Climate
Change Office

Emissions Reduction and Resilience Plan - Waste

Consultation draft

In recognition of the deep history and culture of these islands, we acknowledge all Tasmanian Aboriginal people as the continuing Custodians of this Land and Sea Country and pay our respect to elders past, present and emerging.

Author: Climate Change Office | Renewables, Climate and Future Industries Tasmania

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We want to hear from you

Consultation questions

1. How can we build on the work already underway to reduce emissions and build resilience in the waste sector?
2. What future opportunities do you think will have the most impact?
3. Are there any priorities or future opportunities missing from this draft Plan?
4. Are there other ways we can collaborate to reduce emissions and build resilience in the waste sector?

Your feedback will inform the development of the final Plan for the waste sector.

Key dates

Draft Plan released:	14 November 2023
Written submissions close:	19 December 2023

How to have your say

You can make a submission by writing to us, answering the above consultation questions. You may submit your response online, or by email or post.

For more information about this work, or making a submission, please contact the Climate Change Office.

Online:	www.recfit.tas.gov.au/consultation_and_community
Email:	climatechange@recfit.tas.gov.au
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Phone:	03 6166 4466

If you are making a written submission, please include the name and contact details of the person or organisation making the submission. All submissions are welcome and valued.

We encourage you to read this draft Plan before you make a submission. The questions above will assist you to provide relevant feedback, which will help us develop the final version of the Plan.

Publication

Submissions will be published on the Renewables, Climate and Future Industries Tasmania (ReCFIT) website (www.recfit.tas.gov.au). Your name or the name of the organisation making the submission will be made public. Please tell us if you want to keep your submission private. Defamatory or offensive material will not be published.

Draft Plan on a Page

Priority area	Future opportunities
1. Reducing the amount of organic waste sent to landfill	• Explore opportunities, for example grant programs, to support councils to increase FOGO collection and processing capacity, and other organic waste solutions. • Work with the Waste and Resource Recovery Board to identify and support investment in priority infrastructure. • Support a statewide community awareness program to reduce food waste and divert organic waste from landfill. • Support program to raise awareness in business and industry of ways to reduce waste and divert it from landfill. • Support businesses and communities to undertake projects to reduce their organic waste generation and divert waste from landfill. • Explore opportunities to increase awareness of waste management in Tasmanian children and young people. • Consider organic waste reduction in the development of the Emissions Reduction and Resilience Plan for Tasmanian Government Operations and whole-of-government framework to embed climate change in decision making.
2. Increasing the recycling and recovery of organic waste	• Work with the Waste and Resource Recovery Board to improve our understanding of organic waste streams across Tasmania to support the identification and development of recycling pathways. • Explore options to support landfill and water treatment plant operators to increase the recovery of energy from organic waste across Tasmania. • Explore options to support markets for recycled organic products, for example funding to support organisations to develop, use, sell or promote innovative organic waste products.
3. Building the resilience of our waste sector into the future	• Explore opportunities to increase the resilience of Tasmania's solid waste and wastewater management facilities, for example by integrating the findings of the statewide climate change risk assessment and the updated fine-scale climate projections into future planning and delivery of infrastructure. • Explore options, such as collaboration with the Waste and Resource Recovery Board and Australian Government, to support programs to ensure designers, manufacturers, sellers and owners/users of low emissions technologies take responsibility throughout the lifecycle of the products. • Explore options to support business and industry to establish long-term organic recovery pathways to provide confidence for industry to continue to invest in organic recycling.
4. Supporting collaboration to reduce emissions and build resilience in the waste sector	• Explore options to provide funding to support collaboration between industry, universities and government in research, development and extension, and stimulate new markets for recyclable and recycled materials. • Support Tasmanian business, industries and research organisations to develop new technologies and collaborate on innovative waste solutions, for example through an annual conference. • Consider options to support local government to undertake strategic planning for the waste sector. • Work with the Waste and Resource Recovery Board to improve data about organic waste and associated emissions in Tasmania. • Work with the Waste and Resource Recovery Board to support award programs that encourage environmentally sustainable product and materials management. • Work with the Waste and Resource Recovery Board to develop an ongoing program to work with key sectors to reduce food waste.

Introduction

Tasmania's *Climate Change (State Action) Act 2008* (the Act) sets out how the government must take action on climate change. Under the Act, Tasmania's emissions reduction target is to achieve net zero greenhouse gas emissions, or lower, in Tasmania from 30 June 2030. To help achieve this goal, the Act requires the government to develop five-yearly sector-based Emissions Reduction and Resilience Plans (Plans) in consultation with business and industry. The Plans will support a practical and balanced approach for our key sectors to reduce greenhouse gas emissions and build resilience to climate change.

The Plans must support greenhouse gas emissions reduction, the transition to a low emissions economy, and resilience to climate-related risks. The legislation also requires that the objects of the Act are taken into account during the development of the Plans.

Plans must be developed for the following sectors:

- energy
- transport
- industrial processes and product use
- agriculture
- land use, land use change and forestry
- waste
- any other sector or sub-sector determined by the Minister (the government has committed to develop a Plan for government operations).

Delivery and timeframes

Under the Act, the Plan for the transport sector must be prepared by 30 November 2023, and all other Plans by 30 November 2024. The Minister for Environment and Climate Change is to consult with each relevant portfolio Minister, and with business and industry representatives, to develop the Plans. The Minister is also required to publicly consult on each draft Plan.

The Plans are to be tabled in Parliament and updated at least every five years.

This work is being led by the Climate Change Office in ReCFIT.

Why sector-based emissions reduction and resilience planning?

The latest data[1] show that Tasmania recorded net zero greenhouse gas emissions for the first time in 2013 and has maintained its net zero status in the nine reported years since. Our emissions profile is largely due to the carbon sink in our managed forest estate and our longstanding investment in renewable electricity generation.

However, our emissions profile is not guaranteed into the future. Emissions are influenced by a range of factors such as population growth, major bushfire events, changes in consumer demand, market forces and technological advancements. We know we must do more to maintain our net zero status by reducing emissions in all our sectors, while also increasing the carbon stored in our forests.[2]

The *AR6 Synthesis Report: Climate Change 2023* by the Intergovernmental Panel on Climate Change (IPCC)[3] confirms that humans are causing global warming and makes it clear that we need to act now. Global temperatures are now 1.1˚C above pre-industrial levels and are likely to reach 1.5˚C above pre-industrial levels in the early 2030s. In Tasmania, the impacts of climate change will have environmental, economic and social impacts on our businesses, industries, communities and our natural values. It is important that we adapt effectively to a changing climate and build strong, resilient communities, while continuing to reduce our emissions.

A consistent theme from consultation on the government's action on climate change is that partnership between government and industry is the preferred approach to support emissions reduction and build resilience in Tasmanian businesses and industries.

Purpose of this draft Plan

This draft Plan has been developed to support the public to provide feedback on priority areas and future opportunities for the waste sector. These priorities and opportunities have been identified through targeted consultation with business and industry. The proposed priority areas and future opportunities are outlined in the section "Priority areas for reducing emissions and building the resilience of Tasmania's waste sector".

While there is some funding for the implementation of the Plans through *Tasmania's Climate Change Action Plan 2023-25*, not all opportunities have identified funding. It is intended that the final Plan will be used by government in future Budget and planning processes to consider options for future funding.

[1] Tasmania's latest reported greenhouse gas emissions were released in April 2023 as part of the Australian Government's *National Greenhouse Accounts 2021* and *State and Territory Greenhouse Gas Inventories 2021*. The Australian Government reporting framework is consistent with UNFCCC and Paris Agreement reporting rules. National inventory reporting runs two years behind the current date, and represents the most recent official data in Australia on annual emissions.

[2] Point Advisory and Indufor 2021, *2021 Update of Tasmania's Emissions Pathway Review – technical report* (prepared for the Tasmanian Climate Change Office) https://recfit.tas.gov.au/__data/assets/pdf_file/0009/348948/Tasmanian_Emissions_Pathway_Review_-_Technical_Report.pdf

[3] IPCC 2023, *Climate Change 2023: Synthesis Report - Summary for Policymakers,* https://www.ipcc.ch/report/ar6/syr/

Developing a Plan for the waste sector

MID-2023

Targeted consultation with government, business and industry

We undertook consultation with relevant government, business and industry representatives in August – September 2023, including two workshops and one-on-one meetings.

LATE 2023

Public consultation on the draft plan

The feedback from consultation with government, business and industry has informed the development of this *Emissions Reduction and Resilience Plan – Waste: Consultation Draft* (draft Plan).

EARLY 2024

Development and release of the final plan

We will analyse all submissions received and undertake further targeted consultation as required to develop the final Plan. The final Plan will be published and tabled in Parliament in 2024, as required under the Act.

Key themes from consultation with government, business and industry

In August 2023 we consulted relevant government, business and industry stakeholders. Participants told us what they are doing to reduce emissions and build resilience in the waste sector, the barriers and opportunities for further action, and how the government could support the sector to take action on climate change. Participants voted on the priority areas for action.

Key themes included:

- education and awareness to reduce the generation of organic waste (including at the community, commercial and industrial level)
- reuse, recycling and recovery of organic waste, for example to generate bioenergy
- investing in innovative waste solutions and supporting markets for recycled materials
- investment in infrastructure, for example to increase organic waste processing capacity
- improved coordination of waste management across Tasmania
- data to inform planning and decision making (in relation to both emissions reduction and resilience)
- planning for and building resilience to the physical impacts of climate change, for example the impacts of natural disasters on infrastructure
- resilience in the transition to a low emissions economy, for example strategies to reduce waste at the source and on-island processing of waste streams.

Scope of the Plan for the waste sector

The sectors identified for the development of Plans are based on the sectors identified in the United Nations Framework Convention on Climate Change (UNFCCC) greenhouse gas reporting framework.

Under the UNFCCC reporting framework, emissions from the waste sector include emissions from:

- solid waste disposal (the decomposition of organic waste in landfills)
- incineration and open burning of waste
- biological treatment (composting and anaerobic digestion) of solid waste
- treatment and discharge of wastewater.

Tasmania has no reported emissions from waste incineration, and emissions from the biological treatment of solid waste are minimal. The Plan for the waste sector will focus on how we can reduce emissions from the disposal of organic waste and wastewater treatment in Tasmania.

The Plan will also consider how we can build resilience to the impacts of climate change on our waste management systems, and how the sector can be supported in the transition to net zero. For example, implementing resource recovery pathways for lithium-ion batteries used in electric vehicles and renewable energy infrastructure such as wind turbine blades.

Out of scope activities and emissions

Due to the nature of the waste sector and the UNFCCC reporting framework, there is significant overlap between waste and other sectors. For example:

- emissions from the application of agricultural waste to agricultural land (landspreading), field burning of agricultural residues, and manure management, are accounted for in the agriculture sector
- emissions from the management of forests and conversion of forest to other land uses, including from the burning and decay of cleared vegetation, are accounted for in the land use, land use change and forestry (LULUCF) sector
- the emissions reduction from use of bioenergy made using organic waste are accounted for in the energy sector
- emissions associated with the energy used to collect and treat waste are reported in the energy sector and transport sub-sector.

The waste-related emissions accounted for in other sectors will be managed as part of the relevant Plans. However, there may also be relevant opportunities in the Plan for the waste sector.

The future opportunities identified in the Plans for each sector will be combined and inform the development of Tasmania's next climate change action plan, to be released in 2025. Preparation of the next action plan will include the identification of priorities and gaps not addressed through the development of the sector-based Plans.

Waste and resource recovery

We acknowledge that there are many other important considerations for the way we deal with waste and resource recovery more broadly, and that there is a significant amount of work underway by governments, industry, business and the community to reduce waste generation, improve resource recovery and move to a circular economy. This includes the development of a Waste and Resource Recovery Strategy for Tasmania by the Waste and Resource Recovery Board.

Although not directly accounted for in the waste sector under the UNFCCC reporting framework, these initiatives can impact our emissions along the supply chain. For example, a 2023 report commissioned by the Australian Marine Conservation Society and WWF Australia estimated that plastic consumption accounted for more than 16 megatonnes of greenhouse gas emissions in Australia in 2020.[4] This includes emissions throughout the lifecycle of plastic including its manufacture and transport through to recycling or incineration.

[4] Blue Environment (2023) 'Carbon emissions assessment of Australian plastics consumption – Project report' prepared for the Australian Marine Conservation Society and WWF Australia, https://www.marineconservation.org.au/plasticemissions/

Priority areas

How have the priority areas and future opportunities in this draft Plan been identified?

We prepared a State of Play Report (Report) to guide the consultation with government, business and industry. The Report summarises the waste sector in Tasmania, its emissions, impacts of climate change on the sector, opportunities to reduce emissions and build resilience, and relevant policies and actions at the local, national and international level. The Report has been updated based on industry feedback and is now available on the ReCFIT website at: www.recfit.tas.gov.au/emissions_reduction_and_resilience_plans

In addition to consultation with business and industry and the State of Play Report, the priority areas and future opportunities have been informed by:

- alignment with existing Tasmanian Government policies, including our target to halve the amount of organic waste sent to landfill by 2030
- alignment with the Tasmanian Waste and Resource Recovery Strategy under development by the Waste and Resource Recovery Board
- our legislated target to ensure Tasmania's emissions are net zero, or lower, from 2030
- the other objects of the Act, including adaptation, contribution to international, national and local government action, and supporting a consultative partnership approach to action on climate change
- feedback from consultation on *Tasmania's Climate Change Action Plan 2023-25*[5] (Action Plan)
- the 2021 *Tasmanian Emissions Pathway Review*[6]
- the principles of sustainable development and social equity, transparency and reporting, science-based approach, integrated decision making, risk management, community engagement, and complementarity (as outlined in the Action Plan)
- analysis of additional resources and policies, including the 2022 *Tasmanian Organics Research Report*[7] and initiatives being implemented in other jurisdictions.

The future opportunities under each priority area have been identified to address any gaps in current activity and help to reduce the barriers to action on climate change in the waste sector in Tasmania. The opportunities are intended to complement and build on the work already underway by international, national and local governments, business and industry, and the community.

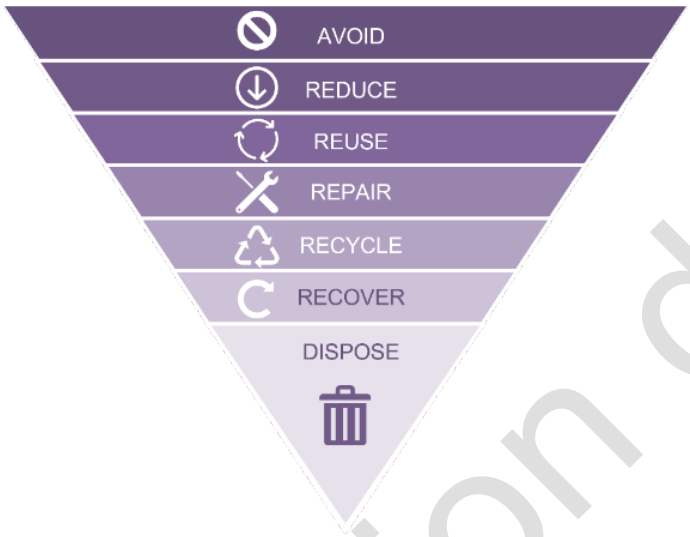
[5] https://recfit.tas.gov.au/climate/climate_change_action_plan

[6] https://recfit.tas.gov.au/__data/assets/pdf_file/0009/348948/Tasmanian_Emissions_Pathway_Review_-_Technical_Report.pdf

[7] https://nre.tas.gov.au/Documents/Tasmanian%20Organics%20Research%20Report%202022.PDF

The waste hierarchy

The waste hierarchy outlines waste management pathways in order of preference, with the aim of maximising the efficient use of resources. The hierarchy is broadly consistent with the most efficient and effective ways to reduce emissions from the sector, with the preferred option being to avoid the generation of waste and the least favourable option being disposal.



Priority areas

Through consultation, research and analysis, we have identified key priorities and future opportunities to reduce emissions and build resilience in Tasmania's waste sector. The key themes highlighted that there is no one-size-fits-all approach to reducing emissions and building resilience in the waste sector. A holistic, flexible approach is required to meet the diverse needs of all Tasmanians and ensure we can make the most of opportunities presented by emerging technologies.

We have grouped the key themes into four priority areas for action:

1. Reducing the amount of organic waste sent to landfill
2. Increasing the recycling and recovery of organic waste
3. Building the resilience of our waste sector into the future
4. Supporting collaboration to reduce emissions and build resilience in the waste sector

The future opportunities in this draft Plan are intended to guide public consultation to help us identify the priority actions to progress under the final Plan.

Consultation questions

To help us develop the final Plan for the waste sector, we want to hear your thoughts about the priorities and future opportunities outlined on the following pages.

1. How can we build on the work already underway to reduce emissions and build resilience in the waste sector?
2. What future opportunities do you think will have the most impact?
3. Are there any priorities or future opportunities missing from this draft Plan?
4. Are there other ways we can collaborate to reduce emissions and build resilience in the waste sector?

1 Reducing the amount of organic waste sent to landfill

In line with the waste hierarchy, the most effective opportunity for reducing the amount of organic waste sent to landfill, and the associated emissions, is to avoid or reduce this waste. Waste that can't be avoided should be diverted from landfill and reused, for example in food banks, or to create products of value such as compost.

Local government plays an important role in diverting waste from landfill through the collection and processing of source-separated organic waste, including through kerbside garden organics collection and increasingly Food Organics and Garden Organics (FOGO) bins. In some local government areas, kerbside FOGO collection is not currently economically feasible due to a range of factors such as dispersed population and lack of processing capacity. However, other options to reduce waste include supporting residents to compost organic waste, use as mulch, or feed to animals such as chickens.

Ensuring we have the services, incentives and infrastructure to effectively divert organic waste into products of value will be key to achieving this priority. This can be supported by helping households, business and industry to understand their organic waste generation and change their behaviour to use organic materials more efficiently and to implement new ways of reducing their organic waste.

The majority of Tasmania's organic waste that ends up in landfill comes from:

- the manufacturing industry, including food, beverage, textiles, wood, pulp and paper, chemical and pharmaceutical processes
- commercial waste from food retail, accommodation, hospitality, schools and childcares, hospitals, prisons and aged care facilities
- municipal solid waste, which includes household kerbside waste collection and the green waste that is taken to waste management facilities by the public.[8]

Tasmania has targets to reduce the volume of organic waste sent to landfill by 25 per cent by 2025, and 50 per cent by 2030.

Benefits of reducing organic waste

Reducing the organic waste that is produced and diverting it from landfill can have many additional benefits for Tasmanian businesses, industries and communities, including:

- improving productivity and profitability of businesses due to improved resource efficiency and lower waste disposal costs
- saving Tasmanian households up to $2,500 a year[9] by helping them to reduce the amount of food wasted at home
- supporting communities and increasing Tasmania's food security through the redistribution of edible food.

[8] Primary industries also generate large amounts of organic waste, however very small amounts of this waste is disposed of in landfill. The emissions from management of this waste are reported in the agriculture and LULUCF sectors and will therefore largely be considered in the development of the Plans for these sectors, as outlined on page 6.

[9] Food and Agribusiness Growth Centre (2021) 'The National Food Waste Strategy Feasibility Study – Final Report' https://www.fial.com.au/sharing-knowledge/food-waste

Current action

Tasmanian Government

Tasmanian Government initiatives include:

- introduction of a statewide landfill levy from 1 July 2022 to encourage the diversion of waste from landfill and increase the recovery of resources from waste. The levy incorporates a staggered introduction over four years, starting at $20 per tonne and rising to $40 and then $60 at two-yearly intervals
- $6 million to improve and increase FOGO reprocessing capacity across Tasmania
- development of teaching manuals on waste, litter, paper, plastic and food waste for primary school students in alignment with the Australian Curriculum
- supporting Business Action Learning Tasmania to deliver the Business Resource Efficiency Program (BREP) to support businesses to reduce emissions and adopt innovative practices.

Waste and Resource Recovery Board

The Waste and Resource Recovery Board was established in 2022. Key roles of the Board include developing a waste and resource recovery strategy for Tasmania, promoting and supporting resource recovery across the state, promoting market and local infrastructure development, and overseeing the use and allocation of landfill levy funds.

The Waste and Resource Recovery Strategy for Tasmania, currently under development, will include a focus on increasing the reuse and recovery of organic waste. This focus could include identifying opportunities to increase the range and capacity of organic collection services, such as FOGO, and the introduction of new processing technologies. The Strategy may also include actions to improve Tasmania's waste data to provide a foundation for identifying and prioritising actions to reduce waste.

Local government

Many local government areas have introduced FOGO collection services or announced an intention to do so. In regions where this is not currently feasible, other options being explored include supporting residents to compost organic waste, use as mulch or feed for animals such as chickens. This could be complemented with commercial FOGO collection and public FOGO bins.

The Tasmanian Government has partnered with Tasmania's regional waste management groups to deliver the Rethink Waste[10] initiative, providing a centralised source of information for communities and businesses on how to reduce waste. For example, the Rethink Waste Schools Program supports schools to manage their waste. Many councils have also developed their own waste reduction resources to meet the needs of their local communities.

Business and industry

Different businesses and industries have a range of targets and initiatives for reducing organic waste. For example, the Tasmanian Hospitality Association's *Tasmanian Hospitality Industry 2030 Plan*[11] has a goal to create sustainable and profitable businesses, with organic waste identified as a priority. Through Stop Food Waste Australia's Australian Food Pact[12], signatories including Coles, Woolworths, Mars Australia, McCain Foods and Simplot Australia have committed to halve food waste by 2030.

10 https://rethinkwaste.com.au/#:~:text=Rethink%20Waste%20aims%20to%20improve,that%20ends%20up%20in%20landfill.

11 https://static1.squarespace.com/static/5906875a4402431ac49f3d88/t/6317de9825bcea49bf58fa20/1662508720889/THA_Hospitality+2030_Prospectus.pdf

12 https://www.stopfoodwaste.com.au/australian-food-pact/

Not-for-profit organisations and the community are also working to reduce organic waste. For example, Eat Well Tasmania's *Too Good to Waste*[13] campaign partners with Tasmanian chefs and producers to help Tasmanians save food and eat well.

There is also work underway at a national level, for example Stop Food Waste Australia has been awarded a grant by the Australian Government to establish a new nationwide consumer behaviour change campaign to reduce the amount of food wasted in Australian homes.

Future opportunities

Future opportunity
Explore opportunities, for example grant programs, to support councils to increase FOGO collection and processing capacity, and other organic waste solutions suited to the needs of their communities.
Work with the Waste and Resource Recovery Board to identify and support investment in priority infrastructure to support the diversion of organic waste from landfill.
Support a statewide community awareness program to reduce food waste and divert organic waste from landfill. For example, this might include: • tools to improve planning for food shopping and meal preparation • encouraging the use of leftovers and the reduction of aesthetics-based food wastage • information on which waste should go in which bin • resources about home-based options to divert food waste, including home composting, worm farms, backyard poultry and food growing.
Support program to raise awareness in business and industry of ways to reduce waste and divert it from landfill, for example through: • improved efficiency of use of organic materials • changes to aesthetic specifications for food that lead to wastage • donation of edible food to food banks • source-separated organic waste.
Support businesses and communities to undertake projects to reduce their organic waste generation and divert waste from landfill. Focus areas could include retail and hospitality, food manufacturing, and community projects such as food banks, home composting, community gardens and sharing of produce.
Explore opportunities to increase awareness of waste management in Tasmanian children and young people, for example by building on the existing teaching manuals for primary school teachers.
Consider organic waste reduction in the development of the Emissions Reduction and Resilience Plan for Tasmanian Government Operations and whole-of-government framework to embed climate change in decision making. For example, this may include education and resources for relevant staff on how to avoid, reuse and recycle organic waste in government agencies, including government schools, hospitals and correction facilities.

[13] https://www.eatwelltas.org.au/too-good-to-waste/

2 Increasing the recycling and recovery of organic waste

Disposal of organic waste in landfill not only results in the generation of methane, but also in the landfilling of valuable resources that could be repurposed as other products, and costs households thousands of dollars each year. Once organic waste has been diverted from landfill, there are many opportunities to recycle organic waste and recover the energy it contains, for example to create bioenergy, biochar, compost, mulch, bioplastics or animal feed.

It is important to not only ensure that there are sufficient services, infrastructure and incentives for Tasmanians to divert waste from landfill, but that there are technologically- and economically-feasible ways for us to use the products created from the reuse, recycling and recovery of waste.

Benefits

Co-benefits of supporting recycling and recovering organic waste include:

- supporting new industries for alternative uses of organic waste
- reducing emissions and energy costs for other sectors such as transport and energy through the use of bioenergy
- reducing air pollution from landfills, benefiting public health and the environment
- improving soil health and increasing agricultural productivity through the use of compost.

Barriers

Issues that have historically created challenges in the repurposing of organic waste include:

- A lack of clear and comprehensive statewide information on product supply chains, recyclable materials and waste flows, limiting the ability to identify priorities and strategic investment opportunities.
- Limited resource recovery infrastructure in the state may limit the capacity to repair and reuse products and recycle materials.
- Tasmania's smaller economies of scale and relative isolation compared to other Australian jurisdictions may limit the commercial viability of some operations to reuse, recycle and recover waste.

Current action

The Tasmanian Government and Waste and Resource Recovery Board also have various actions underway to improve data on waste in Tasmania. This includes a focus on data, reporting and analysis of different product and material streams for each stage of the waste hierarchy, to understand priority waste streams to inform decision making.

The Tasmanian Government has developed a Bioenergy Vision for Tasmania to support investment in bioenergy in Tasmania. The government is also implementing renewable energy alternatives for government-owned fossil fuel boilers, for example in schools, hospitals and correctional facilities, with a focus on bioenergy solutions.

Many landfill sites and TasWater treatment plants have systems in place collect the gas from solid waste and wastewater treatment and create bioenergy.

Future opportunities

Future opportunity
Work with the Waste and Resource Recovery Board to improve our understanding of organic waste streams across Tasmania to support the identification and development of recycling pathways.
Explore options to support landfill and water treatment plant operators to increase the recovery of energy from organic waste across Tasmania.
Explore options to support markets for recycled organic products, for example funding to support councils, businesses, not-for profit organisations and research institutes to develop, use, sell or promote innovative organic waste products.

3 Building the resilience of our waste sector into the future

Impacts of climate change on the waste sector

The projected changes to the Tasmanian climate will increase physical risks for waste management facilities; for example, events such as fires and floods. Some coastal landfill sites and wastewater treatment plants will be impacted by coastal erosion. TasWater is also vulnerable to the impacts of climate change on water resources. These impacts and events can create significant costs for operators and create risks for public health and the environment, for example through the release of leachate (a liquid that forms when waste decomposes, containing toxic chemicals and materials).

Increased frequency and intensity of extreme weather events will also result in damage to infrastructure and property, requiring management by the waste sector.

The opportunities to increase the resilience of waste and wastewater management facilities to the impacts of climate change will depend on the risks for each facility. Most options are extremely costly and include installation of infrastructure to protect sites from fire or flood, removing toxic materials from at-risk sites to prevent them from entering the environment in the case of extreme weather events or coastal erosion, and relocation of at-risk facilities.

The transition to a low emissions economy

In addition to the physical impacts on Tasmania's waste sector, there are risks associated with the transition to a low emissions economy, such as the increased cost of compliance with the changing regulatory landscape. For example, to support sustainable long-term emissions reduction from the sector, it will be necessary to establish long-term organic recovery pathways to ensure new businesses, that can process and sell recycled organic material, are established and thrive.

The shift towards renewable energy will also eventually result in obsolete emissions-intensive technologies that will require disposal. These technologies will require development and expansion of resource recovery pathways for renewable technologies such as solar panels, lithium-ion batteries used in electric vehicles, and wind turbine blades.

The global transition to net zero emissions also presents opportunities for Tasmania's waste sector. This includes the potential to generate income through the sale of carbon credits from projects that reduce emissions, or through the sale of products such as compost and bioenergy, and the reduced energy costs from on-site use of bioenergy.

Current action

The targeted consultation undertaken to date has highlighted that there are gaps in our understanding of the risks to the sector and the capacity and capability to appropriately plan for these risks.

The Tasmanian Government has a number of initiatives underway to improve our understanding of the impacts of climate change on Tasmania. Initiatives include updating the fine-scale climate projections for Tasmania to provide new information for a range of stakeholders, and development of Tasmania's first statewide climate change risk assessment, due to be completed by November 2024.

The draft Waste and Resource Recovery Strategy includes a range of proposed activities for reducing waste and improving the management of products throughout their lifecycle. Activities could include working with government and industry to support the development of national product stewardship schemes, including the principles of extended producer responsibility, that provide tangible benefits for Tasmania.

The Australian Government regulates the accreditation of product stewardship schemes that support the environmentally sound management of products and materials over their life, including at the end of their useful life. Various mandatory and voluntary schemes exist and the Australian Government has announced an intention to develop a scheme for solar panels and household electronics.

Future opportunities

Future opportunity
Explore opportunities to increase the resilience of Tasmania's solid waste and wastewater management facilities, for example by integrating the findings of the statewide climate change risk assessment and the updated fine-scale climate projections into future planning and delivery of infrastructure. This could include the identification of priority areas to implement measures to reduce the negative environmental and social impacts of climate change impacts on facilities.
Explore options, such as collaboration with the Waste and Resource Recovery Board and Australian Government, to support programs to ensure designers, manufacturers, sellers and owners/users of low emissions technologies take responsibility throughout the lifecycle of the products.
Explore options to support business and industry to establish long-term organic recovery pathways to provide confidence for industry to continue to invest in organic recycling.

4 Supporting collaboration to reduce emissions and build resilience in the waste sector

There are many groups and organisations involved in the generation and management of waste in Tasmania. The products that can be produced from organic waste, such as compost, biochar and bioenergy, also present opportunities for collaboration between the generators of waste and other businesses and not-for-profits who can utilise these products.

Greater coordination will help make the most of the opportunities and value in the resources we have historically thrown away.

Current action

Tasmania has three regional waste management groups, which are committed to working closely with the Waste and Resource Recovery Board and supporting strategic resource management and emissions reduction targets in Tasmania.

The Tasmanian Government has partnered with the regional waste management groups to deliver the Rethink Waste initiative, providing a centralised source of information for communities and businesses on how to reduce waste.

At a national level, environment ministers and departments work together to ensure a national consistent approach to waste management and the commitment to transition to a circular economy through the Environment Ministers' Meetings and various officials-level forums. For example, at recent meetings Environment Ministers have agreed that:

- Australia will mandate obligations for packaging design and will set a timeframe to remove contaminants from compostable food packaging to support food waste recycling
- a national roadmap will be developed for staged improvements to the harmonisation of kerbside collections, taking into account circumstances of metropolitan, regional and remote communities for Ministers to consider in 2024.

Future opportunities

Future opportunity
Explore options to provide funding to support collaboration between industry, universities and government in research, development and extension, and stimulate new markets for recyclable and recycled materials.
Support Tasmanian business, industries and research organisations to develop new technologies and collaborate on innovative waste solutions, for example through an annual conference to showcase the work underway and emerging opportunities.
Consider options to support local government to undertake strategic planning for the waste sector as part of the project to build climate change capability in local government under *Tasmania's Climate Change Action Plan 2023-25.*
Work with the Waste and Resource Recovery Board to improve data about organic waste and associated emissions in Tasmania, to support the prioritisation of emissions reduction in strategies and investment.
Work with the Waste and Resource Recovery Board to support award programs that encourage environmentally sustainable product and materials management.

Future opportunity
Work with the Waste and Resource Recovery Board to develop an ongoing program to work with agriculture, food retail, hospitality, the community and other key sectors to reduce food waste.

What happens next?

Implementation

Following the development and publication of the final Plan for the waste sector, we will continue to engage with key partners and the community on the development and implementation of future opportunities as required.

We will keep stakeholders and the community informed through the Climate Change Office website, newsletter and social media.

We encourage you to sign up for our newsletter through our website: www.recfit.tas.gov.au/climate and follow the Climate Change Office on Facebook to stay informed about opportunities to participate in relevant programs.

Reporting

We will prepare an annual climate change activity statement, showing the status of each sectoral Plan and progress on future opportunities identified, and the status of initiatives in the climate change action plan. We will monitor and report on Tasmania's progress to meeting its targets to reduce organic waste sent to landfill by 25 per cent by 2025 and 50 per cent by 2030.

We will also prepare an annual greenhouse gas emissions report detailing Tasmania's emissions for each sector.

These reports will be prepared each year and will be tabled in Parliament, as required under the Act.

As outlined in this draft Plan, we intend to work on improving our data capability to determine the impact of different measures in this Plan, and other relevant strategies, on Tasmania's waste sector emissions.

Review

The Tasmanian Government is committed to a co-ordinated, whole-of-government response to climate change. Together with the Action Plan and the delivery of Tasmania's first statewide climate change risk assessment, the development of the sector-based Plans is a strategic priority for the government that will be delivered in consultation with business, industry and portfolio Ministers.

However, we recognise that there is significant overlap between waste and other sectors, and that there are parts of Tasmania's communities, businesses and industries that may not be comprehensively covered by the sector-based Plans.

Following the development of all Plans and Tasmania's first statewide climate change risk assessment in November 2024, we will analyse the priorities and actions in the Plans, the most up-to-date information about our emissions and future climate, and other resources, to identify gaps and opportunities for the development of Tasmania's next climate change action plan in 2025.

The Plans are to be updated at least every five years.

Glossary

Term	Description
Anaerobic digestion	A process through which bacteria break down organic matter in the absence of oxygen, producing biogas and digestate.
Biofuel	A fuel that is derived from biomass (plant, algae or animal material).
Biogas	Gas created from the anaerobic decomposition of organic matter (plant, algae or animal material). Biogas is principally a mixture of methane and carbon dioxide.
Bioenergy	A form of renewable energy produced using biomass (plant, algae or animal material). Bioenergy can include electricity, heat, gas and transport fuel.
Biological treatment	Biological treatment of solid waste or wastewater uses bacteria and other organisms to break down the waste. This can be done with oxygen (aerobic) or without oxygen (anaerobic).
Biosolids	Biosolids are a by-product of the wastewater treatment processes. They are commonly used in agriculture, for example as fertiliser.
Circular economy	A circular economy aims to maximise the value and use of materials and resources at every stage of the lifecycle of a product or material, for example through sharing, repairing, reusing, and recycling.
Compost	Compost is a product created by the breakdown of organic matter such as food and garden waste. It is rich in nutrients and can be used to improve soil quality.
Composting	Composting is an aerobic process (meaning there is oxygen present) which breaks down organic matter such as food and garden waste. This process principally produces carbon dioxide.
CO_2	Carbon dioxide; a greenhouse gas.
CO_2-e	Carbon dioxide equivalent. This is a standard unit for measuring greenhouse warming potential of gases. Each different greenhouse gas is represented in terms of the amount of CO_2 that would create the same amount of warming.
DCCEEW	Australian Government Department of Climate Change, Energy, Environment and Water
Digestate	Digestate is a by-product of anaerobic digestion. It has many uses including as fertiliser and manufacturing of bio-based products such as bioplastics.
Direct combustion	Burning of fuel(s) for energy, predominantly in manufacturing, mining, residential and commercial sectors.
Diversion from landfill	Diverting waste away from landfill for another purpose, such as reuse or recycling.
Emissions	Greenhouse gas emissions.
FOGO	Food Organics and Garden Organics. This term is usually used in the context of FOGO kerbside collection services.
GWP	Global warming potential. Global warming potentials (GWPs) are values that allow direct comparison of the impact of different greenhouse gases in the atmosphere by

Term	Description
	comparing how much energy one tonne of a gas will absorb compared to one tonne of carbon dioxide.
IPCC	Intergovernmental Panel on Climate Change, an independent body that assesses the scientific, technical and socioeconomic information relevant for the understanding of the risk of human-induced climate change. This includes developing guidelines for national greenhouse gas inventories which are used under the UNFCCC.
Kerbside collection	The collection of waste (usually in a wheelie rubbish bin) from residential properties.
kt	Kilotonnes. A kilotonne is equivalent to 1,000 tonnes or 1 million kilograms.
Landfilling	Disposing of waste in a landfill site (also called a tip).
Landspreading	Spreading organic waste across land, generally to act as a soil conditioner.
Leachate	Leachate is a liquid that forms when waste decomposes. It contains chemicals, organisms and the materials that are toxic to both humans and the environment.
LULUCF	Land Use, Land Use Change and Forestry
Methane	A type of greenhouse gas, which contributes approximately 28 times more atmospheric warming than carbon dioxide.
Mt	Megatonnes. A megatonne is equivalent to 1,000 kilotonnes or 1 million tonnes.
Municipal solid waste	Organic waste collected in all kerbside bins and green waste disposed of by the public at transfer stations.
Nitrous oxide	A type of greenhouse gas, which contributes approximately 265 times more atmospheric warming than carbon dioxide.
NRE Tas	Department of Natural Resources and the Environment Tasmania
Organic waste	Waste that comes from plant or animal sources, including garden waste, food waste, paper and cardboard.
Product stewardship	Product stewardship is an approach to managing the impacts of different products and materials on the environment and human health and safety throughout their lifecycle. Product stewardship schemes place the responsibility for minimising the impact of a product on those who design, manufacture, sell and use it.
ReCFIT	Renewables, Climate and Future Industries Tasmania
Resource recovery	Resource recovery is the process of recovering materials from waste to: • reuse the waste • recycle the waste • recover energy from the waste for use as an alternative to fossil fuel (bioenergy).
STGGI	State and Territory Greenhouse Gas Inventories
t	Tonnes. 1,000 kilograms.
UNFCCC	United Nations Framework Convention on Climate Change

Appendix

Tasmania's waste sector

The waste sector is essential to the Tasmanian community, managing the state's household, commercial and industrial waste and recycling, and the treatment of wastewater.

The sector is undergoing significant change, driven by developments in Australia and overseas and shifts in community expectations around waste management and concerns about the greenhouse gas emissions from waste. While waste management traditionally deals with the disposal stage in the lifecycle of products, there is now a move to a circular economy which aims to maximise the value, and use of materials and resources, at every stage of the lifecycle of a product or material.

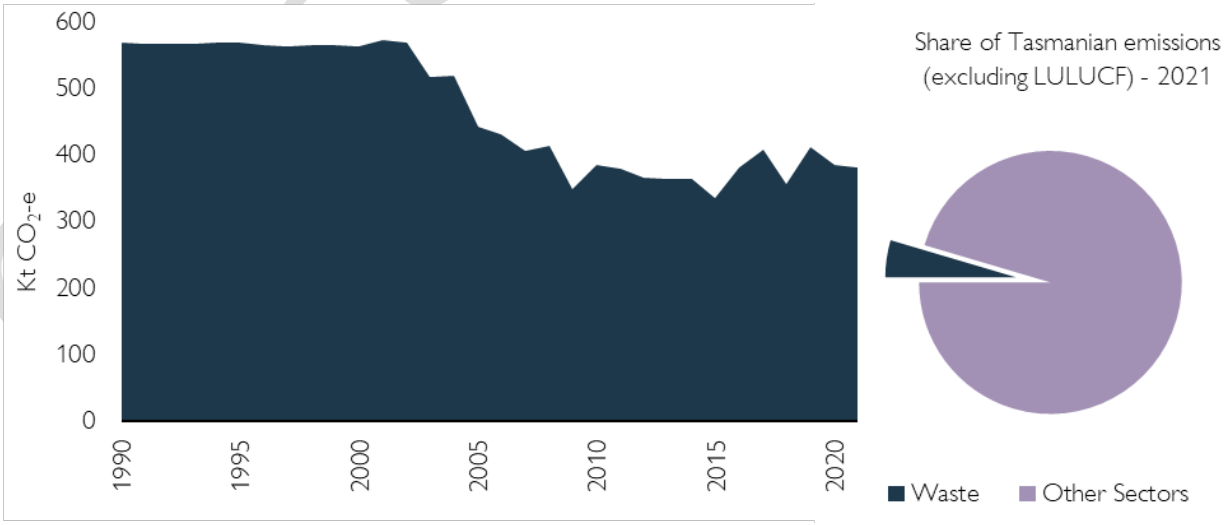
Waste greenhouse gas emissions

Tasmania's waste sector accounted for approximately **5 per cent of Tasmania's emissions** in 2021, excluding the LULUCF sector.

Emissions from the waste sector have decreased by 33 per cent since 1990. This has largely been driven by increased landfill diversion rates and changes in practices including gas capture at wastewater treatment sites and landfills. These changes offset the emissions associated with increased waste generation due to population and economic growth.

Research commissioned by the Tasmanian Government in 2021 estimated that further reducing the organic waste we send to landfill and increasing gas capture technology at landfills could **reduce Tasmania's emissions by 60 kt CO_2 e per year by 2050**, a reduction of around 16 per cent of total current waste sector emissions.

Tasmania's waste sector emissions - 1990 to 2021



Source: Australian Government Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023, State and Territory Greenhouse Gas Inventories 2021

Sources of emissions

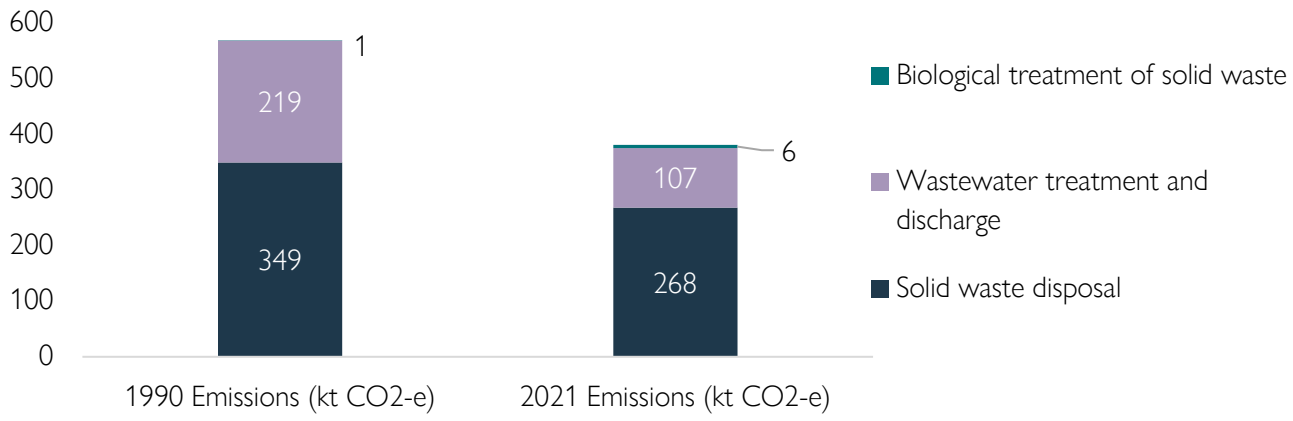
Tasmania's waste sector emissions come from:

- the decomposition of organic waste in landfills, which produces methane gas through an anaerobic process
- the biological treatment of solid waste (composting or anaerobic digestion), which produces minimal emissions in Tasmania
- the treatment of wastewater, which can produce methane or nitrous oxide depending on the process used.

As each type of greenhouse gas traps a different amount of heat in the atmosphere, known as its global warming potential (GWP), emissions for all greenhouse gases are reported as carbon dioxide equivalent (CO_2-e) to allow comparison between gases.

Due to the above processes, the majority of emissions from the waste sector are methane. Methane has a GWP of 28, because it absorbs 28 times more heat than carbon dioxide.

Sources of Tasmania's waste sector emissions – 2021



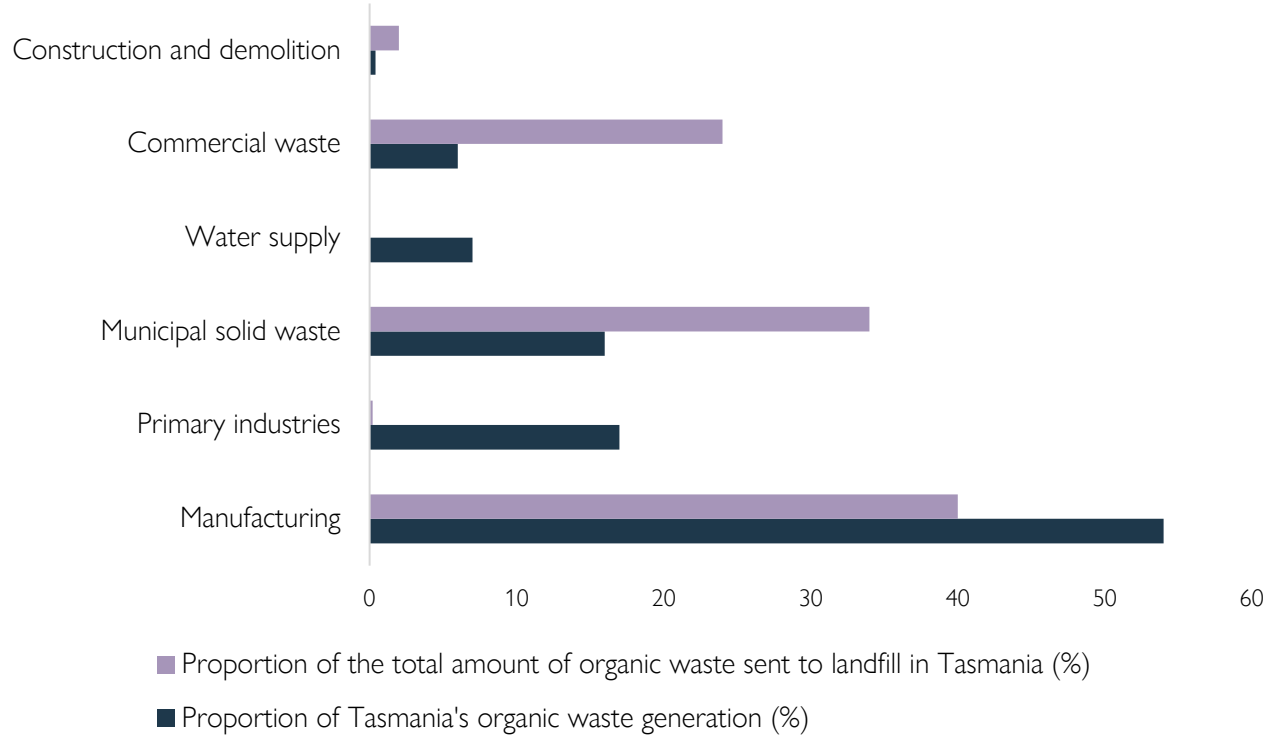
Source: Department of Climate Change, Energy, the Environment and Water (DCCEEW) 2023, State and Territory Greenhouse Gas Inventories 2021

Tasmania's organic waste: a snapshot

In 2020, Tasmania generated 812 kt of solid organic waste. Approximately 21 per cent of Tasmania's solid organic waste is sent to landfill each year.[14]

The generation and landfilling rates vary significantly between sectors, as shown below.

Tasmania's organic waste generation and landfilling rates by subsector - 2021



Source: RMCG Consortium 2022, Tasmanian Organics Research Report

[14] RMCG Consortium (2022) 'Tasmanian Organics Research Report: Final' prepared for NRE Tas https://nre.tas.gov.au/Documents/Tasmanian%20Organics%20Research%20Report%202022.PDF

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