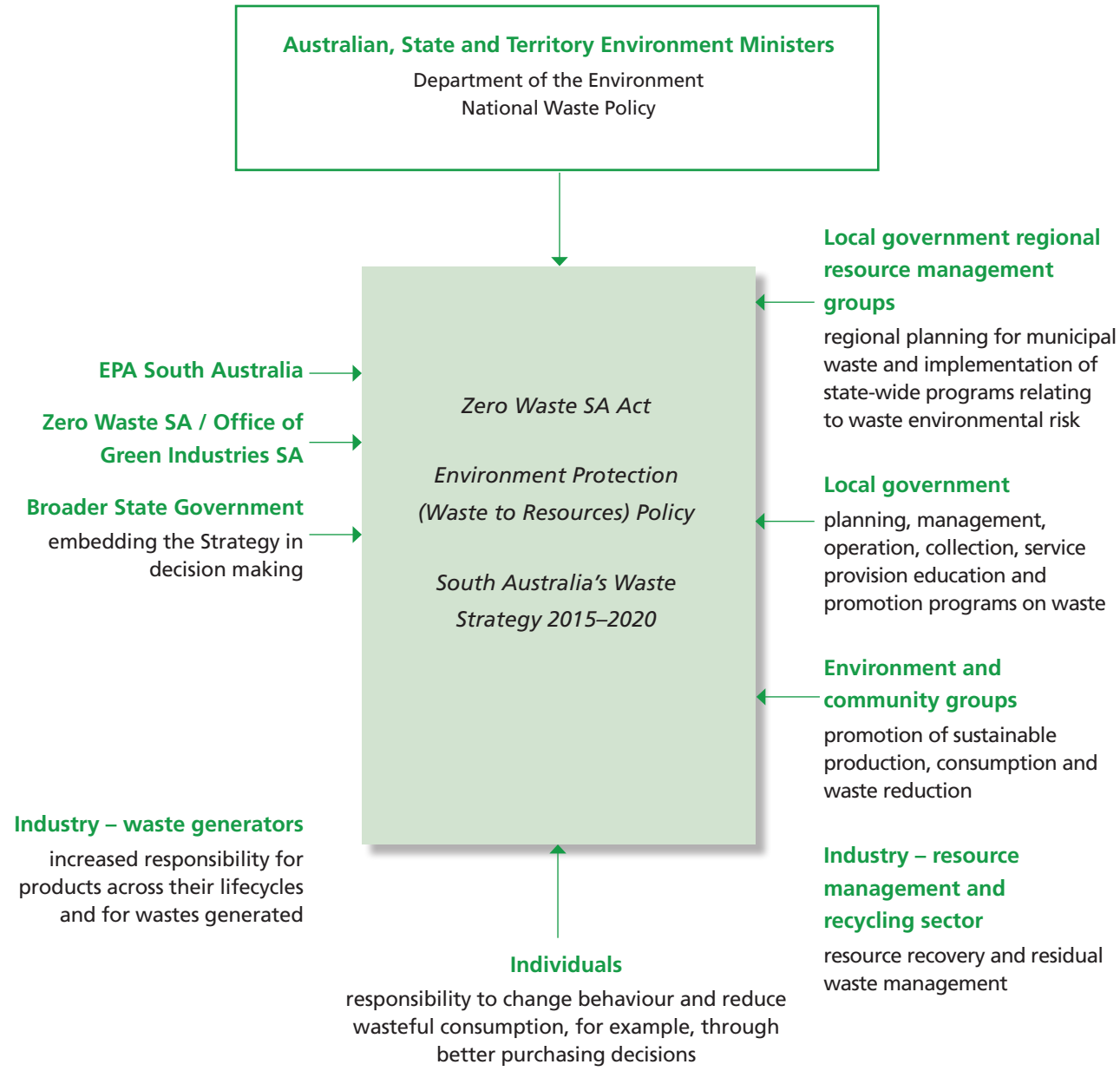


Figure 2 Roles and relationships in waste management in South Australia

Environment Protection Authority

The Environment Protection Authority (EPA) and Zero Waste SA work collaboratively to achieve innovative waste management regulation and policy. The EPA regulates the environmental impacts of waste in South Australia to avoid or minimise adverse effects on human health and the environment and promote resource recovery. It administers environment protection policies, codes of practice, licences, environment improvement plans, guidelines and enforcement tools. The EPA considers the Waste Strategy when determining matters related to licences and referred development applications.

In 2010, the EPA introduced the *Environment Protection (Waste to Resources) Policy*. The policy provides a regulatory basis to help achieve the State's waste management objectives through mechanisms such as mandatory resource recovery requirements and banning a wide range of materials from direct disposal to landfill.

The EPA is now pursuing staged regulatory reforms to support resource recovery in our state on a safe, beneficial and equitable basis.

State Government

Embedding and implementing the waste strategy realises tangible benefits for government. Agencies that lead by example are the Department for Communities and Social Inclusion, Arts SA and the SA Convention Centre (Tourism SA). Other government departments and stakeholders, such as SA Water, Department of Further Education, Employment, Science and Training, and the Department of State Development will help achieve the new Strategy's objectives through their own work.

Local government, including regional waste and resource management authorities

Local government plans and manages:

- household waste and recycling services
- municipal systems for solid waste, recyclables and green organics
- transfer stations.

Local government is central to planning infrastructure needs, including industrial waste needs where municipal and industrial facilities combine. The community expects local government to provide waste services as a service covered by their rates.

Many councils also run education programs, develop environmental and sustainability strategies and work cooperatively with Zero Waste SA to establish regional waste management plans. These activities complement and support the Strategy.

Councils strive to meet community expectations, reduce costs, rehabilitate closed landfills, control illegal dumping and deal with hazardous and problematic waste.

Australian Government

The Australian Government's role relating to waste is to ensure Australia meets its international obligations through direct actions as well as through the activities of other levels of government.

Under the National Waste Policy, the Australian Government is responsible for leading a national approach to product stewardship. The *Product Stewardship Act 2011* provides the framework to effectively manage the environmental, health and safety impacts of products, and in particular those impacts associated with the disposal of products. The framework includes voluntary, co-regulatory and mandatory product stewardship.

Televisions, computers and computer peripherals are the first products to be regulated under the Act. The National Television and Computer Recycling Scheme involves a combination of government regulation and industry action to take responsibility for the collection and recycling of waste televisions, computers, printers and computer products.

The Australian government will continue to work with state and territory governments and industry to consider possible product stewardship approaches for other products, including paint and batteries.

Resource management and recycling industry

The waste management and resource recovery industry is a significant sector of the economy in South Australia. The sector has an annual turnover of around $1 billion, contributes directly and indirectly more than $500 million to Gross State Product (≈0.6% of GSP), and employs around 4,800 people across a wide spectrum of jobs. Putting this into perspective, the industry is similar in economic value to the fishing and aquaculture industry, and similar in terms of employment to the water industry.

The waste and resources industry also contributes to economic activity not yet routinely captured in statistics. Materials separated from the waste streams return to downstream re-manufacturing industries within South Australia and elsewhere, making new products that people buy, and in the process, further contributing to the economy and employment.

South Australia has shown leadership in relation to waste management that has been recognised at the national and international level. Due to its knowledge, skills base and expertise, the waste management sector is well positioned to further develop and diversify. Developing industry skills in areas such as developing recycling system design for medium to high density urban form may open up national and international markets for developers, architects, waste management consultants and collection contractors.

When making decisions, State Government values partnerships with the Waste Management Association of Australia, Australian Council of Recyclers, Business SA and the Australian Industry Group.

Private sector waste generators

Businesses are increasingly aware that managing waste is part of their productivity and efficiency. To reduce waste, some businesses need advice and support, from product design through to identifying recycling and reuse opportunities at the end of a product's life. Many industries see the need to manage their own waste and to act as stewards for their products, such as under the National Waste Policy stewardship initiatives. The industry partners that help to achieve the goals of the Strategy are:

- Australian Council of Recyclers
- Australian Food and Grocery Council
- Australian Industry Group
- Australian Retailers Association
- Australian Packaging Covenant
- Business SA
- Compost for Soils
- Food South Australia
- Hardware Association of South Australia
- Housing Industry Association
- Individual waste and recycling companies
- Master Builders Association
- Product Stewardship Australia
- Plastics and Chemicals Industry Association
- Property Council of Australia
- SA Retail Property Group
- SMEs and larger companies across South Australia
- State Retailers Association
- Vinyl Council of Australia
- Waste Management Association of Australia (SA Branch) and others

Environment and community groups, non-government organisations and Indigenous communities

Diverse communities play a part in supporting the Strategy's objectives. These range from tiny rural volunteer organisations collecting recyclable materials to fund local activities, through to large organisations that coordinate national campaigns or actively advocate for change. Organisations like KESAB *environmental solutions* can use the values of the community to encourage behaviour change through activities such as school education, community engagement and litter and illegal dumping initiatives. South Australia's traditional owners hold or manage more than 40% of the state and are a significant proportion of the rural and remote population[15]. As land managers, Indigenous people have an important role in managing waste; in some areas, distance and access to recycling markets need innovative local solutions.

Individuals

South Australians have achieved the highest per capita recycling rate nationally, and our waste going to landfill has dropped[16]. However waste tonnage overall is growing with our economy and population. We consume and discard objects based on available options. We need to be even more responsible for the environmental and social impacts of our consumption choices. Individuals can avoid waste, recycle and reduce contamination of recyclables.

15 Government of South Australia. 2005. *Caring for country.* Government of South Australia, Adelaide. <www.sapo.org.au/pub/pub4321.html>.
16 Rawtec. 2013 *South Australia's recycling activity survey 2012-13 Financial Report.* Zero Waste SA. Adelaide.

Tertiary education/research and development sector

Collaboration, research, data collection and monitoring will help us to manage resources more efficiently. The Zero Waste SA Centre for Sustainable Design and Behaviour looks at design and behaviour change across a range of disciplines, such as architecture and childhood development, and researches waste management and reduction, recycling and resource efficiency. Zero Waste SA also collaborates with local tertiary and research and development institutions such as Flinders University, the University of Adelaide, the South Australian Research and Development Institute (SARDI), and interstate and overseas research centres.

WASTE STRATEGY FOR 2015–2020

"Waste-related problems are often handled in a fragmented and uncoordinated manner, mainly focusing on end-of-pipe solutions rather than on preventative measures and integrated approaches."[17].

Before South Australia's first (2005-2010) waste strategy recycling services to households across metropolitan Adelaide consisted variously of bags, crates, split bins (with waste in one side and recyclables in the other) and 240L co-mingled recycling bins. A decade later all metropolitan councils have three-bin kerbside services for households and many regional councils also have recycling and/or green organics collections resulting in greatly improved recycling performance, high level community acceptance and many other advantages.

The principles, objectives and targets alongside waste management policy tools such as regulation and enforcement, application of economic instruments, education and awareness, voluntary agreements, and garnering the commitment of the community, NGO's and others help deliver this waste strategy.

The approach to waste management advocated in this waste strategy presents an opportunity not only to avoid the detrimental impacts associated with waste, but also to recover resources, realise environmental, economic and social benefits and continue along the road to a sustainable future.

Attaining sustainability

(Meeting the needs of current and future generations through positive environmental, social and economic changes)

South Australia's Strategic Plan provides an important blueprint for our state set around key organising principles.

South Australia's Waste Strategy 2015–2020 relates primarily to the organising principle: Our Environment, and in particular Target 67: Zero Waste, which aims to reduce waste to landfill by 35% by 2020 and reach a milestone of 25% reduction by 2014 (South Australia has met the 2014 target of 25%, achieving nearly 27%).

The successful implementation of the Strategy will also contribute to the following targets in South Australia's Strategic Plan:

- Our Prosperity – T35 Economic growth; T38 Business investment; T39 Competitive business environment; T47 Jobs and T56 Strategic infrastructure.
- Our Environment – T59 Greenhouse gas emissions reduction; T62 Energy efficiency – Government buildings; T64 Renewable energy; T70 Sustainable land use and T75 Sustainable water use.
- Our Ideas – T95 Industry collaboration, research and development commercialisation; T96 Public research expenditure; T98 Business research expenditure.

Vision

Achieving a resource efficient economy

In articulating a vision for the Strategy the range of terminology such as natural capital, resource efficiency, product stewardship, secondary materials, circular economy, re-manufacturing and even zero waste can be confronting.

The simple fact is that, as individuals and as a society, we process resources to make products that are made up of various materials, and these products are often discarded at the end of the product's life. We need to shift the focus from linear disposal pathways for products (and therefore the materials within these) to keep these resources circulating within the economy if this provides benefits such as energy and/or water savings, reduced greenhouse gas emissions, intergenerational equity and so on.

However, recycling and re-manufacturing of secondary materials only reduces the demand for new resource inputs; material losses still occur through these processes. If we do not find ways to reduce the demand for natural resources then they will continue to be used up.

A resource efficient economy is a vision whereby the needs of society are provided with fewer inputs through a range of supporting strategies, measures and processes.

17 *Guidelines for national waste management strategies: moving from challenges to opportunities*, United Nations Environment Programme, 2013.

Mission

To achieve a resource efficient South Australia, by minimising South Australia's demand on primary resources, and maximising the reuse, recycling and recovery of materials, using the framework of the waste management hierarchy and the principles of ecologically sustainable development

Framework and principles

The Zero Waste SA Act sets out the framework and principles that guide us in developing the Strategy.

The framework is the waste management hierarchy. The principles are:

- ecologically sustainable development
- best practice methods and standards
- open dialogue with local government, industry and the community.

Waste management hierarchy

The waste management hierarchy is recognised internationally as an aspirational framework for sustainability.

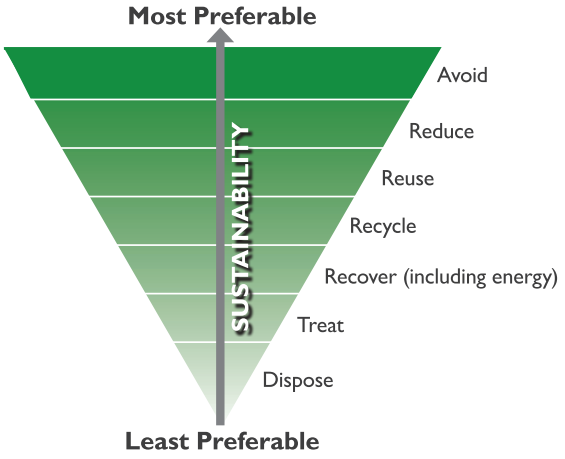


Figure 3 Waste Management Hierarchy

The framework stresses the need to:

- operate at the highest possible level of the hierarchy, considering social, environmental and economic practicalities
- make decisions using sound knowledge and information
- conserve materials and energy by acting to avoid waste and reduce wasteful consumption
- preserve the value of materials used, through source separation and reduced contamination.

The Strategy positions South Australia at the higher levels of the waste hierarchy, and emphasises sustainability and greater community engagement.

Ecologically sustainable development

Ecologically sustainable development means to:

- use, develop and protect the environment in ways that allow people and communities to provide for their health, safety, and economic, social and physical wellbeing
- sustain the potential of natural and physical resources to meet the needs of future generations
- safeguard the life-supporting capacity of air, water, land and ecosystem
- avoid, remedy or mitigate adverse effects of activities on the environment
- give proper weight to long-term and short-term economic, environmental, social and equity considerations in deciding matters that relate to environmental protection, restoration and enhancement.

Best practice methods, standards and innovation in managing waste and materials

As old waste infrastructure is renewed, we should apply best practice to:

- technical and regulatory innovation
- organisational structures and skills that reflect market and community expectations
- implementing management practices, data collection and systems that optimise environmentally sustainable design and the waste management hierarchy.

Open dialogue with local government, industry and the community

Our work with local government, industry and the community promotes trust in us to help them improve their waste management and continue to make positive changes.

Objectives

South Australia's Waste Strategy 2015–2020 has three objectives:

- a resource efficient economy where the best or full value is secured from products and materials produced consumed and recovered across the state
- a stable and efficient market for investors, essentially a clearly articulated policy framework that gives a solid platform for investment decisions

- a culture enabling the SA community, businesses and institutions to continue and strengthen their role in implementing zero waste strategies and programs locally, nationally and internationally.

Strategy targets

Setting a target with a number and a time helps drive waste management policy and allows people to visualise and measure progress toward achieving the objectives. The *Review of South Australia's Waste Strategy 2011–2015* examined whether the strategic targets established in that strategy were appropriate and realistic in order to guide development of targets for *South Australia's Waste Strategy 2015–2020*.

The 2011–2015 Waste Strategy identifies priorities, actions and objectives by different waste streams. In addition to specific quantitative targets for municipal solid waste (MSW), commercial and industrial (C&I) and construction and demolition (C&D) waste streams, it includes qualitative measures and targets for problematic and hazardous waste, measures to combat disposal and illegal dumping, and priorities for research and development.

The Review's conclusions regarding targets is summarised below:

Landfill reduction target

South Australia should be able to achieve the target of 35% reduction by 2020 once recent fluctuations in contaminated soil are taken into account (see Figure 4).

Per capita waste reduction target

If the current downward trend in per capita waste generation continues, South Australia should be on track to achieve the 2015 target.

Metropolitan area targets

Municipal Solid Waste (MSW): the diversion rate of 59% fell just short of the 2012 target.

Commercial and Industrial waste (C&I): the 2012 target was achieved with a diversion rate of 75%.

Construction and Demolition waste (C&D): the diversion rate (80%) was below the 2012 target.

For the metropolitan diversion targets, the Review undertook additional analysis to establish trends to 2015. The Review analysis suggests that:

- MSW diversion in the metropolitan area is trending in line with the strategy targets, but it is difficult to predict if it will continue to match the higher rate of increased performance expected by the 2015 target.

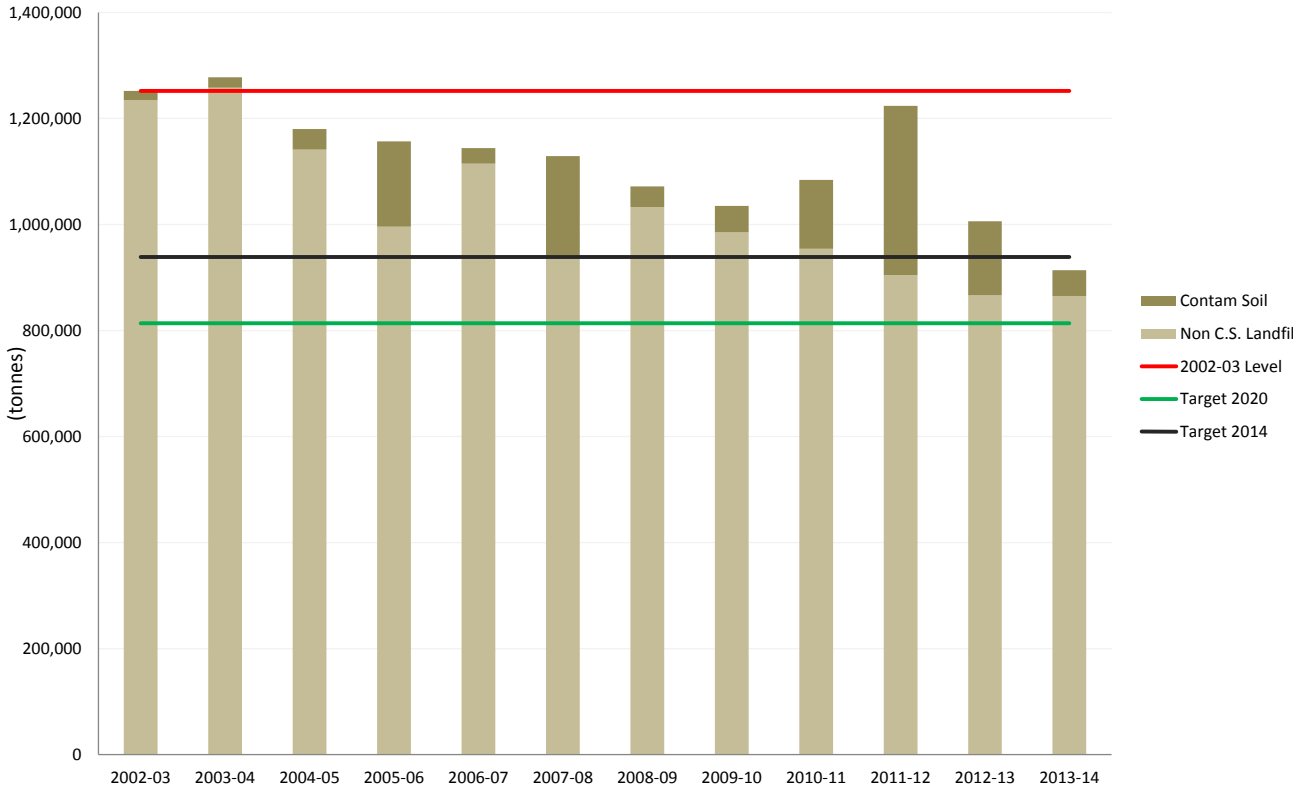


Figure 4 South Australia's solid waste to landfill trend (as at 31 August 2014) versus State Waste Strategy target for landfill reduction

- C&I diversion is already well above the 2015 metropolitan target.
- C&D diversion is fluctuating around the metropolitan target trajectory, but like MSW it is difficult to say that it will be able to continue to increase to achieve the 2015 target of 90%.

The Review suggested that all of the metropolitan diversion targets for 2012 have proven realistic, but the 2015 targets for MSW and C&D could be 'stretch' targets if on-going improvements are not sustained. Based on council MSW audit data it would appear that if most recyclables remaining in the waste stream and food organics were collected, 70% is achievable but will need continued consistent effort on education and food waste systems roll out.

The Review concluded that the targets in the 2011–2015 Waste Strategy are set at realistic but challenging levels, appropriate for the current strategy. The source sector diversion targets are comparable to those in other Australian jurisdictions, but are not state-wide. It is wise not to have set materials-specific targets within municipal solid waste category, as these are notoriously difficult to track.

The Review recommended the following for consideration:

1. Setting separate recycling and recovery targets within the overall landfill diversion target; however definitions would need to be clear.
2. In the future consider quantitative targets for regional areas.
3. It is important to continue to track progress towards meeting the 2015 per capita 5% waste reduction target.

In responding to these recommendations Zero Waste SA has adopted the following position for *South Australia's Waste Strategy 2015–2020*:

1. Setting separate targets for recycling is not considered reliable as seasonal factors, economic development activity, geographic location and other factors influence recycling volumes. The absence of mandatory reporting requirements for recyclables and the difficulty in tracking material recycling and recovery flows are also problematic. More transparent reporting of data would assist in defining realistic targets for material types.
2. The 2011–2015 Waste Strategy set defined intentions rather than numerical targets for non-metropolitan areas largely because of views raised by local government during the consultation period for that strategy. Particular challenges in non-metropolitan areas that support these views include location, distance (higher transport costs), population base, community expectations, the quantities that can be collected for recycling and local relationships.

   This new Strategy has retained the view that numerical targets are not practical for most non-metropolitan areas. The consultation draft strategy did seek views regarding whether targets may be appropriate for major regional centres. As no opinion was received on the merit or otherwise of this approach it has not been pursued in this new Strategy.
3. The *2012–13 Recycling Activity Survey* (Rawtec, 2013) reported that South Australia is on track to achieve the 2015 target for reduction in per capita waste generation, providing waste generation per capita does not increase dramatically before 2015.

   Reducing overall waste generation continues to be a challenge and the *South Australia's Waste Strategy 2015–2020* has retained the view that on-going efforts to reduce per capita waste generation rates are required. Reducing waste generation by one per cent per year over the five year life of this Strategy is retained.

Zero Waste SA's view is that councils providing fortnightly collection of green organics and food organics to all residents (as well as recycling and residual waste collection) can achieve up to 60% diversion rate. However, this does not include MSW quantities arising from hard waste services, street sweepings, waste collected at drop-off facilities, and council operated commercial services where opportunities for further diversion of materials also arise. In the *Recycling Activity Survey 2012–13* report[18], MSW sources made up the majority (38%) of waste disposed to landfill. C&D and C&I sources constituted 36% and 26% of landfill volumes respectively.

Targets for MSW, C&I and C&D waste streams are based on detailed analysis undertaken for the *Review of South Australia's Waste Strategy 2011–2015*, annual recycling activity surveys and from Zero Waste SA's own internal analysis, which

18 Rawtec. op. cit.

strongly suggests that the current targets are still applicable with minor adjustments suggested. However, the MSW target for the Strategy now comprises a 60% kerbside bin diversion target and other MSW waste for a combined overall 70% diversion target for MSW in the metropolitan area.

In the future, the range of materials suited to the recycling bin is likely to increase as resource recovery infrastructure and technologies improve. Improvements in the collection, handling and processing of material arising from household hard waste collections will also lead to greater recovery rates.

Figure 5 summarises the goals and targets of the State's Strategic Plan and of *South Australia's Waste Strategy 2015–2020*. The targets are not binding and are a guide only.

Assessment of the progress and success of this Strategy requires that progress towards the objectives and targets is measured and assessed. It is expected that the performance of the Strategy will be reviewed during its five year term and that the review will inform future strategies and waste management policies.

***South Australia's Strategic Plan 2011* (Department of the Premier and Cabinet)**

> 35% reduction in landfill disposal from 2002-03 level by 2020[19]
milestone of 30% by 2017–18

Per capita waste generation target

> 5% reduction in waste generation per capita by 2020 (from 2015 baseline)

Landfill diversion targets

Year	Metropolitan (% diversion)	Non-metropolitan
Municipal solid waste (MSW) landfill diversion targets		
2009 (baseline)	55	Not applicable
2012	60	Maximise diversion to the extent practically and economically achievable.
2015	70	Maximise diversion to the extent practically and economically achievable.
2020	70*	Maximise diversion to the extent practically and economically achievable.
Commercial and industrial (C&I) landfill diversion targets		
2009 (baseline)	60	Not applicable
2012	65	Maximise diversion to the extent practically and economically achievable.
2015	75	Maximise diversion to the extent practically and economically achievable.
2020	80	Maximise diversion to the extent practically and economically achievable.
Construction and demolition (C&D) landfill diversion targets		
2009 (baseline)	80	Not applicable
2012	85	Maximise diversion to the extent practically and economically achievable.
2015	90	Maximise diversion to the extent practically and economically achievable.
2020	90	Maximise diversion to the extent practically and economically achievable.

*MSW target comprises 60% diversion from high performing bin systems contributing to an overall MSW target of 70%.

Figure 5 Summary of goals and targets for diversion from landfill and reduction in waste generation.

19 On-track. Refer Figure 4.

Energy from waste

South Australia has achieved significant landfill diversion outcomes through waste prevention, reuse and recycling during the past decade and will continue to enhance these efforts under the guidance of this Strategy. Through these efforts we have seen a generally consistent downward trend of residual waste to landfill, but residual waste inevitably exists, in particular mixed residual waste. In 2013–14, about 910,000 tonnes of residual wastes were sent to landfill in South Australia and more than three quarters of these residual wastes came from the metropolitan Adelaide area.

Since the first waste strategy it has been recognised that we need to support new technologies and processes to manage residual waste streams effectively.

While being considered 'recovery' on the waste hierarchy, efficient recovery of energy from residual waste[20] has a valuable role to play both in diverting waste from landfill and in resource (energy) recovery. Energy from waste has the potential to deliver renewable or low carbon energy in a cost effective way. Because it is a constant (not intermittent) energy source, this supports energy security. Energy recovery can also support smaller decentralised energy generation.

In 2013 Zero Waste SA commissioned a Background Paper[21] to examine new developments in energy from waste technologies globally, the associated investment profile and relevant policy developments. The study reported that in terms of landfill gas technology, Australia can be considered a world leader.

Use of fuels derived from agricultural and food processing wastes is also common in some states. However, there are very few examples of successful generation in Australia from residual solid waste from MSW and C&I waste streams compared to Europe, the US and Japan.

In South Australia, the first and second waste strategies encouraged landfill gas capture for energy production. Landfill gas flaring or capture for electricity generation now becomes an industry norm in the State. New business ventures and investment in energy from waste were also stimulated.

- The SITA-Resource Co facility at Wingfield is Australia's first Refuse Derived Fuel (RDF) manufacturing plant which developed a RDF from commercial and industrial waste streams. It is being used as partial replacement of fossil fuels in the Adelaide Brighton cement kilns and the company is exploring RDF export interstate and overseas[22].
- SA Water is also exploring expanded use of anaerobic digestion technology at its Bolivar wastewater treatment facility.

The Review recognised energy from waste technology as a technology that could dramatically transform the process, systems and economics of waste management and resource recovery in South Australia, in particular anaerobic digestion and energy from residual waste.

Waste infrastructure has a long lifetime. Energy from waste projects require significant capital investment and operating costs but with tight profit margins. Economy of scale (large amount of feedstock) is generally needed for financial viability. Changes in the composition and volumes of residual waste in the future must be considered in the development and selection of technologies now. Innovation, technology mix and flexibility must be encouraged and optimised to ensure the right long term capacity. The economic and environmental impacts of technologies must also be weighed in the balance.

For example, most of the energy from waste is traditionally produced in the form of electricity. Modern plants are also looking to use steam and heat as alternative or additional energy output to achieve higher overall efficiency (combined heat and power). They also look to value-adding by-products such as more advanced anaerobic digestion technology that can enhance energy production and produce higher value fertiliser from digestate.

20 'Residual waste' has a broad meaning here - remaining waste that cannot be economically or practically recycled/recovered for reasons such as contamination, no market for the material or uneconomic to take to market, that is "waste at this point of time would otherwise go to landfill".

21 Ricardo-AEA was engaged to undertake the study. Following the study, Zero Waste SA has also developed an *Interim Consultation Position Paper on Waste to Energy*. Both papers have provided a knowledge/information basis for stakeholder consultation and debate on the issue.

22 South Australian EPA has published a *Standard for the production and use of refuse-derived fuel* (2010).

South Australia has a relatively small population and economic base. Increasing source segregation and recycling will most likely continue to reduce the residual waste available for energy recovery. Therefore South Australia is unlikely to achieve the scale of energy from waste production seen in Europe, the US and Japan.

Anaerobic digestion is an opportunity as a cost effective means of dealing with some organic wastes. Anaerobic technology is flexible and plants can be designed to meet local requirements for feedstock and outputs. It can be built on many different scales, from large sewage sludge and/or MSW treatment to small on-farm facilities. It can produce renewable energy and valuable soil conditioner or bio-fertilisers, supporting sustainable farming.

In line with the waste hierarchy, the South Australian Government supports efficient energy recovery from residual waste and niche waste streams through best available technologies that suit local conditions, can deliver environmental benefits and provide economic opportunities. The South Australian Government believes that energy from waste should support and not disregard any viable options for higher order beneficial uses and have regard to impacts to businesses and supply chains that compete for the same feedstock materials.

There is a potential for the sector to grow further in the State. The Review identified that the development of energy from waste facilities to extract the full value from the remaining residual waste stream and grow the resource recovery sector is a critical future need. This would bring significant infrastructure investment and employment to the State.

To realise the potential of energy from waste in the State several priorities for action are proposed in this Strategy.

The Review identified that the **development of energy from waste facilities** to extract the **full value** from the remaining residual waste stream and grow the resource recovery sector **is a critical future need**.

STRATEGIC OBJECTIVES AND ACTION

A resource efficient economy where the best, or full value is secured from products and materials produced and consumed across the state	A stable and efficient market for investors, a clearly articulated policy framework that gives a solid platform for investment decisions	A culture enabling the South Australian community, businesses and institutions to continue and strengthen their role in implementing resource efficiency strategies and programs locally, nationally and internationally
LONG-TERM STRATEGIC OBJECTIVES		
• Promote green innovation (such as the development and uptake of new, cleaner technology). • Recognise the lifecycle of products and account for the resources used. • Develop and adopt innovative products and services that help reduce our ecological footprint to create comparative economic advantage. • Increase and maintain capacity of recycling systems and reprocessing infrastructure. • Identify new opportunities through developing and promoting innovative policy, reforms and solutions. • Avoid and reduce wasteful use of resources in production processes and products, such as leaner production, design for the environment and extended producer responsibility. • Encourage the greater use of products made from recycled materials. • Support efficient energy recovery from residual waste and niche waste streams through best available technologies which are suitable to local conditions and can deliver environmental benefits and provide economic opportunities.	• Increase and maintain capacity of recycling systems and reprocessing infrastructure. • Implement policy settings and regulation that drives progress, and encourages long term investment decisions. • Promote safe and equitable resource recovery and build upon the strong resource recovery reputation of South Australia. • Monitor and evaluate the effectiveness of appropriate price signals and legislative instruments. • Increase procurement by all levels of government of re-manufactured products.	• Develop and adopt innovative products and services that help reduce our ecological footprint to create comparative economic advantage. • Learn the importance of, and foster, attitudes and lifestyle choices that encourage us to live within nature's limits. • Embed this new learning within our education systems. • Support consumers to make informed purchasing choices. • Implement regulation and other reforms that drives progress and long term investment decisions. • Identify new opportunities through developing and promoting innovative solutions. • Generate new business opportunities through improving cross-industry resource efficiency (industrial symbiosis). • Support appropriate research and development.

PRIORITIES FOR ACTION

Measurement, analysis, evaluation and reporting to support targets and assess the adequacy of the Strategy

Building our knowledge and data on waste and recycling

- Continue to develop and refine Zero Waste SA's environmental data and knowledge management and reporting system (ZEUS).
- Measure recycling activity.
- Encourage councils to measure and record illegal dumping using ZEUS.
- Record waste (tonnes) to landfill by waste stream (MSW, C&I, C&D).
- Require greater transparency in reporting of materials and mass flows from industry to enable new targets with respect to specific materials.
- Collect and analyse litter data.
- Capture and report industry and business experiences for use by others.
- Work with others to allow businesses and organisations to be recognised for their effort.
- Implement key performance measures for medium/high density and mixed use developments.
- Monitor community attitudes and behaviours.
- Monitor infrastructure and identify gaps.
- Record learnings and feedback.
- Inform policy and design of projects with feedback.
- Monitor industry investment, change in perceptions and importance of environmental issues.
- Measure outcomes as these relate to greenhouse gas emissions, carbon, water, materials intensity.
- Develop models that give feedback on individual and system performance.
- Evaluate programs and initiatives.
- Investigate opportunities to continuously improve and reform South Australia's environmental performance in relation to waste management.
- Encourage waste management to be included as part of natural disaster preparedness and planning.

Each waste stream has been analysed to arrive at the following strategies and associated targets.

Municipal solid waste target: 70% diversion by 2020 Adelaide metropolitan only

Maximise diversion to the extent practically and economically achievable (non-metropolitan only)

- Promote high material diversion rates through provision of consistent collection services and frequency of service across metropolitan Adelaide.
- Ensure planning decisions take into account the design of the built environment necessary to enable safe waste management practices that support high performing recycling outcomes.
- Promote and encourage developers, architects, planning authorities, waste consultants and industry and strata and community corporations to adopt the *Better Practice Guide Waste Management in Residential or Mixed Use Developments* - in relation to waste and recycling services in higher density urban living .
- Promote food organics collection and treatment.
- Promote food waste prevention measures.
- Promote reduced contamination of source separated systems.
- Encourage diversification of materials captured and processed for recycling such as soft film plastics, polystyrene food trays and packaging, batteries, e-waste.
- Advocate for national solutions to problematic wastes such as packaging and hazardous wastes and also consider state-based solutions if required.
- Encourage better contracting and monitoring for household collection services, including application of technology such as Radio Frequency Identification (RFID) tags for wheelie bins and website applications which provide data to households.
- Support the continued implementation of the Environment Protection (Waste to Resources) Policy and the development of other reforms and initiatives including in relation to: mass balance reporting and upfront waste levy liability; waste derived fill standard; stockpile management controls, product bans, landfill bans.
- Monitor and review kerbside collection systems to ensure maximum performance.
- Maximise recycling efficiency at all stages (collection, preprocessing - including separation and sorting - and end processing) to reduce material losses.
- Support coordinated and integrated householder recycling education campaigns such as *Recycle Right*®.
- Use innovative approaches to inform households, increase awareness of wasteful consumption and effective recycling, and maintain awareness above 80%.

Commercial and industrial waste target: 80% diversion by 2020 Adelaide metropolitan only

Maximise diversion to the extent practically achievable (non-metropolitan only)

- Encourage improved source separation, collection systems (including weight-based charging and precinct based collection routes) and sorting infrastructure.
- Promote continuous improvement in waste management and recycling service delivery by the private sector to maximise diversion of materials to beneficial uses.
- Reduce barriers to the use, by industry and government, of recycled materials in projects or products.
- Encourage all levels of government to consider adopting procurement practices and policies that have regard to the benefits of using re-manufactured products and coordinating procurement efforts to achieve economies of scale and strengthen recycling markets.
- Identify solutions to achieve diversion of C&I in regional areas.
- Support the continued implementation of the *Environment Protection (Waste to Resources) Policy* and the development of other reforms and initiatives including in relation to: mass balance reporting and upfront waste levy liability; waste derived fill standard; stockpile management controls, product bans, landfill bans.
- Encourage use of recycling systems, resources and tools for workplaces to assist with ongoing awareness.
- Work with economic development agencies to look at growing resource recovery sectors.
- Encourage industry training and awareness.
- Promote procurement of sustainable and re-manufactured materials and products, especially in the government sector.
- Promote industry knowledge and awareness through web based publications and information dissemination.
- Work with other agencies to implement resource efficiency measures.
- Involve greater numbers of businesses, especially SME and retail sectors in work recycling and resource efficiency programs.

Construction and demolition waste target: 90% diversion by 2020 Adelaide metropolitan only

Maximise diversion to the extent practically achievable (non-metropolitan only)

- Encourage the responsible use of secondary materials such as concrete, aggregates, fill materials.
- Promote source separation wherever feasible.
- Support the continued implementation of the *Environment Protection (Waste to Resources) Policy* and the development of other reforms and initiatives including in relation to: mass balance reporting and upfront waste levy liability; waste derived fill standard; stockpile management controls, product bans, landfill bans.
- Promote waste reduction and management practices in tertiary education courses.
- Encourage salvaging and re-use of building materials.
- Ensure planning decisions take account of waste generation and waste reduction.
- Promote procurement of sustainable and re-manufactured materials and products, especially in the government sector.
- Promote better design of the built environment, practices and the adoption of new and more sustainable building materials.

Per capita waste generation target

5% reduction in waste generation per capita by 2020 (from 2015 baseline)

- Promote green purchasing and waste avoidance.
- Engage the community in opportunities involving resources and sustainability such as collaborative consumption and production.
- Encourage re-use of materials or items through refurbishment.

Problematic and hazardous waste target: effective product stewardship schemes in place by 2020

- Encourage the recovery and treatment of oils, solvents and other valuable materials for re-use.
- Reduce hazards through hazardous waste collection, recycling and appropriate disposal.
- Encourage reuse of waste fill and intermediate level contaminated soils where appropriate as a priority and remediate low level and high level contaminated soils for re-use.
- Promote the adoption of Extended Producer Responsibility, including State-based approaches where considered necessary, and encourage continuous improvement in existing producer responsibility and related schemes for example in relation to televisions and computers (e-waste), packaging.
- Reduce hazards through hazardous waste collection, recycling and appropriate disposal.
- Encourage use of less toxic alternatives in industry and in households, reducing hazards, injuries and health impacts.
- Provide convenient drop-off facilities for unwanted household and farm hazardous materials.

Disposal and illegal dumping target: decreased incidences and tonnages (based on council data reported using ZEUS - Zero Waste Environmental User System)

Landfill, enforcement, use of levies and financial instruments

- Review levies and other financial instruments, penalties and on the spot fines to reflect real costs.
- Support the continued implementation of the *Environment Protection (Waste to Resources) Policy* and the development of other reforms and initiatives including in relation to: mass balance reporting and upfront waste levy liability; waste derived fill standard; stockpile management controls, product bans, landfill bans.
- Support, encourage and, where possible, demand landfill gas recovery for energy production where this is consistent with EPA requirements.
- Implement litter reduction and public place recycling.
- Do not develop new landfills to service metropolitan Adelaide.
- Apply financial instruments to drive change.
- Provide education, enforcement action and disincentives for dumping.
- Encourage councils to report on illegal dumping in a consistent format, including in relation to the attribution of clean up costs to facilitate comparative analysis and inform practices and policy responses.
- Ban from landfill materials that could be disposed of through strongly performing markets – having regard to metropolitan and non-metropolitan context.
- Identify and maximise opportunities to increase awareness, link environmental values with reduced litter, illegal dumping and associated impacts.

Industry development

Work with the waste management sector, businesses and other to realise the full potential of the green economy and help to keep South Australia at the forefront of green innovation.

- Encourage and promote the development of sustainable local, national and international markets for re-manufactured and recycled products.
- Help businesses to find new overseas markets for their waste management knowledge and skills.
- Identify support opportunities for business such as commonwealth and state-based initiatives and grants that can assist businesses in relation to waste and resource efficiency.
- Help businesses to reduce their costs through more efficient use of raw materials, water, energy and reduced trade waste disposal.
- Promote innovation in business sustainability and encourage industry to industry linkages, collaborative consumption (for example shared access/monetisation of underused assets) and supply chain initiatives to enhance the potential for local benefits, including job creation.
- Identify business leaders who can assist with industry education and enable change across sectors and through supply chains.
- Recognise the role and responsibility of business and industry in the development and implementation of product stewardship schemes.
- Attract and encourage business to develop and grow new, high value-added, re-manufacturing enterprises.
- Investigate the potential for the design of web-based platforms and/or mobile applications that facilitate industrial symbiosis and industry supply chain linkages.

Research and development

As we extend our knowledge and focus on sustainable use of resources, we begin to extend beyond known approaches to recycling and re-use. Research will underpin and inform how we address these new challenges of wasteful consumption, and change behaviours. Research priorities will be evaluated from time to time.

- Encourage industry to analyse the flow of materials and other resources in a product's lifecycle from raw material extraction and manufacturing, through a product's useful life and recycling, to final disposal.
- Identify where in lifecycle, changes can make large positive impacts on energy, waste, materials use and greenhouse gas production.
- Attract other funding partners, such as the Australian Research Council and industry for research projects.
- Recognise and utilise government research and innovation capabilities and the potential for this to contribute to and partner with industry research efforts.
- Consistent with the guidance provided by the waste hierarchy, support new technologies that either enhance performance or replace landfill as a disposal option.
- Support research into durable goods and products that encourage re-use.
- Understand how sustainable behaviour change is achieved and apply findings to waste avoidance, reduction, littering, illegal dumping, consumption and so on.
- Find the information we need to make better decisions about what we buy and use.
- Encourage the development of graduate and post-graduate capacity and the development of recognised and accredited training.

Energy from waste

Realising the potential of energy from waste

- Consistent with the waste hierarchy, continue to monitor resource recovery enterprises that source waste materials for energy recovery to ensure optimal outcomes within the Green Economy.
- EPA to enhance clarity of relevant regulatory framework to support investment decisions being made on energy from waste developments and to avoid unintended or unnecessary regulatory impediments, for example:
  - » enhance clarity regarding any waste levy application
  - » develop relevant technical specifications and assessment criteria for energy from waste proposals (particularly anaerobic digestion and thermal treatment)
  - » help support the dissemination of sound information for stakeholders on the environmental and health implications of relevant modern energy from waste technologies to support evidence-based evaluation of proposal risks and benefits.
- Energy sector to provide clarity of planning and grid connection requirements and processes for energy from waste development.
- Support and encourage anaerobic digestion and other energy from waste technology demonstration programs at precinct/clusters level based on feasibility assessments.
- Support and encourage energy from waste from niche waste streams pertaining to local conditions, for example in the South-East region opportunities exist for timber waste to be used as a feedstock or in the event of intensive agriculture manures can be used.
- Support long term waste infrastructure planning and develop innovative funding mechanisms to help stimulate investment in waste infrastructure, including energy from waste.
- Facilitate and stimulate market development and acceptance of outputs from energy from waste through support of:
  - » product testing
  - » development of product standards
  - » effective and accurate measurement of renewable content of mixed wastes and waste derived energy
  - » government procurement.

help support the **dissemination of sound information** for stakeholders on the **environmental and health implications** of relevant modern energy from waste technologies to **support evidence-based evaluation** of proposal risks and benefits

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APPENDIX 1: WHO WE CONSULTED

We value all the contributions to the development of this Waste Strategy and thank everyone for taking part. We released the *Draft South Australia's Waste Strategy 2015-2020* for eight weeks consultation on 11 March 2015.

We called submissions through:

- distribution to 56 stakeholders (email)
- notification advertisement (state based newspaper)
- our website
- various presentations and briefings.

We received 28 submissions and noted those comments that did not directly relate to the Strategy.

State government

- SA Department of Environment, Water and Natural Resources
- Department of Primary Industries and Regions SA
- SA Water
- SA Environment Protection Authority

Local government

- Campbelltown City Council
- Mid Murray Council
- Central Local Government Region of South Australia
- Fleurieu Regional Waste Authority
- Local Government Association of South Australia
- South East Local Government Association
- Adelaide City Council
- City of Marion
- City of Charles Sturt

Waste and resource recovery industry

- Hitachi Zosen Inova Australia Pty Ltd
- Australian Council of Recycling
- Suez Environment
- Jeffries Group
- ResourceCo Pty Ltd
- Veolia Australia and New Zealand
- Tyrecycle
- Waste Management Association of Australia (SA Branch)
- MacMahon Services

Business and industry

- Business SA
- Vinyl Council of Australia

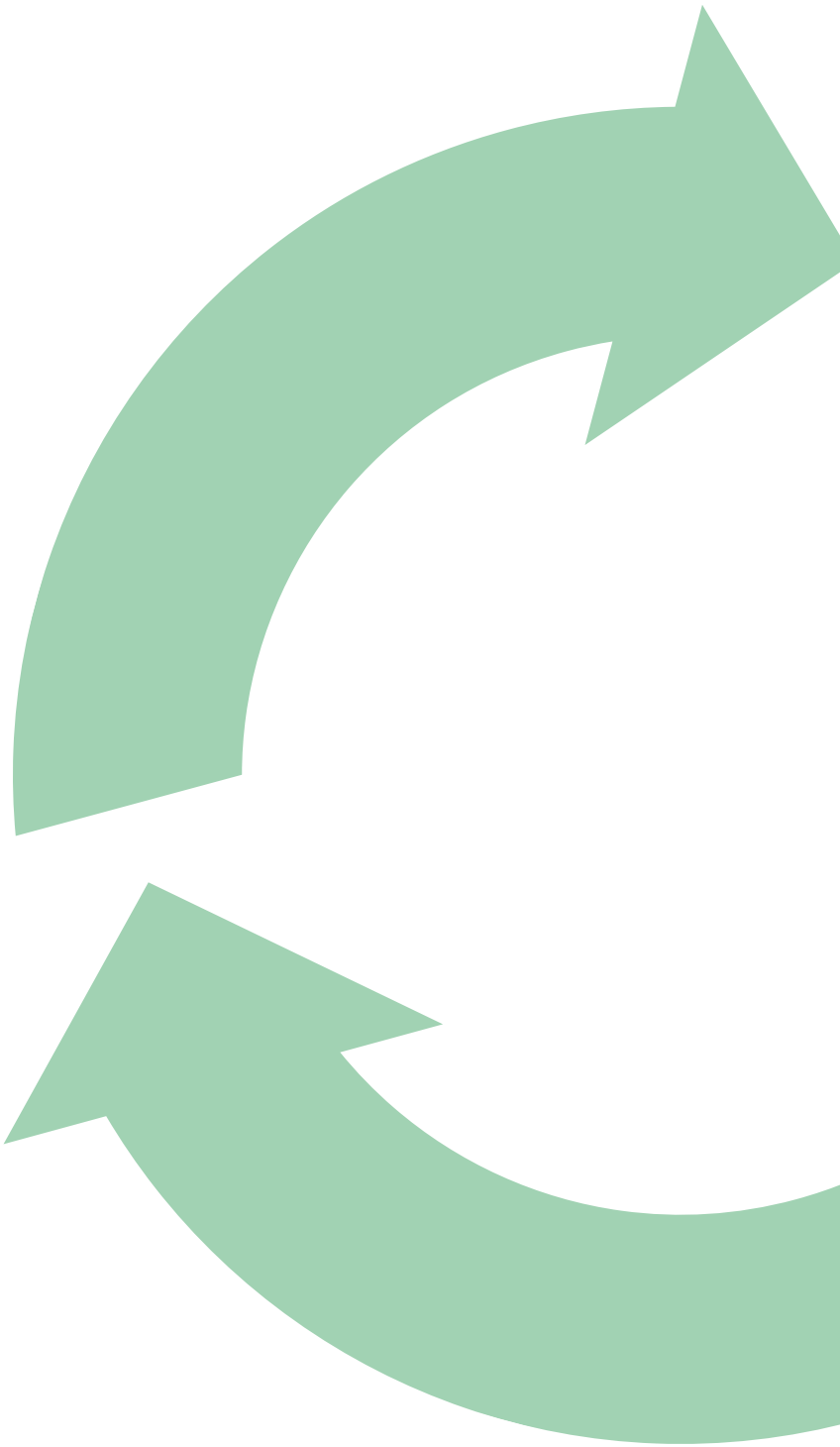
Non-government organisations

- Hugh Rigney, Macquarie University
- Food South Australia
- KESAB *environmental solutions*
- The University of Adelaide

APPENDIX 2: POLICY GOALS FOR GREEN INDUSTRIES SA

The Government's policy goals relating to Green Industries SA are:

- to work with businesses, governments and the environmental sector to realise the full potential of the 'Green Economy' and help to keep South Australia at the forefront of green innovation
- to build on the success of Zero Waste SA, as it has delivered on reduced waste to landfill and increased the State's capacity for recycling
- to recognise that waste management is a key environmental issue, and presents an opportunity to contribute to the State's economic growth
- that the organisation will:
    - » help businesses to find new overseas markets for their waste management knowledge and skills
    - » help businesses to reduce their costs through more efficient use of raw materials, water, and energy
    - » administer grants to local government and industry to explore new technologies
    - » be required to report against targets to ensure South Australia continues to reduce waste to landfill and achieve water and energy efficiencies
    - » be established as a statutory corporation governed by its own legislation, with a board with representatives from State and local government, industry, and the environmental sector. It will be operational from 1 July 2015, coinciding with the winding up of Zero Waste SA.



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