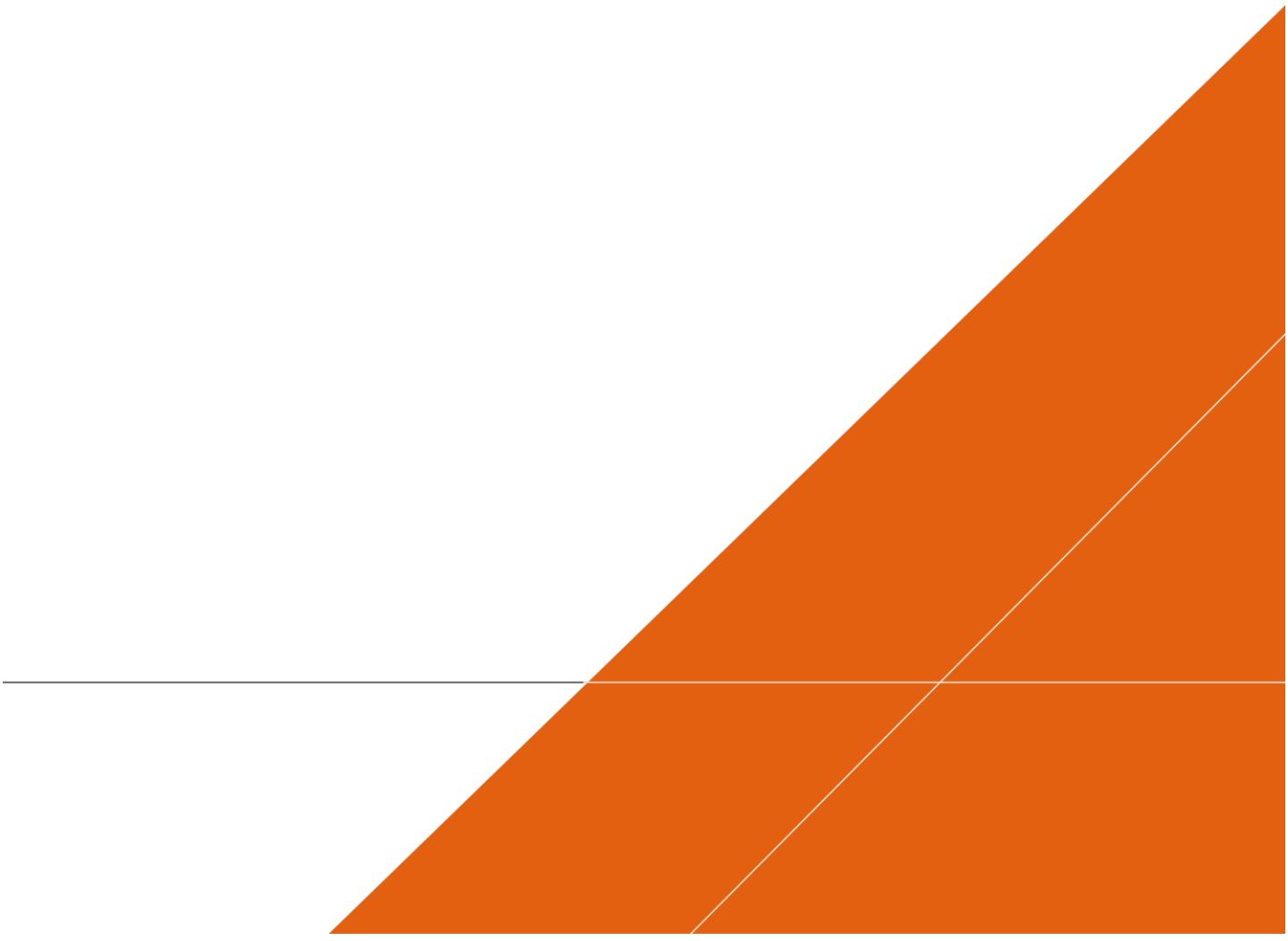
ARCADIS Design & Consultancy for natural and built assets

ANALYSIS OF STATE & TERRITORY WASTE STRATEGY TARGETS

Jurisdictional review

15 OCTOBER 2020



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AUSTRALIAN COUNCIL OF RECYCLING

Analysis of Waste Strategy Targets

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REVISIONS

Revision	Date	Description	Prepared by	Approved by
01	01/09/20	Draft for review	AN, LH, RC	RC
02	02/10/20	Final report for review	AN, LH, RC	RC
03	15/10/20	Final report	LH, RC	RC

CONTENTS

INTRODUCTION

ACOR requires analysis of the National and State/Territory waste and recycling targets, the underpinning mechanisms that give them traction, and options to improve fidelity with the targets.

The value of targets depends in part on the rigour with which governments pursue them and stakeholders commit to them. For each state and territory, Arcadis has reviewed the overarching legislation that establishes the requirements to develop a jurisdictional waste strategy, along with how the strategy defines and implements the targets.

Performance of jurisdictions against their waste strategy targets has been assessed to provide an indication of the focus they have applied to achieving them. In most cases performance is not on track to achieve the targets.

While current strategies reflect work in progress towards future targets, a review a past strategies provides a concrete assessment of performance. Four of the eight jurisdictions had set previous targets, being a range of recycling and landfill diversion targets. Of the 12 individual targets (four jurisdictions, each covering three headline wastes), only one target was met, the South Australian target to divert 75% of commercial and industrial (C&I) waste by 2015 (it achieved 82% diversion).

Broadly, this provides limited confidence that waste strategy targets will be achieved in most jurisdictions. Options to improve delivery of the targets have been considered at a range of levels.

The second phase of the project provides high level estimates of remaining landfill capacity or lifespan in the metropolitan regions of each jurisdiction, as a potential indicator of commitment to higher levels recycling. This is found in Appendix 01.

WASTE STRATEGY FRAMEWORKS

2.1 Commonwealth

The state level policy frameworks are guided at high level by Commonwealth policy priorities and objectives. The *National Waste Policy 2018* provides a framework for collective action until 2030 through five general principles, but sets no specific targets and does not bind state and territory governments to adopt them.

However, the National Waste Policy Action Plan 2019 (NWPAP) establishes targets and actions to implement the 2018 National Waste Policy, with relevant targets and actions being:

- Reduce total waste generated in Australia by 10% per person by 2030
- 80% average recovery rate from all waste streams by 2030
- Phase out problematic and unnecessary plastics by 2025
- Halve the amount of organic waste sent to landfill by 2030
- Ban the export of waste glass, plastic, tyres and paper unless processed to a product-ready state (rolling implementation from January 2021 to July 2024)
- Significantly increase the use of recycled content by governments and industry.

Of these, the only enforceable action is the export ban, a regulatory measure. The *Recycling and Waste Reduction Bill 2020* tabled in federal Parliament in August 2020 proposes enforcement mechanisms to include infringement notices, enforceable undertakings and injunctions. The export ban, along with a number of compulsory product stewardship schemes, will be the main mandatory driver of waste outcomes and infrastructure investment at Commonwealth level (albeit the bans are an all-of-governments initiative that includes state and territory governments).

The other key policy measure is the National Packaging Targets, which establish both push and pull targets designed to operate throughout the packaging lifecycle to promote recycling and reduce impact. While generally agreed by the business community for implementation through the Australian Packaging Covenant Organisation (APCO), these targets are voluntary and commitment to them will vary widely. The targets are:

- 100% reusable, recyclable or compostable packaging by 2025
- 70% of plastic packaging being recycled or composted by 2025
- 50% of average recycled content included in packaging by 2025
- The phase out of problematic and unnecessary single-use plastics packaging by 2025.

2.2 New South Wales

2.2.1 **Waste Avoidance and Resource Recovery Act**

The overarching NSW waste legislation stipulates a state waste strategy is to be developed and must include targets for waste reduction, resource recovery and the diversion of waste from landfill disposal. There are no requirements on any party to adopt or achieve these objectives, including local government, commercial waste generators, government agencies or civil organisations.

The EPA may request a local council provide the reasons for any specified non-compliance with the objectives of the current waste strategy, however there is no power requiring such compliance with the targets. Further, the legislation does require a report every two years on progress on against the strategy, however the current waste strategy contains no interim objectives with which to formally evaluate performance.

After adoption of the first waste strategy, subsequent strategies are to be developed at intervals of not more than 5 years. However, this has not been done and a new 20-Year Waste Strategy is only now being developed to supersede the Waste Avoidance and Resource Recovery Strategy 2014-2021.

2.2.2 **Waste Avoidance and Resource Recovery Strategy 2014-2021**

As required, the Waste Avoidance and Resource Recovery Strategy 2014-2021 (WARR) establishes targets and actions to improve environment and community well-being by reducing the environmental impact of waste and using resources more efficiently. The relevant 2021–22 targets are:

- Reduce the rate of waste generation per capita.
- Increase recycling rates for:
  - municipal solid waste (MSW) to 70% (from 52% in 2010-11)
  - commercial and industrial (C&I) to 70% (from 57% in 2010-11)
  - construction and demolition (C&D) to 80% (from 75% (in 2010-11)
- Increase the waste diverted from landfill to 75% (from 63% in 2010-11).

Commentary

- There is no numerical target for the reduction in generation per capita, other than negative growth
- The recycling targets prioritise conversion back into materials for use in the productive economy over outcomes lower on the waste hierarchy, such as energy recovery. The recycling targets for each sector are intended to indicatively reflect the relative ease of recycling in each sector
- The landfill diversion target provides an overarching recovery target, inclusive of all pathways.

Progress

The most recent update, WARR Progress Report 2017-18, indicated a significant shortfall in performance in MSW and C&I waste, and very little progress on landfill diversion (although changes in data protocols preclude direct comparison). Nevertheless, based on 2017-18, recycling rates were:

- 42% for MSW (28 percentage points below the 2021-22 target)
- 53% for C&I waste (17 percentage points below the 2021-22 target)
- 77% for C&D waste (three percentage points below the 2021-22 target)
- 65% landfill diversion (10 percentage points below the 2021-22 target).

Figure 1 below shows the comparison of actual recycling rates from 2017-18 and the targets for 2021-22. It is unlikely that NSW will achieve the 2021-22 targets, with the exception of C&D.

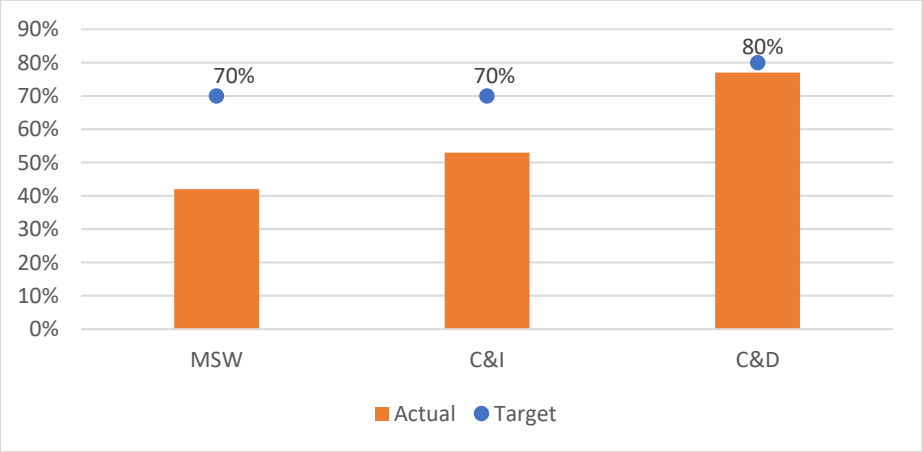

Figure 1: Comparison of actual recycling rates in 2017-18 and state targets for 2021-22

Previous targets

The previous strategy, *NSW Waste Avoidance and Resource Recovery Strategy 2007*, set recycling targets for 2014, of which none of these were achieved, as per the below:

- Target of 66% for MSW, in which the State achieved 58% in 2014
- The actual recycling rate of C&I in 2014 was 58%, in comparison to the target of 63%
- C&D target of 76%, with the actual rate being 71% in 2014

The only waste stream that has since achieved this 2014 target is C&D waste, being one percentage point above the 2014 target. Despite two of these headline streams not meeting the 2014 target, all targets have been increased in the 2021-22 targets.

Enforcement

The targets are voluntary for all parties, with no mandatory targets or actions. The EPA has used funding to encourage adoption of actions and targets.

For local government and regional council groups, it ties funding under the Better Waste and Recycling Fund, worth a total $9.75 million per year state-wide from 2017-18, to a range of factors including having a dry recycling system of some kind, diverting kerbside clean-up materials from landfill (where practicable) and procuring short-term disposal contracts (<5 years). There is no requirement to adopt the state targets.

Similarly, the Waste Less Recycle More (WLRM) infrastructure grants, which aim to drive progress to the state targets, do not require applicants to acknowledge or adopt them.

In summary, there are no measures for any party requiring adoption or achievement of the targets under the WARR Strategy.

2.2.3 **20-Year Waste Strategy (DRAFT)**

A 20-Year Waste Strategy is currently being developed by the NSW Government that, together with several related policies, will shape the NSW waste and recycling sector for the next 20 years.

The Strategy is expected to set new targets for key result areas, but there is no clarity on these as yet. A discussion paper[1] raised the prospect of a broader range of targets, including around resource efficiency, use of recycled content and focused on specific material types (e.g. food waste). It also opens the possibility of 25-year targets with five-yearly milestones, similar to the framework proposed in Queensland.

2.3 Queensland

2.3.1 Waste Reduction and Recycling Act

The *Waste Reduction and Recycling Act 2011* outlines the obligation of local government and state government entities to prepare waste reduction and recycling plans (sections 123 and 133).

The Act states councils and government agencies must prepare a waste reduction and recycling plan that, among other things, demonstrates “how the goals and targets of the State’s waste management strategy will be achieved”. If they do not prepare a plan, the entity’s chief executive is authorised under the legislation to prepare one.

While the requirement is clear, a review in 2019 found 44 out of 77 local governments have not developed a waste action plans and that a lack of mandatory actions and commitments from local governments has resulted in limited implementation.

[1] Cleaning Up Our Act: Redirecting the Future for Waste and Resource Recovery in NSW

The also Act provides for funding through the Waste and Environment fund to encourage achievement of the targets stipulated in the waste strategies, however there is no regulation or other measure to enforce achievement of the targets.

2.3.2 **Queensland Waste Avoidance and Resource Productivity Strategy 2014**

The Queensland Waste Avoidance and Resource Productivity Strategy 2014-2024 (QWARPS) establishes the following targets for 2024:

- Reduction in per capita generation – reduce by 5% (from 1.9 tonnes general waste per person in 2012-13 to 1.8 tonnes general waste per person)
- Improved recycling rate for –
  - MSW to 50% state-wide – being 55% metropolitan and 45% regional (from 33% in 2012-13)
  - C&I waste to 55% (from 42% in 2012-13)
  - C&D waste to 80% (from 61% in 2012-13)
- Reduction in the amount of waste going to landfill by 15% (from 4.6 million tonnes in 2012-13).

Commentary

- While Queensland has a similar suite of targets to NSW based on the waste hierarchy, the recycling targets for MSW and C&I waste are significantly lower than other states. The expression of the landfill diversion target against a specific tonnage establishes a more ambitious target compared to a percentage of overall generation (which will increase with population).
- Includes a differentiated MSW recycling target by region, which reflects the different dynamics in metropolitan and regional areas, such as population density and distance to end markets for recycling (both factors impacting cost).

Progress

Progress against the targets set in the QWARPS is documented in the QWARPS Final Review Report 2019, based on 2016 data. Progress has been slow and, in some cases, regressive.

The state-wide MSW recycling rate has not improved from the 33% baseline in 2012-13 (interim target was 38%), with the improvement in regional areas from 30% to 41% offset by a decline in the metropolitan area from 37% to 30%. C&I waste recycling has increased from 40% to 47% (interim target of 44%), however the C&D recycling rate declined from 61% to 50% (interim target of 66%).

The amount of waste landfilled per capita had increased by 5% since 2013, in addition to an increase in the volume of waste received from interstate.

Specifically, the review noted that lack of mandatory actions and commitments from local governments has resulted in limited progress towards the targets.

Figure 2 below shows the current recycling rates in comparison to the targets. It is unlikely that any of the targets will be met by 2023-24.

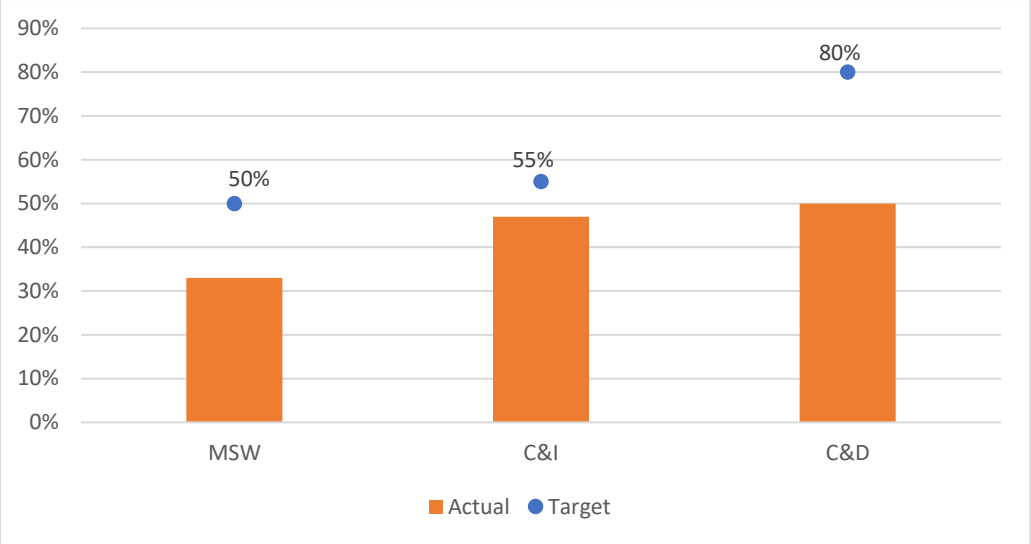

Figure 2: Comparison of actual recycling rates in 2015-16 and state targets for 2023-24 (noting that the new Waste Management and Resource Recovery Strategy has an interim target of 75% for C&D in 2025, as opposed to the 80% shown in this graph)

Previous targets

Prior to the QWARPS, the State followed the targets set out in the *Queensland's Waste Strategy 2010–2020: Waste Avoidance and Recycling Consultation Draft,* which had targets for 2014, 2017 and 2020. Based on the State 2018 data, none of the 2017 targets had been met, as outlined below:

- municipal solid waste (MSW) target of 55%, of which the actual rate was 31% in 2018
- commercial and industrial (C&I) target of 50%, of which the actual rate was 47% in 2018
- construction and demolition (C&D) target of 60%, of which the actual rate was 51% in 2018

Despite none of these targets being met, the 2024 targets increased for C&I and C&D, but actually decreased from 55% to 50% for MSW (noting that the metropolitan target remains at 55%).

2.3.3 **Waste Management and Resource Recovery Strategy (DRAFT)**

The Queensland Government is developing a new Waste Management and Resource Recovery Strategy, with a draft released for comment. It identifies a long-term vision (2050) with a series if interim targets from a 2017-18 baseline (*Table 1*). The strategy will be accompanied by a series of action plans that detail the implementation of the strategic priorities, including specific timeframes and responsibilities.

Table 1: Draft waste and recovery targets

Stream	Baseline (2018)	2025 (draft)	2030 (draft)	2040 (draft)	2050 (draft)
Waste reduction targets for households (per capita)					
MSW	0.54 tonnes	10%	15%	20%	25%
Recycling rates (as a percentage of total waste generated)					
MSW	31.1%	50%	60%	65%	70%
C&I	46.5%	55%	60%	65%	>65%
C&D	50.9%	75%	80%	>80%	>80%
OVERALL	44.9%	60%	65%	70%	75%
Waste diversion from landfill targets (recovery rate as a percentage of total waste generated)					
MSW	32.4%	55%	70%	90%	95%
C&I	47.3%	65%	80%	90%	95%
C&D	50.9%	75%	85%	85%	85%
OVERALL	45.4%	65%	80%	85%	90%

Commentary

- The recycling rate targets for MSW and C&I waste remain lower than for other states, with a relatively flat trajectory over the 30-year span of the strategy, but more ambition in the waste reduction and landfill diversion targets.
- The introduction of interim targets enables ongoing evaluation of progress, although 10-year gaps from 2030 are considered too long to enable effective monitoring.
- The recycling and diversion targets are both overall and broken down by sector.
- There is no suggestion these targets will be more enforceable than the current targets.

2.4 South Australia

2.4.1 **Green Industries SA Act**

The *Green Industries SA Act 2004* requires Green Industries SA to develop a waste strategy for the state which must identify targets and goals for waste reduction, diversion of waste from landfill, resource recovery development, green industry development, development and public awareness and waste collection, transport and disposal.

The Act does not include any measure to enforce achievement of the targets stipulated in the waste strategy. It does provide for funding through the Green Industries fund to encourage progress towards the targets.

The current 5-year strategy ends this year, with a draft strategy currently out for comment.

2.4.2 **South Australia's waste strategy**

South Australia differs from other jurisdictions in setting relatively short 5-year waste strategies.

The South Australia's Waste Strategy 2015-2020 (SAWS) emphasises avoiding the detrimental impacts associated with waste, the recovery of resources and the realisation of environmental, economic and social benefits. A draft of the 2020-2025 strategy proposes a new key objective, to identify and implement actions that can contribute to the development of a circular economy.

Table 2 outlines the targets in the current strategy for 2015-2020 and the proposed targets for the next 5-year strategy. Despite the proposed focus on the circular economy, they are an extension rather than reconfiguration of the existing targets.

Table 2: *South Australia's Waste Strategy targets for 2015-2020 and draft targets for 2020-2025.*

	2020 target	2022 target (draft)	2025 target (draft)
For the state:			
Reduction in landfill disposal	35% (from 2002-03)	-	0% avoidable waste to landfill by 2030
Reduction in waste generation per capita	5% (from 2015)	-	5% (from 2020 baseline)
For metropolitan areas:			
Landfill diversion targets for MSW	60%	65%	70%
Landfill diversion targets for C&I	80%	85%	90%
Landfill diversion targets for C&D	90%	90%	95%
For non-metropolitan areas:			
Landfill diversion target	Maximise diversion to the extent practically and economically achievable		

Commentary

- There are no recycling targets, which means diversion can be achieved by any recovery measure, including energy from waste (EfW). However, the 2020 Thermal Energy from Waste (EfW) Activities Position Statement seeks to prioritise recycling by applying the landfill levy to kerbside MSW going to EfW where the collection system does not indicatively meet the state landfill diversion target for MSW, prior to the EfW facility. The levy will apply only to the additional tonnes required to be diverted to achieve the state target.
- The landfill diversion targets in the draft Strategy are ambitious, with the highest C&I and C&D waste diversion target in 2025 of all the states and territories, while MSW and C&I waste diversion aims to increase by 10 percentage points in 5 years.
- South Australia's draft target to have 0% avoidable waste to landfill by 2030 is a first, with avoidable defined in a qualitative sense only as "diversion of all waste from landfill where it is technologically, environmentally and economically practicable to do so".
- There are no numerical targets for non-metropolitan areas.

Progress

Progress against the targets set in the SAWS 2015-2020 has been documented in the South Australia Waste Strategy 2020-2025 Draft Consultation Report. It reveals the state has the best performance against its targets of all jurisdictions.

Two of the streams above target in 2017-18. Landfill diversion of C&I waste was at 82.6% and C&D waste at 91.9%, both of which exceed the 2020 targets. However, the MSW landfill diversion of 58.5% is well below the 2020 target of 70%, which is unlikely to be achieved. Further, landfill disposal was 29% below 2002-03 levels, close to the 30% milestone target for the year.

However, total waste generated from the three waste sectors rose by 8.7% from 2014-15 baseline, running counter to the reduction target, and has risen by 62% since 2003-04.

Figure 3 below demonstrates the States progress in 2017-18 in comparison to the 2025 targets. With 4 years remaining, there is a possibility that these targets may be met.

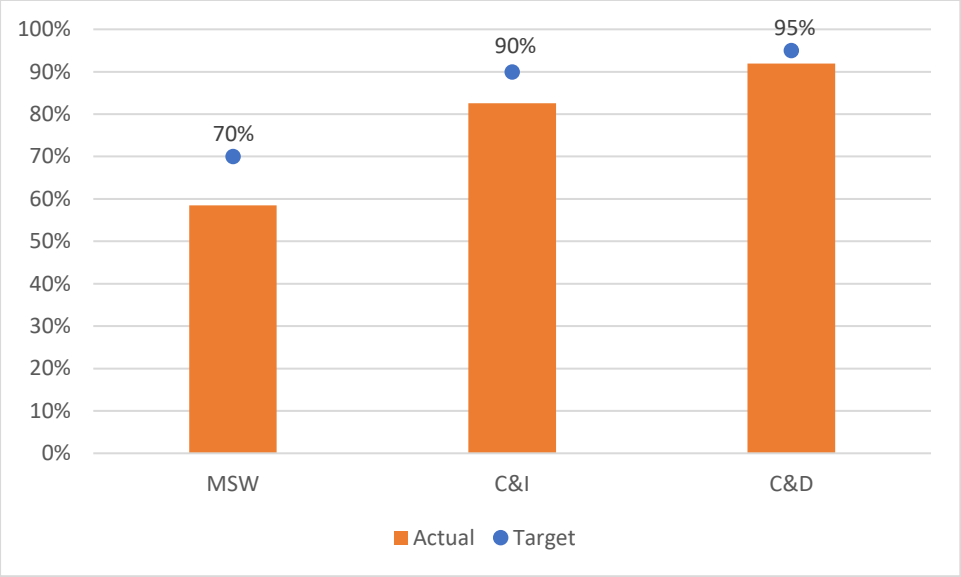

Figure 3: Comparison of actual landfill diversion rates in 2017-18 and state draft targets for 2025 (noting that there are no recycling rate targets therefore, landfill diversion is shown)

Previous targets

Prior to the 2015-20 diversion targets, the State followed the targets set out in the *South Australian Waste Strategy 2011-2015,* of which the only stream to achieve the diversion targets was C&I waste, as outlined below:

- The MSW actual diversion rate was 58.2%, in comparison to the target of 70%
- The target for diversion C&I was 75%, in which the State achieved a rate of 82%
- C&D almost met the target at 88.9%, in comparison to the target of 90%

Interestingly, the MSW diversion target has remained the same at 70% for the 2025 targets, the C&I target has increased by 15 percentage points to 90% and the C&D target has increased by 5 percentage points to 95% despite the previous 2015 target not being met.

2.5 Victoria

2.5.1 **Environment Protection Act**

There is no dedicated legislation for waste and recycling in Victoria, although establishing a dedicated waste and recycling Act is a commitment under the Recycling Victoria strategy released in 2020.

The *Environment Protection Act 1970* is the key legislative tool to protect the environment and human health, but it is relatively quiet on waste issues and does not require development of a waste strategy or targets. While Victoria has an integrated suite of strategic planning documents, it has not any numerical waste targets for some years until 2020. The Act does provide for funding to encourage the uptake of best practices in waste management.

2.5.2 **Recycling Victoria – A New Economy 2020**

Recycling Victoria – A New Economy 2020 (RVANE) is a new circular economy policy that proposes a significant overhaul of Victoria's recycling system, with reforms to kerbside recycling, the introduction of a container deposit scheme, new investment in industry and the designation of waste management as an essential service.

The relevant targets identified within the RVANE are as follows:

- 15% reduction in total waste generation per capita between 2020 and 2030
- Divert 80% of waste from landfill by 2030, with an interim target of 72% by 2025
- Cut the volume of organic material going to landfill by 50% between 2020 and 2030, with an interim target of 20% reduction by 2025.
- 100% of households have access to a separate food and garden organics (FOGO) recovery service or local composting by 2030.

It mandates new 4-bin kerbside configuration for MSW, with all Victorians having a new glass bin or access to glass services by 2027, in addition to the specified FOGO bin.

It also proposes new rules to require businesses to sort commonly recyclable materials and organic waste from unrecoverable wastes. It is expected that these rules will apply to businesses that do not use the kerbside collection system and will come into effect by 2025.

The waste and recycling act will, among other things, establish a new waste authority by 2021 to better govern the waste and recycling sector, improve service reliability and improve data collection from industry and councils.

Commentary

- The targets are more focused on service configuration and reliability than on specific sector targets.
- There are no specific recycling targets, meaning landfill diversion can be achieved by any measure.
- There is a key focus on organics, including reducing organic waste to landfill.

Progress

The RVANE is new and evaluation of progress against the strategy is not possible as Victoria did not have a coherent strategy/plan with targets until the release of RVANE. The below shows the high-level progress, comparing the landfill diversion rate in 2017-18 for all streams, in comparison to the new target for 2030.

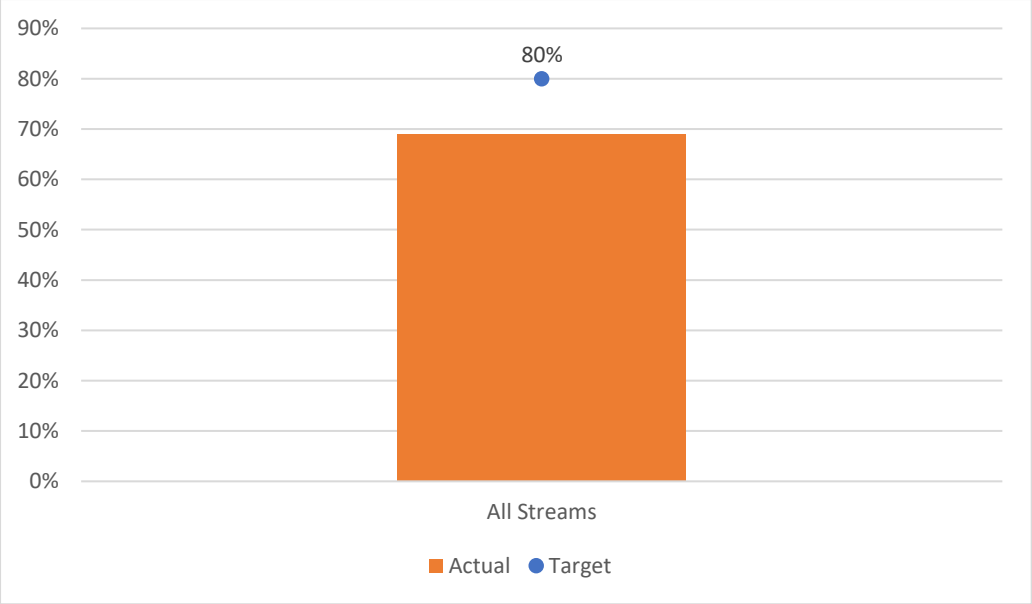

Figure 4: Comparison of actual landfill diversion rates in 2017-18 and state target for 2030 (noting that there are no recycling rate targets therefore, landfill diversion is shown. Also noting that the interim target in 2025 is 72%)

2.6 Western Australia

2.6.1 Waste Avoidance and Resource Recovery Act

The *Waste Avoidance and Resource Recovery Act 2007* requires the development of a Waste Avoidance and Resource Recovery Strategy complete with objectives and targets. It establishes the Western Australia Waste Authority to oversee the strategy and deliver an annual business plan that describes the priority programs and initiatives.

The Act has no measure to enforce achievement of the targets, but stipulates funding should be available through the Waste Avoidance and Resource Recovery fund to encourage achievement of the targets.

2.6.2 **Waste Avoidance and Resource Recovery Strategy 2030**

The Waste Avoidance and Resource Recovery Strategy 2030 (WARRS) establishes targets for waste reduction per capita, resource recovery and a cap on the proportion of waste disposed to landfill (equivalent to the landfill diversion targets in other states). (*Table 3*)

Table 3: Waste Avoidance and Resource Recovery Strategy 2030 targets.

	2020 target	2025 target	2030 target
Waste generation reduction targets (per capita):			
All waste streams (from 2014/15)	-	10%	20%
MSW	-	5%	10%
C&I	-	5%	10%
C&D	-	15%	30%

Material recovery targets:			
All waste streams (state-wide)	-	70%	75%
MSW (Perth and Peel regions)	65%	67%	70%
MSW (Major regional centres)	50%	55%	60%
C&I sector (state-wide)	70%	75%	80%
C&D sector (state-wide)	75%	77%	80%
Managing waste responsibly targets:			
Proportion of all waste streams in Perth and Peel disposed to landfill	-	-	≤15%

Commentary

- "Material recovery" does not specify recycling, permitting a broader suite of recovery options
- Energy recovery is restricted to residual waste, which is defined as either the material collected under a "better practice source separation process and recycling system" or the residual from a process that exceeds the applicable materials recovery target
- All waste is managed and/or disposed to better practice facilities by 2030.

Progress

Progress against the targets set in the WARRS has been documented in the annual Recycling Activity Report 2017-2018 (latest available). Table 4 outlines the recovery rate for all waste generated in Western Australia, increasing from 42% in 2014-15 to 51% in 2017-18. However, all the improvement is in the C&D waste stream, with C&I waste recovery declining and MSW recovery in the high-density Perth region fluctuating. Both are significantly below their respective 2020 targets.

Table 4: *Recovery rates by waste stream in Western Australia from 2014-2018*.

Sector	2014-15	2015-16	2016-17	2017-18
MSW (Perth region)	40%	35%	33%	40%
C&I	52%	46%	46%	45%
C&D	42%	64%	77%	75%
Total	42%	48%	51%	51%

To improve the quality of reporting from the voluntary surveys that underpinned the Recycling Activity Reports, the *Waste Avoidance and Resource Recovery Regulations 2008* were amended in June 2019 to require annual reporting by waste service providers (including local government) and facility operators to the Department of Water and Environmental Regulation.

Figure 5 below shows the States progress based on 2017-18 data in comparison to the 2030 targets. It is unlikely that the MSW and C&I recycling rates will meet their target. It is however likely that the C&D recycling target will be met by 2030.

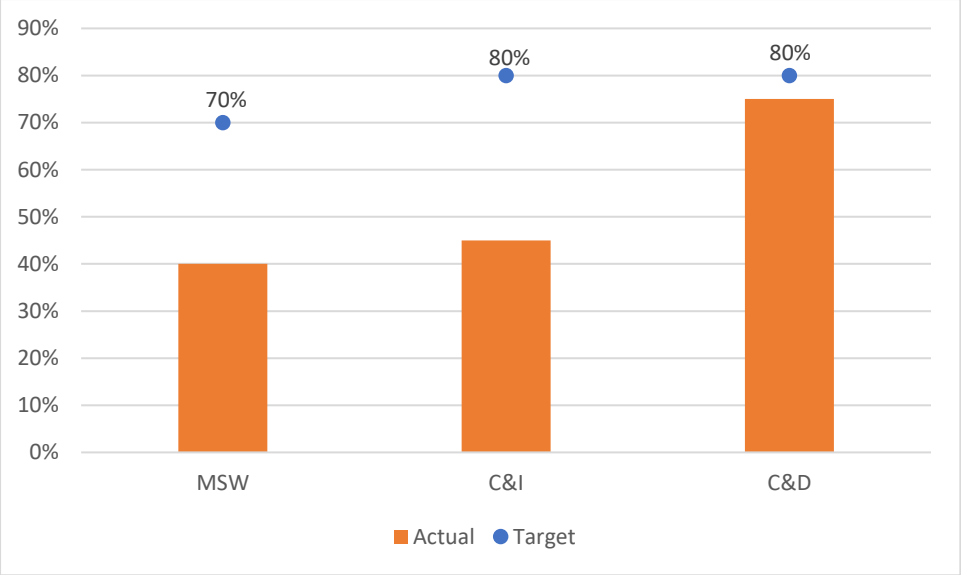

Figure 5: Comparison of actual recycling rates in 2017-18 and state targets for 2030 (noting that there are interim targets in 2025 for 67% of MSW, 75% of C&I and 77% of C&D)

Previous targets

Prior to the WARRS, the State followed the targets set out in the 2015 *Western Australian Waste Strategy: Creating the Right Environment*. However, none of these targets were met at the time, as outlined below:

- The metropolitan MSW result was a 40% diversion from landfill compared to the 50% target
- The target for diverting C&I waste from landfill was 55%, however the actual result was 52%
- Actual diversion for C&D was 42% compared to the 60% target

Interestingly, the 2015 MSW target of 40% was only just met in 2017, the 2015 C&I target of 55% has not yet been met, and the C&D target is also yet to be achieved. Despite this, all recovery targets have been increased from the previous 2015 targets to the new 2030 targets which is ambitious: from 50% to 70% for MSW, from 55% to 80% for C&I, and from 60% to 80% for C&D.

2.7 Tasmania

2.7.1 **Environment Management and Pollution Control Act**

Currently in Tasmania there is no dedicated legislation for waste and recycling, therefore the *Environment Management and Pollution Control Act 1994* is the key legislative tool. It aims to reduce the impacts of waste generation and to significantly increase the reuse, recycling, and sustainable treatment of wastes.

There is no waste strategy and associated targets. However, the Draft Waste Action Plan currently under development would establish the state's first waste and resource recovery strategy, including a state-wide waste levy and container deposit scheme.

2.7.2 **Waste Action Plan (DRAFT) 2019**

Tasmania has reassessed its waste management and recycling regime, largely in response to the intended national export ban on key materials (Section 2.1) and has introduced a draft plan that includes the introduction of a waste levy, container refund scheme and amendments to current legislation.

The Draft Waste Action Plan 2019 (DWAP) was published in June 2019 and identifies a broad framework and details proposed actions across a number of Focus Areas. The relevant draft targets are as follows:

- Reduce waste generated in Tasmania by 5% per person by 2025 and 10% by 2030
- Achieve a 40% average recovery rate from all waste streams by 2025 and 80% by 2030
- Reduce the volume of organic waste sent to landfill by 25% by 2025 and 50% by 2030
- Ensure 100% of packaging is reusable, recyclable or compostable by 2025.

Commentary

- The majority of the targets are to be achieved by 2030.
- The 40% resource recovery target from all waste streams is the lowest of all jurisdictions (the 2016-17 resource recovery rate was 53%), but the 2030 target is broadly in line with others.

Progress

The DWAP has not been finalised, so an in-depth performance against the strategy is not possible. Before the release of the *Draft Waste Action Plan 2019 (DWAP)* in 2019, Tasmania had not previously had any targets to incentivise waste diversion and resource recovery.

Figure 6 below shows, at a high-level, the difference between the actual recovery rate and the 2030 target recovery rate. It is unlikely that the State will meet this target.

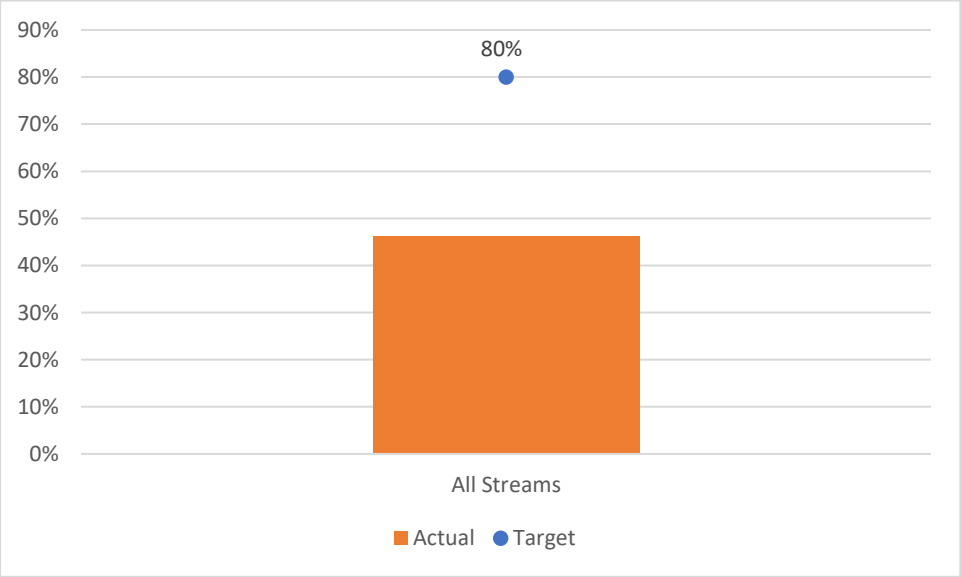

Figure 6: Comparison of actual recycling rates in 2018-19 and state target for 2030

2.8 Australian Capital Territory

2.8.1 **Waste Management and Resource Recovery Act**

The objectives of the *Waste Management and Resource Recovery Act 2016* are to minimise the generation of waste, maximise the recovery and re-use of resources and minimise the amount of waste that goes to landfill, among other goals.

It does not require the development of a Territory waste strategy and associated targets, although the Waste Management Strategy 2011-2025 was developed. There are no measures to enforce

achievement of the targets, although the ACT Government has greater control over waste outcomes than other state governments due to its role in both policy and operations.

2.8.2 **Waste Management Strategy 2011-2025**

The ACT Waste Management Strategy 2011–2025 (ACTWMS) sets the direction for the management of waste in the ACT towards 2025, with the relevant targets as follows:

- Growth in ACT waste generation is less than the rate of population growth (equivalent to no growth per capita)
- Expanded reuse of goods in the ACT
- The rate of resource recovery increases to:
  - More than 80% by 2015
  - More than 85% by 2020
  - More than 90% by 2025
- The ACT Waste Sector is carbon neutral by 2020:
  - energy generated from waste doubling by 2020
  - waste resources are recovered for carbon sequestration by 2020

Commentary

- The ACT's target to achieve a total 90% resource recovery by 2025 across all streams is the most ambitious rate of all the states and territories within the timeframe.
- It establishes a qualitative reuse objective, but does not specify a recycling target.
- ACT is the only jurisdiction to set a target for the waste sector to be carbon neutral.

Progress

Progress against the targets set in the ACTWMS is documented in the Waste Feasibility Study Roadmap and Recommendations Discussion Paper 2018. It indicates total recovery was 74% in 2016-17 significantly below the 2020 recovery target of 85%. The C&D stream has the highest recovery rate of 86%, with MSW and C&I having a recovery rate of 58%.

Figure 7 below shows the actual recovery rate based on 2016-17 data in comparison to the 2030 target. It is a possibility that this target may be achieved within the next 10 years.

Analysis of state & territory Waste Strategy targets

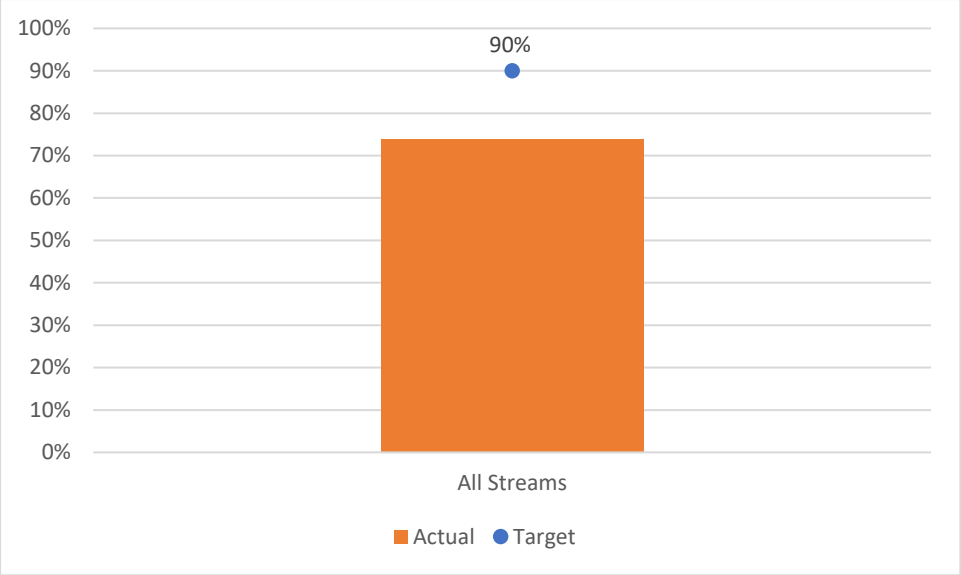

Figure 7: Comparison of actual recycling rates in 2016-17 and state target for 2030

Previous targets

Prior to the ACTWMS, the Territory followed the targets set out in the *No Waste by 2010 Strategy* which was released in 1996. This Strategy successfully reduced the waste sent to landfill from nearly 60% of total waste to below 30% by 2003–04. However, there were no targets set in this Strategy.

2.9 Northern Territory

2.9.1 Environment Protection Act

The *Environment Protection Act 2019* does not stipulate development of a waste strategy or any waste targets, so the NT strategy is not grounded in legislation.

2.9.2 Waste Management Strategy for the Northern Territory 2015-2022

The Waste Management Strategy for the Northern Territory 2015-2022 (WMSNT) provides a basis for improving the management of waste across the NT to reduce generation, increase rates of resource recovery and to minimise environmental impacts caused by waste.

The goals are general, with no timeframes and specific targets. The relevant goals in the WMSNT are:

- Improve waste management
  - Waste reduction and resource recovery
  - Landfill waste management
  - Planning for future waste
  - Emergency waste preparedness
- Improve waste data collection, monitoring and analysis

Commentary

- The NT is the only state or territory to have no measurable targets, which precludes enforcement and definitive evaluation.

Progress

The approach differs to the rest of Australia due to the very lowest population density of 0.2 people per square kilometre, with 75% of the NT population in five regional centres (Darwin and Palmerston, Alice Springs, Katherine, Tennant Creek and Nhulunbuy). These centres have kerbside collection, but this is limited in rural and indigenous areas.

The main objectives of the WMSNT speak to planning for the future of effective waste management to reduce the economic, environmental and health impacts, and to improve rates of resource recovery and recycling.

CONCLUSIONS

The analysis of waste legislation in each jurisdiction shows the requirements to establish waste strategies and develop targets are mandatory in almost all cases, but that these are primarily aspirational frameworks. The actual targets are set within the overarching waste strategy rather than in the legislation or associated regulation, and as such are not enforceable.

The types of waste and recycling targets are similar across state and territory jurisdictions, broadly encompassing medium- or long-term goals to reduce waste generation, increase recovery and avoid landfill.

State and territory agencies charged with carriage of a waste strategy are likely to be focused on the targets and may use them to inform programs and policies such as waste infrastructure grants and the role of energy from waste.

However, in no jurisdiction is there a mandatory requirement to achieve the targets. No jurisdiction has any form of compulsory measure to support the targets, with the partial exception of Queensland, and none actively tie programs or other forms of support to an explicit commitment from participants to the targets.

The sole Queensland requirement is for local governments (and state government agencies) to produce waste and recycling plans demonstrating how they will achieve the state targets. However, a review in 2019 determined this had not been enforced and only 33 of the state's 77 councils had developed plans since the legislation was passed in 2011, which had undermined progress on the Queensland Waste Avoidance and Resource Productivity Strategy.

Local government and regional council groups are the most likely to reference the state MSW targets in developing their waste strategies, but this is voluntary and non-binding. For commercial and industrial (C&I) and construction and demolition (C&D) waste, there are no obvious entities to share responsibility for delivering the targets.

There are no best practice models in Australia to inform recommendations on how to strengthen the commitment to jurisdictional waste and recycling targets. While targets are best set at a policy level rather than tied up within legislation, options that may be worth considering are:

- Increasing political accountability for performance by requiring more frequent disclosure of progress towards the targets, such as on an annual basis to Parliament
- Establish frameworks that set both long-term and interim targets to improve the ability to evaluate performance
- Ensuring performance tracking is based on robust data and processes
- Using the performance of each stream against the target as a core criterion in focusing waste infrastructure funding and other initiatives
- Requiring local government and regional groups to commitment to the relevant waste targets within their waste strategies, and demonstration of how they will be achieved
- Ensuring local governments report annually on their waste performance to the state/territory agency and publishing the results in a timely manner
- Tying funding and other programs for local government to progress towards the relevant targets, or at minimum a demonstrated commitment to striving to achieve them

APPENDIX 01 – ANALYSIS OF LANDFILL LIFESPAN

INTRODUCTION

Landfills play a vital role in safely managing waste that is not practical or economically viable to reuse, recycle or recover energy from. While all jurisdictions have targets to reduce reliance on landfill and increase recycling and other recovery, a key factor in their prosecution of these objectives is the prevailing local landfill context.

The remaining landfill capacity in metropolitan regions of each state and territory has been estimated as a high-level indicator of the pressure to develop alternative pathways, including recycling.

It is challenging to estimate the remaining landfill capacity from publicly available sources as it requires data on total airspace and annual waste inputs for all relevant sites. Some but not all landfills have licenced annual limits, with non-putrescible sites less likely to have an input cap within their approval.

The analysis has drawn on published information in each jurisdiction at aggregated level, where available, such as state and regional waste infrastructure plans. Where aggregated data is not available, Arcadis has only researched information on landfills with sufficient scale to influence jurisdiction-level strategic planning.

Overall, it was found that currently there are 54 putrescible landfills within the metropolitan regions of each of the jurisdictions within Australia. Within these landfills, there is an annual licence limit of almost 10 million tonnes per annum (where there is no licence limit, the input has been used where known). Over the next 30 years, this number will decrease to 20 landfills, with a combined annual licence limit of 3 million tonnes, as shown below in Figure 8.

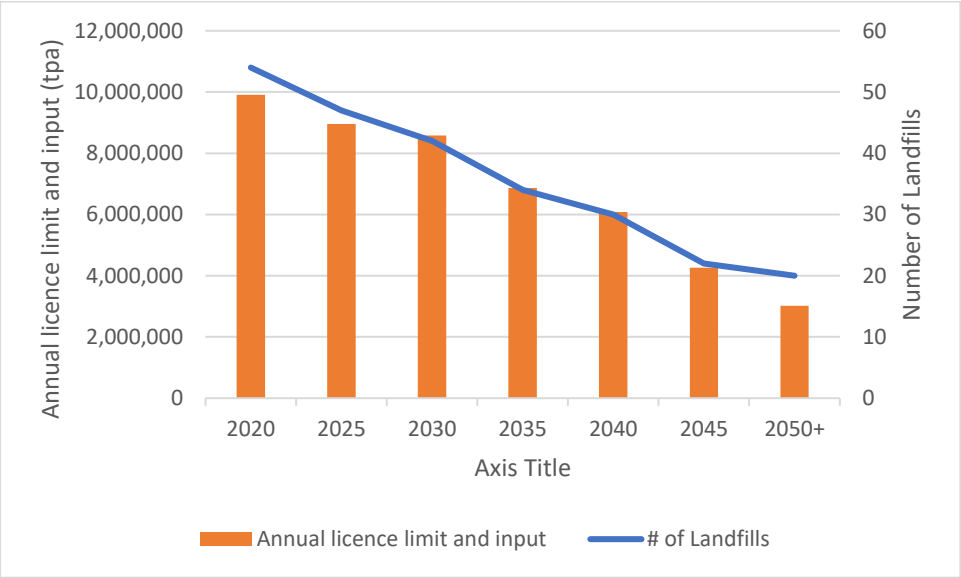

Figure 8: Summary of the number of putrescible landfills within metropolitan regions in Australia and the associated annual input limit

New South Wales

In 2017/18, waste generation in the NSW Metropolitan Levy Area (MLA) was almost 16 million tonnes, with disposal around 5.5 million tonnes.[2] The MLA has 24 landfills and 3 Mechanical Biological Treatment (MBT) plants for mixed waste, with an estimated annual capacity to receive more than 9 million tonnes (>4 million tonnes for putrescible waste, >5.3 million tonnes for non-putrescible waste), noting some sites have no licence limit but will have technical limits on acceptance.

For putrescible waste, Greater Sydney is served by two dedicated landfills and three MBTs, with a total approved annual capacity of 2.7 million tonnes. In the remaining MLA (Illawarra-Shoalhaven and Hunter regions), there are another 9 major putrescible waste landfills. The sites are listed and defined in Table 7.

Table 5: Putrescible landfills within the NSW MLA

Landfill	Annual licence limit and input (where known)	Estimated closure date (where known)
Greater Sydney		
Lucas Heights Landfill[3]	Licence limit: 1,000,000 tpa	2033
Woodlawn Landfill	Licence limit: 1,100,000 tpa	2046
Kemps Creek SAWT facility (MBT)	Licence limit: 134,000 tpa	2030
Eastern Creek UR-3R MBT	Licence limit: 220,000 tpa	2032
Woodlawn MBT	Licence limit: 240,000 tpa	2040+
Illawarra Shoalhaven		
Shellharbour Council's Dunmore Landfill	Licence limit: No limit (annual input: 50,000 tpa)	Unknown
Wollongong Council's Whytes Gully Landfill	Licence limit: No limit	2060
Shoalhaven Council's West Nowra Resource Recovery[4]	Licence limit: No limit (annual input: 30,000 tpa)	2031
Hunter		
Awaba Waste Management Facility	Licence limit: 150,000 tpa	2050
Summerhill Waste Management Centre	Licence limit: 220,000 tpa	2070+

[2] Waste Avoidance and Resource Recovery Strategy Progress Report 2017-18 (NSW EPA)
[3] Has Development Approval for an AWT facility, which would extend the life of the landfill if developed
[4] Have Development Approval to develop an AWT facility, which would extend the life of the landfill by more than 50 years.

Cessnock Landfill	Licence limit: Unknown	2040[5]
Mt Vincent Waste Management Centre	Licence limit: Unknown	2056[6]
Muswellbrook Waste Management Facility	Licence limit: 30,000 tpa	< 2025
Woy Woy Waste Management Facility[7]	Licence limit: 100,000 tpa	2030

There are more sites for disposing of non-putrescible waste, with 14 major landfills in Greater Sydney licenced only for non-putrescible waste. Outside Sydney, landfills typically receive both putrescible and non-putrescible waste and are included above. The specific non-putrescible landfills are detailed in Table 8.

Table 6: Non-putrescible landfills within the NSW MLA

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Greater Sydney		
Patons Lane Landfill	Licence limit: 450,000 tpa	2040
Eastern Creek (Bingo)	Licence limit: 700,000 tpa	2032
Bankstown Kelso Landfill	Licence limit: No limit (annual input: 200,000 tpa)	2021
Benedicts Penrith Waste Services Landfill	Licence limit: No limit	Unknown
Blacktown Waste Marsden Park Landfill	Licence limit: No limit (annual input: 360,000 tpa)	2024
Brandown C&D landfill	Licence limit: No limit	2040+
Breen Kurnell Landfill	Licence limit: No limit	2030
Glenfield Waste Landfill	Licence limit: 100,000 tpa	Unknown
Kimbriki Landfill[8]	Licence limit: 210,000 tpa	2040
Kemps Creek (Suez)	Licence limit: No limit (annual input: 2,200,000 tpa)	2030
Horsely Park (Veolia)	Licence limit: No limit (annual input: 430,000 tpa)	< 2025

[5] Includes current landfill expansion
[6] Including expansion approved by Maitland in 2018
[7] Have DA to develop an AWT facility (115,000tpa), which would extend the life of the landfill by up to 10 years
[8] Have Development Approval to develop an AWT facility

Wanless Sydney Recycling Park	Licence limit: No limit (annual input: 400,000 tpa)	2043
Hunter		
Newline Rd Landfill in Raymond Terrace	Licence limit: 250,000 tpa	Unknown

It is noted that Sydney is particularly constrained for putrescible waste, with limited capacity headroom and very little redundancy in the system should any of the facilities fail. Key vulnerabilities include reliance of the Woodlawn waste facility 250km south of Sydney to manage 50% of metropolitan putrescible waste, and the regulatory risk to the MBT facilities' due to a rescinded permission in 2018 to apply to landfill their Mixed Waste Organic Outputs (MWOO).

The Hunter regional also contains a limited number of waste facilities operated by the private sector, but none at significant scale (other than Newline Rd Landfill) nor capable of accepting MSW residual waste.

Figure 9 below shows the approved annual capacity of putrescible landfills from 2020 to 2050. Where there was no limit, actual inputs have been used instead (where known). 3 of the 15 landfills, had no limit or a known input and therefore their tonnages have not been included. 1 of the 4 landfills remaining beyond 2050 have an unknown estimated life and therefore it is unclear whether the facility would still be operational at this point

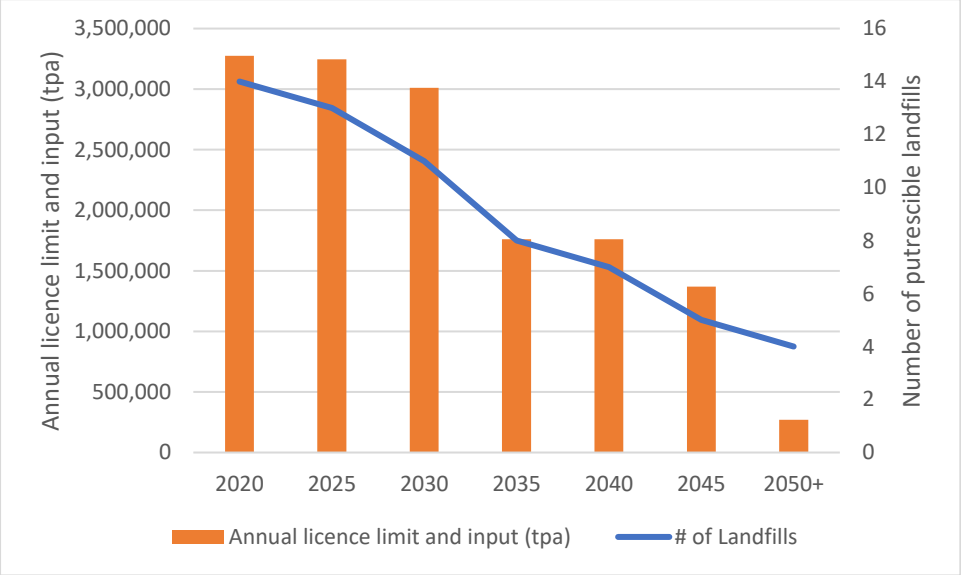

Figure 9: Summary of the number of putrescible landfills within Sydney metropolitan region and the associated annual input limit (tpa)

Queensland

There are 21 landfills within South East Queensland (SEQ), 16 of these are putrescible and 5 are non-putrescible (inert) sites. Twelve of these landfills are classified as very large and receive more than 100,000 tonnes per annum. The majority of the approved airspace in SEQ is shared between the two large privately owned putrescible landfills in the Ipswich area – Remondis' Swanbank Landfill and the TiTree Landfill at Willowbank operated by Veolia. Overall, there is over 3.5 million tonnes of annual capacity for putrescible waste and over 2 million tonnes of annual capacity for inert waste.

Table 7: Putrescible landfills within SEQ

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Rochedale Landfill	Licence limit: No limit (annual input: 400,000 tpa)	2025
Reedy Creek Landfill	Licence limit: 200,000 tpa	2045
Stapylton Landfill	Licence limit: 200,000 tpa	2036
Gatton Landfill	Licence limit: 15,000 tpa	2026
Browns Plains Waste & Recycling Facility	Licence limit: 200,000 tpa	2033
Bunya Landfill	Licence limit: No limit (annual input: 25,000 tpa)	2051
Caboolture Landfill	Licence limit: No limit (annual input: 80,000 tpa)	2036
Dakabin Landfill	Licence limit: No limit (annual input: 115,000 tpa)	2022
Eumundi Road Landfill	Licence limit: No limit (annual input: 40,000 tpa)	2071
Central Waste Management Facility	Licence limit: No limit (annual input: 35,000 tpa)	2160
Esk Refuse and Recycling Centre and Landfill	Licence limit: No limit (annual input: 15,000 tpa)	2035
Caloundra Landfill and Resource Recovery Centre	Licence limit: No limit (annual input: 90,000 tpa)	2030
Nambour Resource and Recovery Centre	Licence limit: No limit (annual input: 80,000 tpa)	2042
Remondis' Swanbank Landfill	Licence limit: No limit (annual input: 680,000 tpa)	Unknown
Veolia's TiTree Landfill	Licence limit: No limit (annual input: 850,000 tpa)	2075
BMI Stapylton Green Energy	Licence limit: 550,000 tpa	Unknown

Table 8: Non-putrescible landfills within SEQ

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Cleanaway's New Chum Landfill	Licence limit: No limit (annual input: 1,350,000 tpa)	2022
Green Spot Swanbank Landfill	Licence limit: No limit (annual input: 150,000 tpa)	Unknown
Lantrak Swanbank Landfill	Licence limit: 550,000 tpa	2022
BMI Acacia Ridge	Licence limit: No limit (annual input: 100,000 tpa)	Unknown
Reedy Creek Recycling	Licence limit: No limit (annual input: 10,000tpa)	Unknown

There appears to be a need to commence planning for development of new putrescible landfills from around 2030, however this would be extended to 2050 or so if the state waste strategy's resource recovery targets are achieved.

In terms of non-putrescible landfill capacity, SEQ is facing a very short term capacity challenge in that many of the existing large inert landfills are approaching the limit of their current approved airspace within the next few years. However, a further 16 million tonnes of additional capacity could be developed, with a number of facilities in the process of seeking approval for development or expansion.

Figure 10 below shows the approved annual capacity of putrescible landfills from 2020 to 2050. Where there was no limit, actual inputs have been used instead.

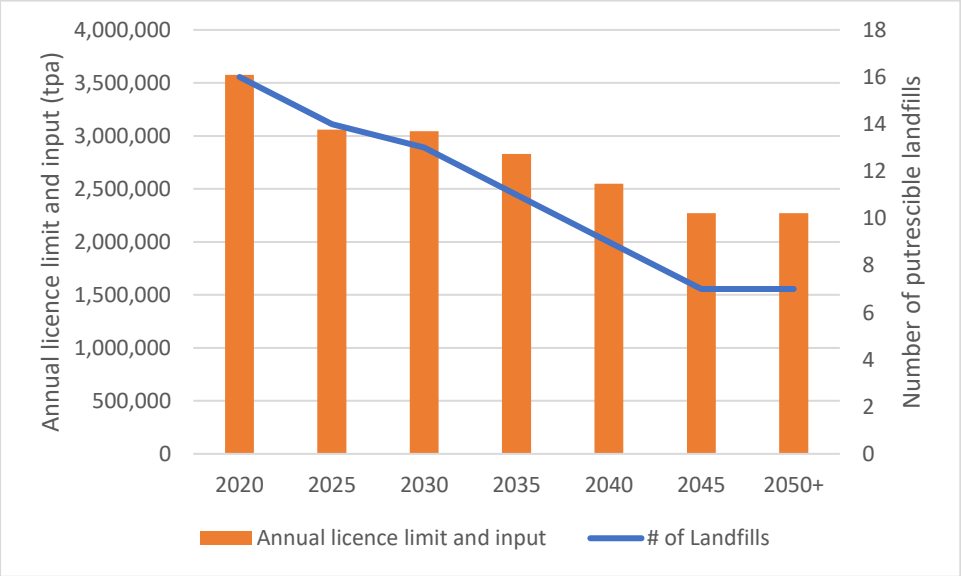

Figure 10: Summary of the number of putrescible landfills within South East Queensland and the associated annual input limit (tpa)

South Australia

There is limited available information on the lifespans of South Australian landfills. In 2015-16, 680,000 tonnes of waste was disposed to landfill in Metropolitan Adelaide, which is served by five putrescible landfills and one non-putrescible (inert) landfill. They do not have annual licence limits.

Table 9: Putrescible landfills within metropolitan Adelaide

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Southern Region Waste Resource Authority (SRWRA)	Licence limit: No limit (annual input: 125,000 tpa)	2050
Southern Waste ResourceCo (SWR)[9]	Licence limit: No limit	Unknown
Uleybury Balefill Landfill	Licence limit: No limit (annual input: 86,000 tpa)	Unknown
Inkerman landfill (Cleanaway)	Licence limit: No limit (annual input: 250,000 tpa)	Unknown
Integrated Waste Services (IWS) Northern Balefill (Dublin) (Veolia)	Licence limit: No limit	2120+

Table 10: Non-putrescible landfills within metropolitan Adelaide

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Lonsdale Landfill (ResourceCo)	Licence limit: No limit	Unknown

The Strategic Infrastructure Plan for South Australia 2005/6 – 2014/15 estimated in 2005/06 there was metropolitan landfill capacity for around 50 years.

The 2018 South Australia's Waste and Resource Recovery Infrastructure Plan did not identify the need for any new/expanded landfills, although this may be to align with the Waste Strategy goal for zero waste to landfill. Under a moderate additional diversion scenario, it assumes an energy-from-waste (EfW) facility is needed by 2025-26[10], which may indicate emerging landfill constraints at this time.

Figure 11 below shows the approved annual capacity of putrescible landfills from 2020 to 2050. Where there was no limit, actual inputs have been used instead (where known). 2 or the 5 landfills have no limit or known input and therefore their tonnages have not been included. 3 of the 4 landfills remaining beyond 2050 have an unknown estimated life and therefore it is unclear whether they would still be operational at this point.

[9] The current landfill Cell 2 is nearing capacity and waste disposal will commence at Cell 3 shortly
[10] 20-Year State Infrastructure Strategy, Infrastructure SA

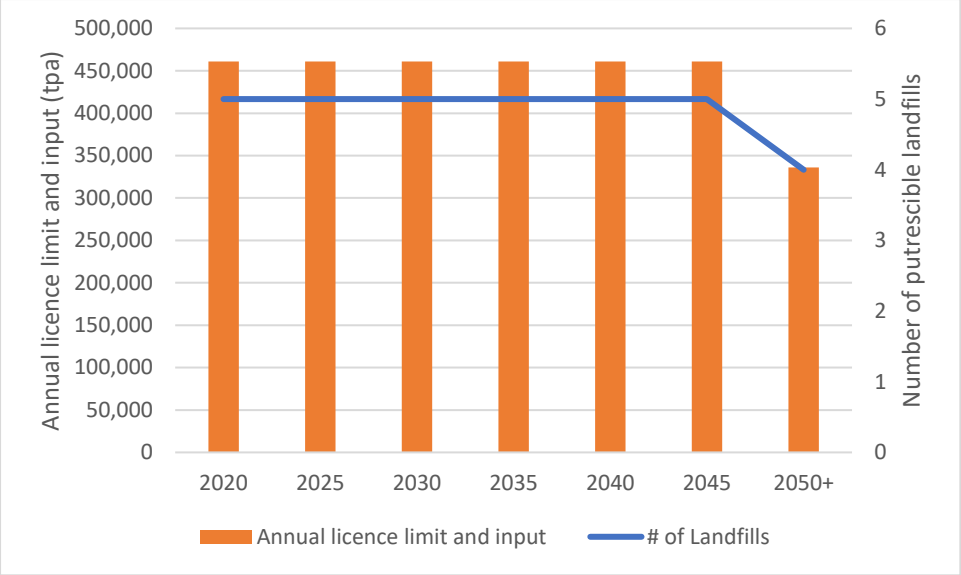

Figure 11: Summary of the number of putrescible landfills within Adelaide metropolitan region and the associated annual input limit (tpa)

Victoria

In 2015–16, Victoria's landfills managed nearly 4.6 million tonnes of waste. The Statewide Waste and Resource Recovery Infrastructure Plan found that Victoria overall has sufficient landfill airspace for the next 10 years, subject in some instances to the approval or expansion of existing sites[11]. There are 47 licensed landfills within Victoria, of which less than half are within the Melbourne metropolitan region.

Table 11: Putrescible landfills within metropolitan Melbourne

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Werribee Landfill (Wyndham City Council)	Licence limit: Unknown (annual input: 500,000 tpa)	2045[12]
Melbourne Regional Landfill Ravenhall	Licence limit: Unknown (annual input: 700,000 tpa)	2046[13]
Cooper Street Precinct, Whittlesea[14]	Licence limit: Unknown (annual input: Over 100,000 tpa)	Unknown
Wollert Landfill	Licence limit: Unknown (annual input: 250,000 tpa)	2040
SUEZ Hallam Road	Licence limit: Unknown	2040
SUEZ Lyndhurst (Taylors Road)	Licence limit: Unknown (annual input: Over 100,000 tpa)	2022
Hume City Council, Sunbury	Licence limit: Unknown	2025

Table 12: Non-putrescible landfills within metropolitan Melbourne

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Cleanaway Brooklyn Landfill	Licence limit: Unknown	Unknown[15]
Hi-Quality landfill, Bulla	Licence limit: Unknown (annual input: 50,000 tpa)	2046+[16]
Altona North landfill	Licence limit: Unknown	<2025
SBI landfill Cranbourne	Licence limit: Unknown	2030

[11] Statewide Waste and Resource Recovery Infrastructure Plan 2018
[12] Assuming extension granted in 2018 is realised
[13] Assuming extension granted in 2017 is realised
[14] Also has inert landfills
[15] The Precinct has encouraged the capping and vegetation of active landfill sites as a matter of priority. A number of the land fill sites are now reaching the end of their lifespan and will soon, if not already, be capped
[16] Metropolitan Waste and Resource Recovery Implementation Plan 2016

Barro group, Kealba	Licence limit: Unknown	<2025
Glen landfill, Langwarrin	Licence limit: No limit	2025[13]
Grosvenor Lodge Tuerong (Rockleigh Landfill)	Licence limit: Unknown	2025
BTQ Sunbury	Licence limit: Unknown	2023

Figure 12 below shows the approved annual capacity of putrescible landfills from 2020 to 2050. None of the landfills have a known licence limit and only 5 of the 7 landfills have a known input, therefore the remaining 2 landfill tonnages have not been included. The only landfill remaining beyond 2045 has an unknown estimated life and therefore it is unclear whether the facility would still be operational at this point.

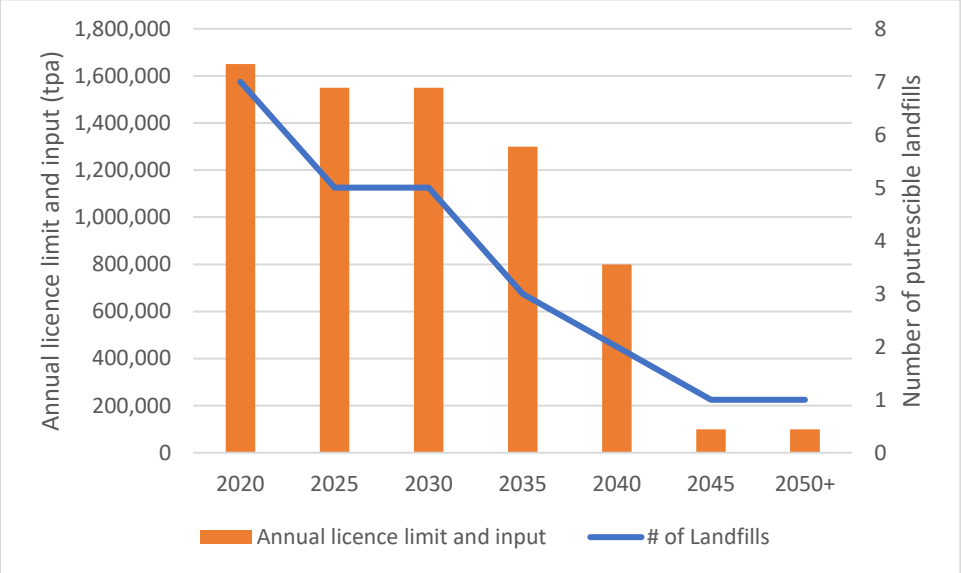

Figure 12: Summary of the number of putrescible landfills within Melbourne metropolitan region and the associated annual input limit (tpa)

Western Australia

Putrescible waste generated in the high-density Perth and Peel region is disposed of at 11 landfill sites with a total annual capacity of more than 2 million tonnes (Table 13)[17]. Four of which are outside Perth and Peel but receive waste from the region, as well as from the Wheatbelt and Southwest regions.

Capacity to receive residual waste is in flux in the region as two EfW facilities are under construction with a combined capacity of more than 700,000 tpa (from 2023). This will significantly extend the life of existing landfills. In addition, a proposal to develop a 200,000 tpa landfill (Great Southern Landfill) has been put on hold.

Table 13: Putrescible landfills within metropolitan Perth

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Tamala Park Waste Disposal Facility	Licence limit: 300,000 tpa	2028
Red Hill Waste Management Facility	Licence limit: Unknown	2060[18]
Henderson Waste Recovery Park[19]	Licence limit: 165,000 tpa	Unknown
Armadale Landfill	Licence limit: 300,000 tpa	Unknown
Millar Road Landfill	Licence limit: 450,000 tpa	2045+
Buller Road Refuse site	Licence limit: 5,000 tpa	2050[20]
Boddington Refuse Disposal Site	Licence limit: 4,200tpa	Unknown
Outside of the region		
Old Quarry Road Landfill (Northam landfill)	Licence limit: 50,000 tpa	2032
Stanley Road Waste Management Facility[21]	Licence limit: 100,000 tpa	Unknown

[17] https://www.wasteauthority.wa.gov.au/images/resources/files/2019/10/Programs_-_SWIP_-_June_2014_-SWIPWG_Investigation_Report.pdf
[18] Assuming extension granted in 2018 is realised
[19] Has a total of 7 landfill cells, of which cell 6 is in the process of being capped
[20] The site has some contamination issues and therefore council officers engaged ASK to review the situation. Some recommendations to come from this was to allow the progressive capping of the landfill to occur sooner, by either reducing the height of the final landform, which would result in a remaining life of between 12-24 years. Or Increase the quantity of waste received to decrease its remaining life span to 10-20 years.
[21] In December 2019, DWER approved the application to build the first lined cells at BHRC's Stanley Road Waste Management Facility

North Bannister Waste Facility	Licence limit: 350,000 tpa	2060+[22]
Banksia Road landfill (Dardanup landfill)	Licence limit: 350,000 tpa	Unknown

Inert waste generated in Perth and Peel is disposed of at 10 local landfill sites, in addition to three outside of the region, with over 2.2 million tonnes of total annual capacity (Table 16).

Table 14: Non-putrescible landfills within Perth Metropolitan

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Northsands Resources Nowergup	Licence limit: Unknown (annual input: 20,000 tpa)	2045[23]
Lefroy Road Quarry	Licence limit: 5,000 tpa	2070+
Quinn's Quarry (Brajkovich Landfill)	Licence limit: 475,000 tpa	Unknown
Brajkovich Landfill North	Licence limit: 405,000 tpa	Unknown
Cell 6 landfill	Licence limit: 325,000 tpa	Unknown
Atlas Inert Landfill	Licence limit: 250,000 tpa	Unknown
Mathieson Road	Licence limit: 5,000 tpa	Unknown
Waste Steam Management landfill	Licence limit: 500,000 tpa	Unknown
Corio Road	Licence limit: 5,000 tpa	Unknown
Tim's Thicket Septage and Inert Waste disposal Facility	Licence limit: 50,000 tpa	Unknown
Outside of region		
Buckingham Road Inert landfill	Licence limit: 5,000 tpa	Unknown
Peel Resource Recovery Landfill	Licence limit: 215,000 tpa	Unknown
Lightrange Landfill	Licence limit: 5,000 tpa	Unknown

[22] If expansion of cells is realised, this will provide an addition 6 years of life
[23] If DA is approved and expansion is realised

Figure 13 below shows the approved annual capacity of putrescible landfills from 2020 to 2050. The 3 landfills remaining after 2045 have an unknown lifespan, therefore it is unclear whether these facilities would still be operational at this point.

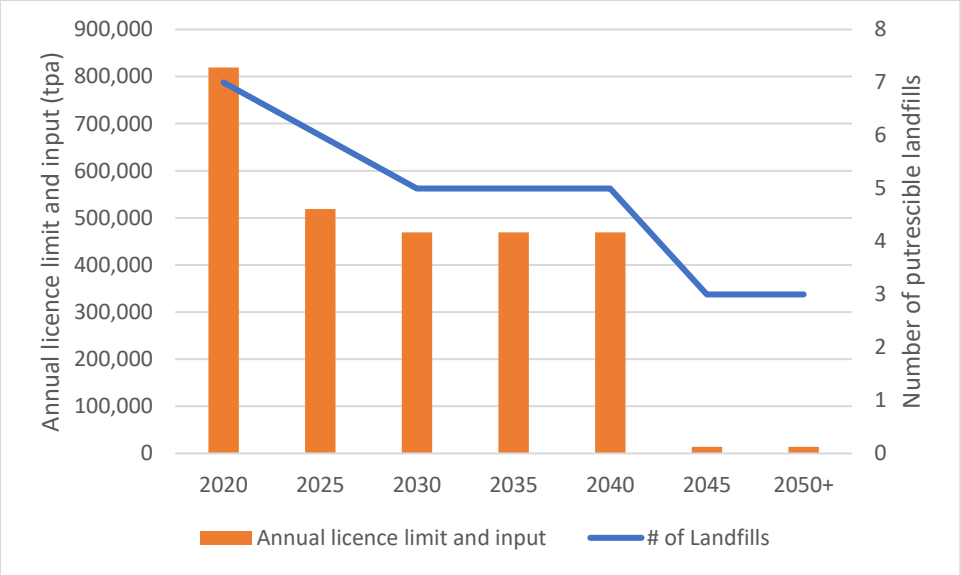

Figure 13: Summary of the number of putrescible landfills within Perth metropolitan region and the associated annual input limit (tpa)

Tasmania

There are three landfills in Hobart City, but two have limited remaining life. The main landfill, McRobies Gully, is expected to cease operations in 2030, when it is expected to reach capacity. The City of Hobart's target to achieve zero waste to landfill by 2030 has been purposely timed to coincide with the closure of the McRobies Gully landfill.

Table 15: Putrescible landfills within Hobart Metropolitan

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
McRobies Gully landfill	Licence limit: 80,000 tpa	2030
Jackson Street landfill	Licence limit: Unknown	2022[24]
Southern Waste Solutions Copping landfill	Licence limit: 45,000 tpa	Unknown

Figure 14 below shows the approved annual capacity of putrescible landfills from 2020 to 2050. 1 of the 3 landfills have an unknown licence limit and input therefore, these tonnages have not been included. The only landfill remaining after 2030 has an unknown estimated lifespan and therefore it is unclear whether the facility would still be operational at this point. Due to the City's target to achieve zero waste to landfill by 2030, it assumed all 3 landfills will be closed by 2030.

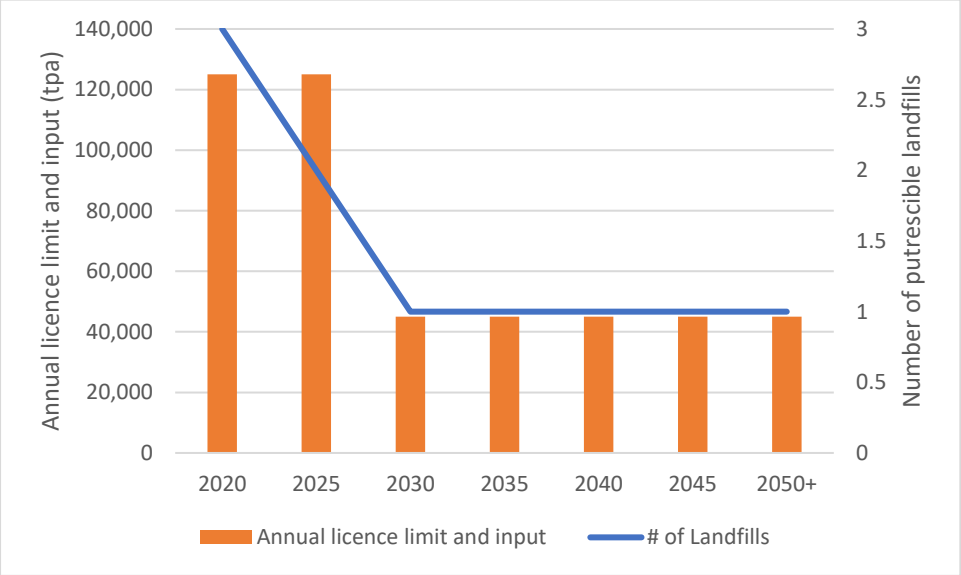

Figure 14: Summary of the number of putrescible landfills within Hobart metropolitan region and the associated annual input limit (tpa)

[24] The Council is developing a suite of projects and responses that it believes will extend the life of the landfill by an additional 10 years or more (https://jacksonstlandfill.com.au/wp-content/uploads/2019/11/GCC-Waste-Management-Strategy-2019.pdf)

Australian Capital Territory

Mugga Lane landfill is the only putrescible waste landfill in the ACT. At the present rate of consumption, the government-owned site has the capacity to at least 2035.

Table 16: Putrescible landfills within ACT Metropolitan

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Mugga Lane landfill	Licence limit: No limit	2035

Northern Territory

There is one licenced landfill within the Darwin metropolitan region, being the Shoal Bay landfill, which comprises a lined putrescible waste landfill and an inert landfill cell. At the current landfill rates, Shoal Bay will be at capacity by 2044.

Table 17: Putrescible landfills within Darwin Metropolitan

Landfill	Annual licence limit and input (where known)	Estimated life (where known)
Shoal Bay Renewable Energy Facility'	Licence limit: Unknown	2044

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