



Government of Western Australia
Department of Water and Environmental Regulation

E-waste to landfill ban in Western Australia

Decision regulatory
impact statement



October 2023

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Acknowledgement

We acknowledge the Traditional Owners, the Whadjuk people of the Noongar Nation of the land upon which we live and work and pay our respects to their Elders past and present. We recognise the practice of intergenerational care for Country and its relevance to our work bringing it to life on Whadjuk Noongar Boodja*. We seek to listen, learn and genuinely engage and build strong partnerships. We aim to provide sustainable opportunities for Aboriginal people within our workforce and through our business.

Country is a term used by Aboriginal people to describe the lands, waterways and seas to which they are intrinsically linked. The wellbeing, law, place, custom, language, spiritual belief, cultural practice, material sustenance, family and identity are all interwoven as one. Working with the community, we move forward with a shared commitment to protect and conserve Country for our future generations.

* The Department of Water and Environmental Regulation's head office, Prime House, is located in Joondalup, on Whadjuk Noongar Boodja. The above Acknowledgement of Country was endorsed by the department's Aboriginal Water and Environmental Advisory Group.

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Executive Summary

E-waste is one of the fastest-growing waste streams in Australia. Electronic and electrical items are increasingly essential to the function and enjoyment of the lives of Western Australians.

E-waste may contain materials of value as well as hazardous materials that require responsible management to prevent harm to the environment and human health.

Recent modelling estimated that, of 68,663 tonnes of e-waste generated in Western Australia in 2019–20, only 18,737 tonnes was recycled, and it is probable that a significant amount of the remainder was disposed of to landfill.

Recognising these factors, the Government of Western Australia (State Government) is committed to delivering a statewide ban on e-waste disposal to landfill in Western Australia by 2024.

Not only will the ban help to improve the management and recycling of e-waste, but it will also contribute to the *Waste Avoidance and Resource Recovery Strategy 2030* vision for Western Australia to become a sustainable, low-waste, circular economy where human health and the environment are protected from the impacts of waste.

This action will also see Western Australia align with other jurisdictional landfill bans on e-waste disposal and support national harmonisation of current and future federal e-stewardship actions.

Consultation and regulatory impact assessment

The Department of Treasury's Better Regulation Program (BRP) requirements for a consultation regulatory impact statement (CRIS) were met in a [consultation paper](#) that was released by the Department of Water and Environmental Regulation (the department) in January 2023.

Three options, including a preferred option, for implementation of the e-waste to landfill ban in Western Australia were presented. Qualitative and quantitative assessment was undertaken and included a cost benefit analysis of implementing each option in Western Australia.

Submissions raised issues and concerns such as:

- the likelihood of disproportionate impacts to non-metropolitan locations
- the financial and operational implications of a ban for local governments, regional councils and charities
- variability of the scope of materials included
- readiness of the state's e-waste management collection and processing systems.

The *E-waste to landfill ban in Western Australia: Consultation summary report* summarises and responds to submissions received. The report and a copy of the submissions is available on the department's [consultation portal](#).

Decision regulatory impact statement

This decision regulatory impact statement (DRIS) incorporates stakeholder feedback and outlines changes made to the ban implementation following further assessment and analysis.

This document follows BRP guidelines and finalises the regulatory impact assessment process by outlining the preferred implementation option and providing an implementation plan and a review framework.

Implementing the preferred option – regulatory approach with encouragement

Based on consultation feedback and a qualitative and quantitative analysis of the options, the preferred option for implementation is a regulatory approach with encouragement. This is underpinned by regulations giving effect to the ban, with support from financial incentives for e-waste management infrastructure and ongoing community education and communications.

New regulations to give effect to the ban

Regulations giving effect to the ban are being drafted. They will be underpinned by guiding principles and aim to achieve the ban objectives and outcomes.

An E-waste Technical Advisory Group was established in June 2023 and is providing input towards drafting, particularly on operational and technical matters.

Representatives from industry, government, not-for-profits, and peak bodies are participating in the E-waste Technical Advisory Group and will continue to be key advisory touchpoints over implementation and review-planning stages.

The proposed provisions consider consultation outcomes and learnings from other jurisdictions, and take into account:

- ensuring sufficient detail for the scope of items included in the ban
- obligations and penalties relevant to e-waste service providers and other obligated entities on waste management practices
- reporting and recordkeeping obligations
- hazardous waste laws
- exceptions
- exemptions for extraordinary circumstances
- a decision review process.

Compliance and enforcement of the regulations will be managed by the department. They will align with the overarching [DWER Compliance and Enforcement policy](#) to provide efficiency and harmonisation with existing laws.

Consultation on the draft regulations is planned and will inform the finalisation of the regulations.

Financial incentives – infrastructure grants for collection and recycling projects

Round 1 of the [E-waste Infrastructure Grants program](#) resulted in 21 projects being awarded a share of more than \$6.5 million. It is predicted that more than 60 jobs will be created, and 17,000 tonnes of e-waste will be diverted from landfill as a result.

A second funding round is anticipated to open for applications early in 2024.

Communications and community education

Development of a comprehensive communications and community education campaign is underway.

The campaign will involve collaboration with, and messaging to, obligated parties. It will also encourage the community to participate in the ban by managing their waste more responsibly.

Consultation will inform the messaging and tools adopted by the department in its communications channels, helping to ensure a clear and practical approach and appropriate messaging.

A community media campaign is anticipated to be implemented in 2024, aligning with commencement of the ban.

To ensure a holistic approach to waste management, ongoing e-waste communications will be incorporated into the department's and Waste Authority's established communications channels.

1 Statement of issue

1.1 The problem

E-waste contains metals of value, including precious metals such as gold, copper and nickel, and rare materials of strategic value such as indium and palladium. E-waste can also contain hazardous materials and should be collected and recycled correctly to prevent harm to the environment and human health.

The issues with landfilling e-waste include lost potential resources in terms of both financial and 'carbon' value, which is contrary to circular economy principles, and potential leakage of chemicals of concern (Bontinck et al. 2021).

Alternatives to landfilling e-waste in Western Australia include:

- exporting it overseas or interstate, either as a product or in a reprocessed form
- repairing
- re-using/reselling
- recycling for parts.

Western Australia's e-waste recycling industry has the potential to manage more e-waste than it does currently. The introduction of an e-waste to landfill ban is expected to directly increase the recovery of end-of-life materials and support increased local recovery capacity.

1.2 E-waste generation

The use of electronic and electrical equipment is growing each year in Australia and globally. Electronic and electrical equipment is essential to contemporary everyday life; we use it to work, communicate, control the temperature of our homes, prepare food, clean, entertain our families, get around and much more.

In the past decade, e-waste generation has more than doubled each year and is now one of the fastest-growing waste streams worldwide. Technological innovations and affordability are resulting in higher replacement and disposal of electronic goods.

In 2019, it was estimated the world generated 53.6 million tonnes of e-waste and this would likely increase to 74.7 million tonnes in 2030. Globally, around 17.4 per cent of e-waste is collected through formal, documented recycling systems while the remaining e-waste flows are poorly documented (Forti et al. 2020).

Nationally, it was estimated that in 2019–20, Australians generated 521,000 tonnes or about 20 kilograms per capita of e-waste and this was expected to increase to 674,000 tonnes or 23 kilograms per capita by 2030 (Bontinck et al. 2021).

Locally, a material flows analysis of e-waste in Western Australia estimated 853,000 tonnes of e-waste would be generated between 2020 and 2030, with 613,100 tonnes potentially disposed of to landfill. Recent modelling estimated that, of 68,663 tonnes of e-waste generated in Western Australia in 2019–20, only 18,737 tonnes was recycled, and it is probable that a significant amount of the remainder was disposed of to landfill (Encycle Consulting 2021).

1.3 The fate of e-waste

Generally, there are four main pathways for end-of-life e-waste, namely: landfill, metal scrapping, disassembly/component recycling and exporting.

Metal scrapping is considered a low-value recycling option because products are simply shredded to recycle the metals, with non-metals sent to landfill. Disassembly can lead to higher value recycling of other materials and components from source items. Separated components and materials can then be recycled onshore or overseas (Bontinck et al. 2021).

When exporting e-waste, Australia must meet the requirements under international agreements and conventions, including provisions under the [Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal](#).

1.4 The impacts

Poor e-waste management can result in negative triple bottom line impacts across the areas of community (human health and culture), the environment and the economy. Table 1 outlines some of the impacts identified globally (Forti et al. 2020) and in Australia (DAWE 2021).

Table 1 Global and local triple bottom line impacts of poor e-waste management

Community	Environment	Economy
Human health is impacted by environmental contamination	Environmental impacts from contamination and emissions	Disposal culture resulting in fewer jobs created
Disposal culture resulting in missed opportunities for job creation	Disposal behaviours contribute to climate change and are contrary to circular economy goals	Australia landfills around \$680 million worth of materials in e-waste every year
Disproportionate human health impacts in low- and mid-income countries, from high-income countries' exportation	Environmental degradation from mining and extraction of raw materials for electronic goods manufacturing rather than using recovered materials to remanufacture	Missed opportunity for market creation and expansion in recycling, reprocessing and local manufacturing
Missed opportunities for collaborative community connections		Disposal culture moves away from circular economy goals

2 Objectives

The *E-waste to landfill ban in Western Australia: Consultation paper* (January 2023) (DWER 2023a) (consultation paper) proposed the following objectives for the ban:

- **increase material recovery from e-waste**
- **reduce environmental impacts of e-waste in landfills.**

These objectives aligned with the intent of the ‘Recover’ and ‘Protect’ objectives of the *Waste Avoidance and Resource Recovery Strategy 2030* (waste strategy) (Waste Authority 2019a). However, feedback from consultation called for more direct linkages, so the objectives have been updated to align with the ‘Recover’ and ‘Protect’ objectives of the Waste Strategy:



Western Australians recover more value and resources from waste.



Western Australians protect the environment by managing waste responsibly.

2.1 Outcomes

Feedback from the consultation has informed further development of the outcomes. Additional information reflecting the consultation feedback is represented in **bold text** below.

Anticipated positive outcomes include:

- a measurable increase in the collection and capture of e-waste items, yielding material/resource recovery that would otherwise have been lost to landfill
- an increase in the capture of hazardous materials and by-products that can be emitted to the environment from landfilling e-waste
- an increase in gross operating revenue of the state’s e-waste collection and processing industry, building resilience and capacity of Western Australia
- the stimulation of new markets for recycled and processed e-waste because of an increase in supply of available waste product streams and material types
- job creation through the creation and development of the recovery and recycling industry
- investment in research, innovation and local technology through e-waste grant funding incentives.

Anticipated risks and possible perverse outcomes include:

- increased stockpiling (non-recovery)
- increased illegal dumping of e-waste items (**including of unsalable items to charities**)

- the removal of, **or unwillingness to provide**, collection services where the cost of recovery has increased because of the inability to landfill some items or materials (**particularly in the regions**)
- the deliberate addition of small amounts of e-waste into mixed waste streams to avoid higher disposal costs
- that e-waste collected is not forwarded to an accredited recycler **and may not be responsibly managed.**

3 Implementation of the ban

The consultation paper provides details on the analysis and considerations underpinning the scope and approach for each of the three options for Western Australia's e-waste to landfill ban. Following this initial proposal, refinements have been made and the preferred option is presented below.

3.1 What is banned (scope)?

Consultation feedback on the scope included suggestions to widen the scope of banned items, to delay the ban and to not carry out a ban.

After considering consultation feedback and other refinements, the scope will focus on:

- waste electrical and electronic equipment that has been collected and aggregated for the purpose of recycling or recovery and which:
 - is included in product stewardship schemes, particularly accredited schemes under the *Recycling and Waste Reduction Act 2020* (RWR Act)
 - has established markets or systems for collection, recycling and processing in Western Australia that would benefit from increased supply and that use national processing infrastructure, and/or
 - contains recoverable base materials of value; for example metals, including precious metals.

3.1.1 Categories for banning (initial stage)

The e-waste categories and items in scope for the initial and future phases of the ban are summarised in Figure 1 below. Appendix A discusses the categories in detail and highlights where refinements were made to the categories following further analysis and consultation outcomes.

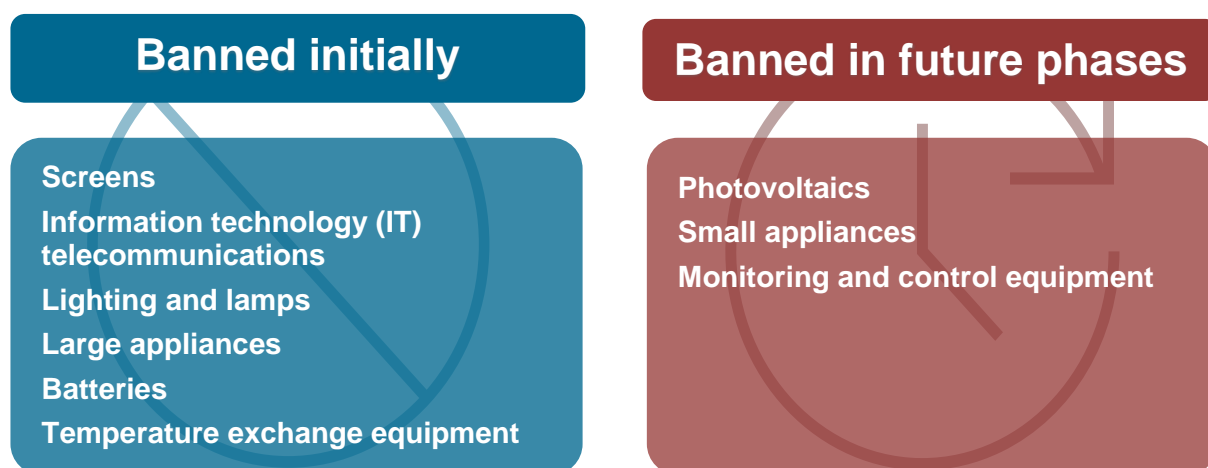


Figure 1 Initial and future phase banned e-waste categories

As the waste industry and market capacity increases, and additional viable pathways for collection and recycling of products are established, future phases will widen the scope of e-waste categories and align Western Australia with national approaches.

The State Government anticipates further consultation will be undertaken as part of implementing future phases of the ban.

3.1.2 Out of scope

Unintended capture and negligible amounts of e-waste, such as items discarded in household kerbside collections or illegal dumping, continue to be out of scope.

3.2 Options development

The following pillars underpinned the development of the three implementation options:

- **Legislation and regulations:**
 - making legislation and regulations
 - using existing regulations
 - obligations and penalties
 - liable persons
 - reporting and recordkeeping
 - compliance regime
- **Financial incentives:**
 - focus on grant funding to support implementation
 - stakeholders' eligibility to apply for funding
- **Community education and encouragement:**
 - establishing new initiatives
 - using existing campaigns
 - extent of stakeholder groups that would be engaged.

Key stakeholder categories were grouped as:

- **E-waste generators:** households and commercial entities
- **E-waste collectors:** local government and other collectors (including private entities, and not-for-profit entities)
- **Waste management:** transport contractors, transfer stations, recycling facilities (including material recovery facilities and resource recovery centres) and landfill operators.

It is understood entities may have roles that overlap between the categories.

The three implementation options developed were:

- **Option 1:** voluntary approach
- **Option 2:** regulatory approach with encouragement
- **Option 3:** regulatory approach with extensive obligations.

A base case scenario of do nothing/no ban was used as a comparative scenario for economic modelling to assess the economic impacts of all implementation options against conditions in Western Australia. However, it was not considered as a stand-alone implementation option.

3.2.1 Implementation option 1: voluntary approach

This option describes industry, government and the community working together in an operational approach under the following conditions:



Legislation and regulations

- No new regulatory obligations would be placed on parties or stakeholders, with voluntary participation in an operational model.



Financial incentives

- Grant funding – all stakeholders and parties would be eligible to apply for grant funding, including households, commercial e-waste generators (e.g. large retailers, offices), collection networks (private, not-for-profit, local government) and waste managers (transport contractors, transfer stations, recycling facilities, landfill operators).



Education and encouragement

- Existing community education and engagement initiatives would be used to encourage recycling of e-waste by all stakeholders.

3.2.2 Implementation option 2: regulatory approach with encouragement (preferred approach)

This is the preferred approach. It places obligations on the key stakeholders that are primarily responsible for high volume waste generation and waste management. It incentivises industry via grant funding and encourages responsible waste management from the community through communications and education campaigns.

This approach to implementation forms the basis of the planning and delivery of the ban:



Legislation and regulations

- Making of regulations under the provisions of the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act).
- The regulations would complement relevant legislation and place waste management, recordkeeping and reporting obligations where relevant and appropriate, for industry and e-waste generators.



Financial incentives

- Financial incentives would consist of grant funding for industry towards infrastructure projects that increase the e-waste collection, reuse and recycling capacity and capability of Western Australia.



Education and encouragement

- Existing community education and engagement initiatives would be used to encourage recycling of e-waste. Improvements to existing initiatives and/or the creation of new campaigns would be carried out where practicable and appropriate.

3.2.3 Implementation option 3: regulatory approach with extensive obligations

This approach proposed new obligations and grant funding availability to all stakeholders and the use of existing community education and engagement:



Legislation and regulations

- Making of regulations under the provisions of the WARR Act.
- The regulations would complement relevant legislation and regulations including *Environmental Protection Act 1986* (EP Act), *Environmental Protection Regulations 1987* (EP Regulations) (including Part V licensing) and the *Waste Avoidance and Resource Recovery Regulations 2008* (WARR Regulations).
- All stakeholder groups (generators and waste services/management) would be subject to obligations and penalties, including recordkeeping and reporting.



Financial incentives

- Financial incentives would consist of grant funding, with all parties eligible to apply.



Education and encouragement

- Existing community education and engagement initiatives would be used to encourage recycling of e-waste by all.

3.2.4 Other options

The public consultation process did not result in the development or consideration of any implementation options other than those outlined in the consultation paper.

4 Impact analysis

The impact assessment of implementation options consisted of two parts:

1. a qualitative assessment of each option against the ban objectives, outcomes (positive and perverse) and guiding principles (detailed in Section 4.1)
2. a quantitative cost benefit analysis (CBA) (Synergies Economic Consulting 2022) against the ban objectives and net economic benefit.

Elements of the impact assessment have been updated to reflect consultation feedback and further analysis. These are shown in **bold text** below.

4.1 Qualitative assessment

4.1.1 Objectives

As outlined in Section 2, the objectives of the ban have been updated to:

- Western Australians recover more value and resources from waste.
- Western Australians protect the environment by managing waste responsibly.

4.1.2 Outcomes

The qualitative assessment of each implementation option included whether positive outcomes would result and whether perverse outcomes would be limited (outlined in Section 2.1).

4.1.3 Guiding principles

Guiding principles for the qualitative assessment of the implementation options include:

- alignment and consistency
- evidence based
- maximise efficiency
- reasonable access
- shared responsibility
- future proofing
- beneficial to state.

The guiding principles are described in more detail in Table 2.

Table 2 Guiding principles for qualitative assessment of implementation options

Principle and description	To meet this principle, the option:
<p>Alignment and consistency</p> <ul style="list-style-type: none"> Aligns with National Waste Policy commitments and product stewardship schemes under the RWR Act Aligns, where practicable, with other jurisdictions' approaches to landfill bans Supports State Government policies for waste and recycling principles, Indigenous employment and economic and regional development 	<ul style="list-style-type: none"> demonstrates action towards visions, targets, and goals identified in applicable international and national sources aligns with product stewardship initiatives considers and harmonises with other jurisdictions' e-waste to landfill bans, where appropriate supports the waste strategy, Waste Authority positions and better practice guidance for waste management (such as source separation of waste (Waste Authority 2014)).
<p>Evidence based</p> <p>Decisions are made with consideration of available data and projections about waste, recycling, material value and markets</p>	<ul style="list-style-type: none"> is based on available data including national and state waste and recycling data and material flow analysis considers existing demand value of recyclable materials and potential increases in supply that would affect markets.
<p>Maximise efficiency</p> <p>Minimise effort and maximise recovery by complementing, utilising and supporting existing frameworks and networks in Western Australia</p>	<ul style="list-style-type: none"> uses existing resource recovery mechanisms and complements environmental protection legislation and regulations demonstrates use of existing collection and processing networks supports a focus on significant amounts and aggregation towards increased material recovery.
<p>Reasonable access</p> <p>Ensure reasonable access to collection and recycling services.</p>	<ul style="list-style-type: none"> demonstrates benchmarking criteria that define minimum standards for access to resource recovery opportunities in each stakeholder group, including cost, benefits, distance to facilities and features of facilities.
<p>Shared responsibility</p> <p>Work collaboratively with the community, industry and governments to improve waste management outcomes</p>	<ul style="list-style-type: none"> demonstrates that efforts, impacts and obligations are distributed equitably over key stakeholder groups as their role requires limits specific stakeholder groups from being unfairly impacted by the approach.
<p>Future proofing</p> <p>The process of anticipating, or providing flexibility to safeguard for, future market directions, innovations and technological advancements and policy direction</p>	<ul style="list-style-type: none"> considers future infrastructure and e-waste recycling market forces in the state, emerging development trends in electronics usage and other specified drivers.
<p>Beneficial to state</p> <p>Support a circular economy, create economic benefits (jobs, infrastructure investment, recovering value from materials) and influence positive social and community outcomes</p>	<ul style="list-style-type: none"> demonstrates measurable economic and social/community benefits for Western Australia is consistent with circular economy principles minimises the risk of perverse outcomes.

4.1.4 Assessment results

The results of the qualitative assessment are consistent with the results seen in assessment in the consultation paper. They are summarised in Table 3 and explained in detail in Appendix B.

Table 3 Summary of qualitative assessment of implementation options

Evaluation metric		Option 1: voluntary	Option 2: regulatory with encouragement	Option 3: regulatory with extensive obligations
Objectives	Recover more value and resources from waste	x	✓	✓
	Protect the environment by managing waste responsibly	x	✓	✓
Outcomes	Results in positive outcomes	✓	✓	✓
	Limits perverse outcomes	x	✓	x
Guiding principles	Alignment and consistency	x	✓	✓
	Evidence based	x	✓	✓
	Maximise efficiency	x	✓	x
	Reasonable access	x	✓	x
	Shared responsibility	x	✓	✓
	Future proofing	x	✓	x
	Beneficial to state	x	✓	✓

4.2 Quantitative assessment

Synergies Economic Consulting conducted an independent CBA of the three ban implementation options. The analysis was conducted against a base-case option of no change to the current e-waste management arrangement in Western Australia. This section provides a summary of the quantitative analysis including economic and resource recovery modelling.

4.2.1 Economic modelling

Economic modelling was conducted using eight cost and four benefit factors. Table 4 summarises the economic modelling results as well as overall net present value results for each implementation option.

Table 4 Summary of economic modelling results

Factor	Option 1	Option 2	Option 3
Benefits			
Health and environmental benefit	\$1.7m	\$7.0m	\$9.8m
Gross margin (from scrap-metal recovery)	\$2.7m	\$10.6m	\$13.8m
Gross margin (from high-value material recovery)	\$74.8m	\$121.8m	\$140.8m
Avoided landfill costs	\$5.8m	\$23.8m	\$33.3m
Costs			
Collection and transport	\$20.2m	\$71.5m	\$93.3m
Stockpiling and unlawful disposal	\$0.0m	\$0.7m	\$1.4m
Processing centre upgrade	\$13.3m	\$32.0m	\$45.9m
Collection network upgrade	\$2.9m	\$3.4m	\$4.0m
Annual industry reporting	\$1.7m	\$4.3m	\$7.6m
Annual government monitoring and enforcement	\$0.1m	\$0.5m	\$6.6m
Education and communication	\$1.1m	\$1.1m	\$1.1m
Initial government administration	\$1.7m	\$1.7m	\$1.7m
Totals			
Total Benefit	\$85.1m	\$163.2m	\$197.6m
Total Cost	\$41.0m	\$115.1m	\$161.5m
Net (NPV)	\$44.1m	\$48.1m	\$36.1m
Benefit-cost ratio	2.08	1.42	1.22

Source: Synergies Economic Consulting

4.2.2 Resource recovery modelling

Projected e-waste recovery, landfill and stockpiling/illegal disposal volumes in 2043 under each of the ban implementation options are shown numerically in Table 5 and represented graphically in Figure 2.

Table 5 Projected tonnes of e-waste recovery and disposal 2043

Scenario	Recovery (t)	Landfill (t)	Stockpile/illegal disposal (t)
Base case	85,508	89,599	0
Option 1	99,563	75,544	0
Option 2	114,770	55,959	4,378
Option 3	121,495	44,856	8,755

Source: Synergies Economic Consulting

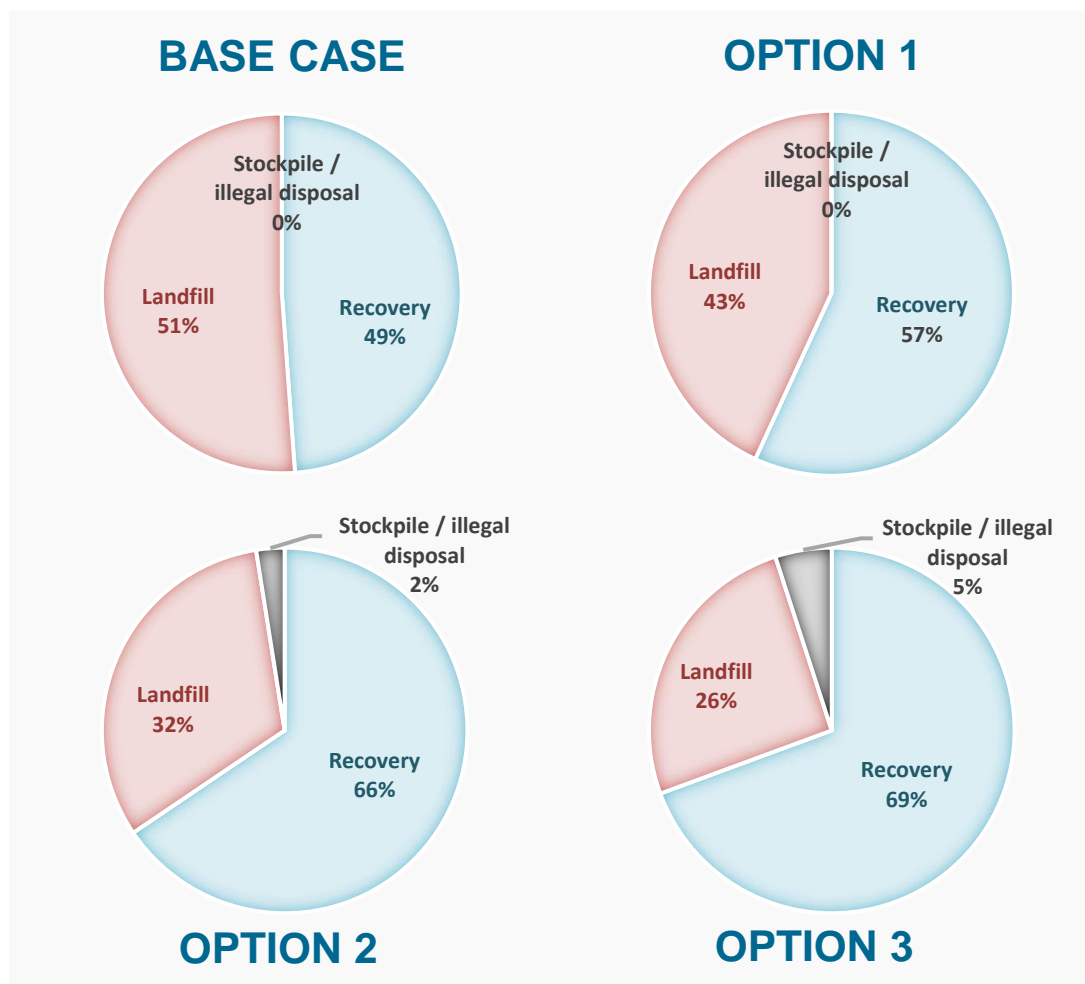


Figure 2 Projected e-waste recovery and disposal to 2043

4.2.3 Interpretation of cost benefit analysis

On balance, economic and resource recovery modelling reflected that implementation option 2 represented the preferred approach to an e-waste to landfill ban in Western Australia.

Whilst option 1 represented the lowest cost to the state and option 3 resulted in the highest economic benefit to the state, when considering both economic benefit and cost concurrently, option 2 resulted in the highest net benefit.

Resource recovery modelling results showed the base case and option 1 had similar recovery to landfill percentage ratios (49 per cent recovery to 51 per cent landfill and 57 per cent recovery to 43 per cent landfill, respectively) and no anticipated increase to stockpiling and illegal dumping. Modelling results showed options 2 and 3 had similar recovery to landfill percentage ratios (66 per cent recovery to 32 per cent landfill and 69 per cent recovery to 26 per cent landfill, respectively), and an increase in stockpiling and illegal dumping of 2 per cent and 5 per cent, respectively. The difference between 2 per cent and 5 per cent equates to double the tonnage volume: 4,378 tonnes compared to 8,755 tonnes.

While options 2 and 3 were comparable in terms of increased recovery and reduced landfill volumes, the significant difference in projected stockpiling and illegal dumping showed that option 2 was preferable to limit perverse outcomes.

5 Stakeholder consultation

The department engaged a wide range of stakeholders through several methods of consultation (outlined in Table 6), and the results of these consultations have informed the final implementation option described in this document.

Table 6 Consultation methods

Consultation method	Description
Public consultation	In accordance with government guidance and best practice, a public consultation process was conducted. The process consisted of a 10-week submission period with written submission being the primary feedback mode.
E-waste Technical Advisory Group	An E-waste Technical Advisory Group has been established and first convened in June 2023. The group is advising the department, particularly on operational and technical matters. Representatives from industry, government, not-for-profits, and peak bodies are participating in the group and will continue to be key touchpoints throughout the implementation and review planning stages.
Targeted consultation with key State Government agencies	Specific discussions were held, and communications disseminated, relating to issues of government operating, procurement, recycling and disposal procedures.

5.1 Public consultation overview

Public consultation on implementation options (consultation paper) was open for 10 weeks, from Monday 23 January 2023 to Friday 31 March 2023, with a total of 28 written responses received.

A table summarising the feedback and responses is presented in Appendix C. A full report on submissions is available in the consultation summary report.

Of the submissions:

- four were from State Government agencies
- seven were from local government authorities
- two were from regional council organisations
- seven were from representative bodies
- one was from private industry
- six were from individual members of the public
- one was categorised as 'other'.

The geographical distribution of submissions (Figure 3) was:

- Nineteen submissions were from Western Australia: 17 metropolitan, seven non-metropolitan.

- Six submissions were from other Australian jurisdictions: four from New South Wales, one from Victoria, one from Queensland.
- Two submissions were from unspecified locations.

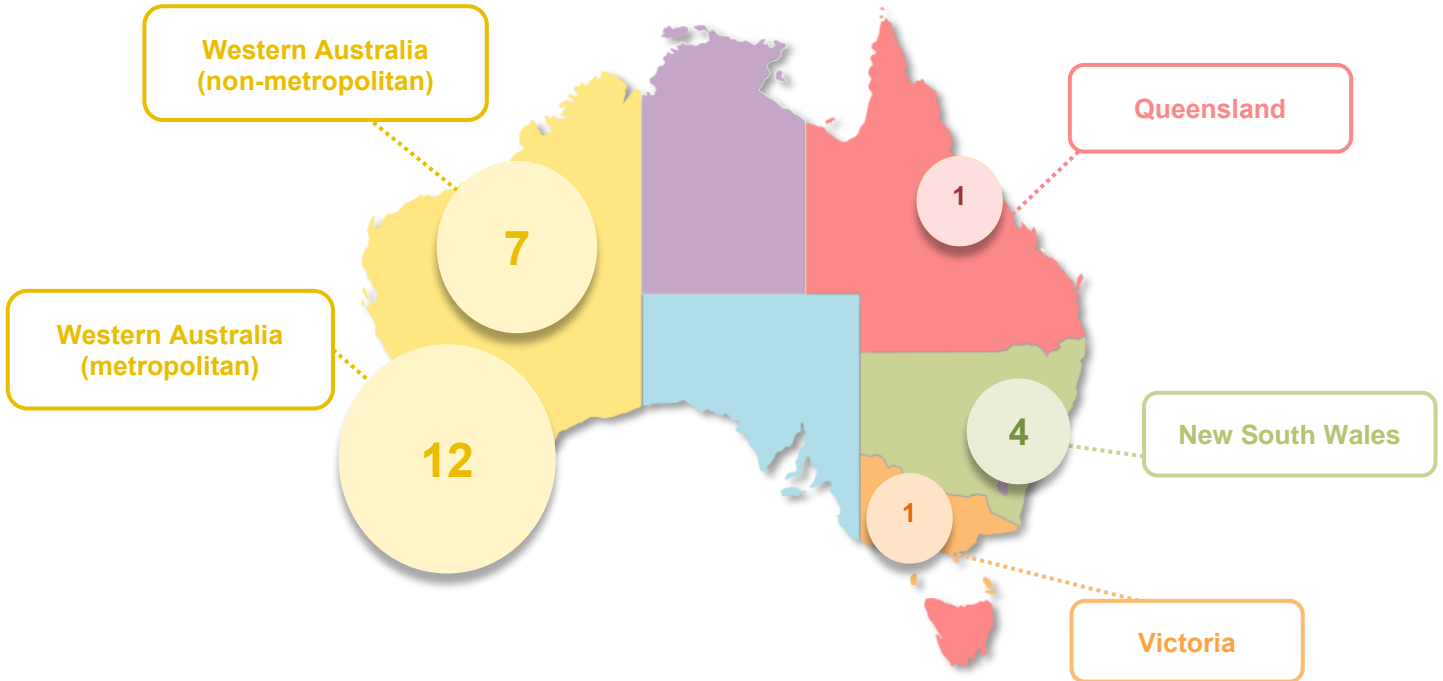


Figure 3 Submissions by location

The majority of the submissions supported an e-waste to landfill ban (Figure 4) and option 2 as the preferred implementation option. In detail:

- Eleven submissions supported a ban, five supported with conditions or changes, and two did not support a ban.
- Nine did not explicitly state whether they supported a ban or not.
- Nine submissions supported implementation option 2, one supported option 2 with conditions or changes, and two did not support option 2.
- Fifteen did not explicitly state support for any of the implementation options. (Figure 5).

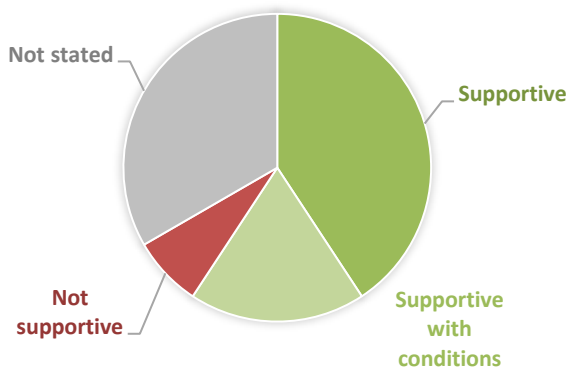


Figure 4 Support for ban

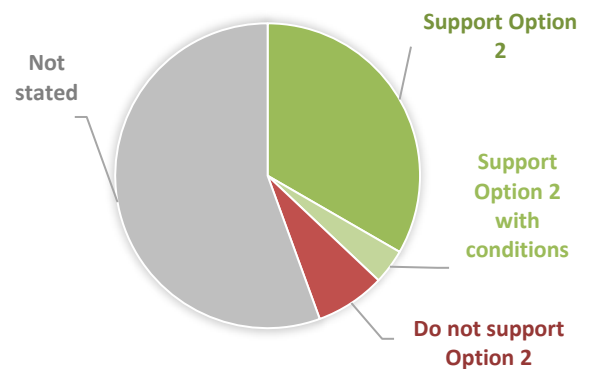


Figure 5 Support for option 2

6 Preferred option

The three ban implementation options were assessed against qualitative and quantitative evaluation metrics to determine the preferred option.

Table 7 summarises the key factors of the assessment and ranks the options in terms of effectiveness at meeting each factor.

Table 7 Final implementation option evaluation

	Option 1: voluntary	Option 2: regulatory with encouragement	Option 3: regulatory with extensive obligations
Objectives			
Qualitative assessment – does the option meet ban objectives?	☆☆☆	☆☆☆	☆☆☆
Quantitative assessment – does the option meet ban objectives?	☆☆☆	☆☆☆	☆☆☆
Outcomes			
Positive outcomes – does the option result in positive outcomes?	☆☆☆	☆☆☆	☆☆☆
Perverse outcomes – does the option limit perverse outcomes?	☆☆☆	☆☆☆	☆☆☆
Overall net economic benefit to Western Australia	☆☆☆	☆☆☆	☆☆☆
Guiding principles			
Does the option meet the guiding principles of the ban?	☆☆☆	☆☆☆	☆☆☆
Final evaluation	Not preferred	Preferred option	Not preferred

The preferred implementation option for the ban is option 2: regulatory with encouragement. This option best meets the objectives, outcomes (positive and perverse) and guiding principles of the ban. It also represents the most favourable economic and resource recovery modelling results.

7 Implementation

Consultation submissions called for:

- an implementation plan and review timeline
- industry guidance materials
- clarity of items included in the initial and future phases
- detail on how performance would be evaluated
- appropriate compliance and enforcement measures.

In response to this feedback, the department:

- has developed an implementation plan (Appendix D) outlining the actions, timing and governance of a ban on the disposal of e-waste to landfill in Western Australia
- will deliver communication and education campaigns that will provide guidance to industry and the community, particularly to clarify the items included and how to meet obligations in the implementation
- will develop an evaluation framework including review periods
- will develop a compliance and enforcement program.

7.1 Commencement

New regulations under the WARR Act, titled the Waste Avoidance and Resource Recovery (e-waste) Regulations, are planned to commence in 2024, giving effect to the ban on e-waste disposal to landfill.

7.2 Review and amendment

A ban evaluation framework will be developed, and it is anticipated that independent audits will be conducted as part of that framework.

A report considering data provided from stakeholders is anticipated to be delivered after the first year of the ban, to be used for performance monitoring and evaluation. This independent report delivery is budgeted for in the 2024–25 financial year.

Data from audits will be used to:

- assess and evaluate the performance of the ban
- inform whether review of the ban and/or regulations is required
- identify any adjustments or amendments that should be considered.

A long-term review horizon for the ban and associated regulations will likely align with relevant legislative review processes, such as the waste strategy review and WARR Act review.

The costs to stakeholders to provide data to the department was considered in the cost benefit analysis presented with the consultation paper. The method for the department to receive the data from obligated parties is planned to align with existing waste data provision practices for efficiency purposes.

The department will continue to work closely with the Australian Government regarding national product stewardship schemes and will determine whether ban amendments outside of scheduled reviews are required.

Glossary

Term	Definition
Collection	Means actions, processes, and initiatives involved in, or that facilitate, the aggregation of similar types of things.
Disposal	Means to discard material.
Extended producer responsibility	Extended producer responsibility schemes place primary responsibility for the impacts of a product on producers, importers and sometimes the sellers of products. Under this approach, producers or importers are required to fund activities to reduce the environmental, health and safety impacts of a product. It is a strategy designed to promote the integration of environmental costs associated with goods throughout their life cycles into the market price of the products. ¹
Household hazardous waste	Products used in and around the home that have at least one hazardous characteristic (flammable, toxic, explosive or corrosive).
Illegal dumping	Premeditated littering where people go out of their way to dump waste in public places illegally, typically for commercial benefit or to avoid disposal fees.
Infrastructure	Means physical equipment that is not designed for regular movement.
Landfill	Means: (a) a licensed landfill, or (b) premises that would, if the occupier of the premises held a licence in respect of the premises as required under the EP Act, be a licensed landfill.
Product stewardship	An approach to managing the impacts of different products and materials. It acknowledges that those involved in producing, selling, using and disposing of products have a shared responsibility to ensure those products or materials are managed in a way that reduces their impact, throughout their life cycle, on the environment and on public health and safety.
Processing	Means an action or series of actions performed on something to change it. This could include mechanical, chemical or other actions.
Recovery	Recovery refers to mechanical, thermal, biological or chemical actions that recover all or some of the materials that may otherwise be disposed to landfill.
Recycling	Refers to using recovered waste materials substituted for raw materials.
Residual waste	Waste that remains after the application of a better practice source separation process and recycling system, consistent with the waste hierarchy as described in Section 5 of the WARR Act.

¹ Definition from Australian Government: <https://www.dceew.gov.au/environment/protection/waste/publications/national-waste-reports/2013/product-stewardship>

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Appendices

Appendix A – E-waste categorisation

E-waste category groups for the ban were formed with consideration of:

- international directives, legislation, and processes
- federal categories
- other state jurisdiction categorisations a
- Western Australian e-waste generation, recycling and disposal data².

Consultation feedback has also been considered and the categories were further assessed to demonstrate national alignment, harmonisation and product stewardship.

The current item and product examples following recent refinements are provided in Table A1.

A1 Assessment factors

A1.1 International categorisation

Legislation related to handling waste electrical and electronic equipment (WEEE) is managed by the European Commission, such as the United Nations University Keys, WEEE directives³ (historical/obsolete and current) and Global E-waste Monitor.

The WEEE directive (2012/19/EU) and the Global E-waste monitor both provide an aligned baseline list of e-waste categories namely:

- temperature exchange equipment
- screens and monitors (and equipment containing screens having a surface greater than 100 cm²)
- lamps
- large equipment (any external dimension more than 50 cm)
- small equipment (no external dimension more than 50 cm)
- small information technology (IT) and telecommunication equipment (no external dimension more than 50 cm).

A1.2 Federal categorisation

The categories used by the federal Department of Climate Change, Energy, the Environment and Water (formerly Department of Agriculture, Water and the Environment) Electronic Stewardship Taskforce (DAWE 2021) is a customised version of the international groups. Existing federal context such as the management of e-waste under the National Computer and Television Recycling Scheme (NTRCS), voluntary mobile phone product stewardship and the federal prioritisation of photovoltaic product stewardship, framed the national categories of:

- small appliances

² Including data from the Western Australia E-Waste Material Flow Analysis report (Encycle, 2021)

³ Directive 2012/19/EU on waste electrical and electronic equipment entered into force on 13 August 2012. A key change was the consolidation of 10 'product-oriented' categories to six 'collection-oriented' categories, effective 2018 onwards. (European Commission)

- televisions and computers
- large appliances
- temperature exchange
- other large equipment (including medical equipment, and monitoring and control devices)
- solar photovoltaics (PV) and storage
- lighting
- mobile phones.

A1.3 Australian jurisdictions with e-waste bans

South Australia's landfill ban categories included:

- whitegoods
- computers and televisions
- lighting and mercury lighting
- other e-waste.

Published information indicates that South Australia considered WEEE directives in the process of creating those categories.

In Victoria, categories of e-waste are specified as:

- large appliances
- professional tools and equipment
- small household tools and appliances
- computers
- televisions
- IT
- lighting and mobile phones
- leisure
- PV.

They were categorised based on WEEE directives and existing recovery capability and networks.

A2 Categories of e-waste

The proposed category definitions for the Western Australian e-waste to landfill ban's initial and future phases aim to be logical and simple, consider size and composition of items for collection and reflect existing groupings. They are:

- screens, IT, and telecommunications
- lighting and lamps
- large appliances
- batteries
- temperature exchange equipment
- medical devices
- PV (anticipated for future ban phase)
- small appliances (anticipated for future ban phase)
- monitoring and control equipment (anticipated for future ban phase).

Feedback from the consultation mentioned more detail was required on the items that are banned both initially and in future phases. The department intends to provide an appropriate level of detail on the inclusions for the initial ban in upcoming communications.

A2.1 Initial stage inclusion considerations

A2.1.1 Screens, IT and telecommunications

- The NTCRS has recovery targets, recycling pathways and established adequate statewide collection options for a range of computers, printers, screens and peripherals. Annual recycling data and material flows analysis provide evidence that increased supply of these items would be beneficial for the state's recycling industry.
- The NTCRS rules under federal legislation state that television or computer products must be recycled by a person certified to AS/NZS 5377. This Australian Standard gives detail on recycling, including data destruction methods.
- New and innovative processing infrastructure was commissioned in Victoria (Victorian Government 2016) to support the implementation of the ban (now operated by Cleanaway) and more recently the same processing infrastructure was established in New Zealand (Radio New Zealand 2022).
- Mobile phones contain high-value materials and are not usually disposed of to landfills. A key challenge with these items is encouraging consumers to provide them for recycling rather than storing them at home.
- Households and commercial entities may not donate mobile devices because they retain them as back-up devices, have data safety and privacy concerns or a reluctance to give over items with high initial purchase costs.
- MobileMuster is an industry-led voluntary product stewardship scheme with a range of collection options and an existing collection network for mobile devices. Annual reports provide collection volumes but do not provide details on recycling outcomes, recovered materials or set recovery targets.
- MobileMuster also provides information on data security, claiming to dismantle all the devices provided to the scheme and that any data left on them is destroyed in the recycling process.

A2.1.2 Lighting and lamps

- FluoroCycle is a voluntary scheme that targets users of commercial and public lighting. It aims to increase recycling of mercury-containing lighting and lamps and reduce the amount of mercury entering the environment. It is currently not an accredited scheme and provides only two drop-off points in Western Australia.
- Mercury-containing lighting and lamps are accepted by a range of entities including local governments (through the Household Hazardous Waste program), and some businesses provide drop-off points and collection options for lighting and lamps, with some charging a fee for containers and collection.
- Information on recycling options is limited for this category; however, Western Australia has an operational mercury treatment facility (WA Government 2019) able to divert lights containing mercury from landfill.

A2.1.3 Large appliances and temperature exchange equipment

- The scrap metal recycling industry provides an active market for larger e-waste items including fridges, ovens, dishwashers, stoves, washing machines and dryers that are no longer in saleable condition. This is largely due to the value of the product's metals, including steel, aluminium and copper. Pick-up services may be available with some companies paying for goods because of the value of the materials recovered.
- Companies may offer take-back schemes on replacements of these categories of e-waste items, coordinated by retailers and installers as part of the sales process.
- Most items under this category generally have collection services available through local governments or recyclers, and disposal in kerbside bins is not feasible due to their size.

A2.1.4 Batteries

- Batteries can be a fire hazard when stored, transported or handled incorrectly. Banning batteries from disposal to landfills will help reduce this risk by providing increased appropriate collection and storage options.
- Hand-held batteries (button, AA, AAA, etc.) are included in the recently accredited battery stewardship scheme (Australian Government 2021) (B-Cycle) and the Household Hazardous Waste program, which provide an initial collection network for battery recycling in Western Australia.
- South Australia's landfill ban includes lead acid batteries and uses national markets to recycle this class of batteries.
- EPA Victoria (2018) classifies most batteries as priority wastes regulated under the Environment Protection Regulations 2021.
- The demand for batteries as renewable energy storage is rising. The proposed ban presents an opportunity towards recovery of materials required in battery manufacturing (WA Government 2021).
- In Australia, several recyclers are expanding existing markets and creating new ones to ensure that collected batteries are properly recycled (Battery Stewardship Council 2022).

A2.1.5 Medical equipment

- Medical equipment is not readily disposed to landfill because of the initial outlay cost and its specialised nature.
- Manufacturers generally use take-back systems for obsolete large medical equipment (e.g. magnetic resonance imaging [MRI] scanners, computerised tomography [CT] scanners and X-ray machines).
- There are community-run programs that donate working, unwanted large medical equipment e-waste, such as hospital beds, for re-use in other countries (Rotary Western Australia n.d.).

A2.2 Future phases

A2.2.1 Photovoltaics

- PV are part of solar energy and battery storage. There has been a steady and large rise in household PV systems in Australia, resulting in an increase of

projected end-of-life PV material requiring management. As a result, PV have been identified as a national product stewardship priority and Western Australia anticipates action for these products and systems in the future.

- Collection may be included in retailer and/or installer take-back activities because of the size, cost and installation requirements of PV.

A2.2.2 Small appliances

- Small household items can represent a substantial proportion of e-waste overall but are generally of low demand and low value for recycling because of their highly variable componentry and the amount of different types of plastics in them. It is generally easier or cheaper for consumers to purchase new items than to repair them, because of their relatively low unit cost.
- This category has a large range of items, such as:
 - small kitchen and cleaning appliances (microwaves, toasters, food processors, coffee machines, kettles, vacuum cleaners)
 - personal care appliances (electric toothbrushes, hairdryers, electric shavers)
 - entertainment appliances (headphones, remote controls, MP3 players, e-readers, car navigation, musical instruments, digital versatile disc [DVD] and Blu-ray players, speakers, cameras, toys, gaming consoles)
 - tools and others (irons, clocks, adapters, household saws, drills, gardening).
- Small household items are generally of a size that can be disposed of in household waste collections and it may be difficult to motivate consumers to donate them despite bans.
- Currently, there is no national accredited product stewardship scheme, nor identified intention to establish a scheme, for these products in Australia.
- There are some community, retail and charity collections available such as Big W/TerraCycle Toys for Joy toy recycling program, repair cafes and charity donations resold to the public. Some items in the small appliances category are collected as part of private recyclers' e-waste collections in an ad hoc manner.

A2.8 Monitoring and control equipment

- Monitoring and control equipment includes difficult-to-recycle/hazardous items such as smoke and heat detectors, security systems, professional monitoring and control equipment, household health monitoring (e.g. small thermometers, blood pressure meters), laboratory equipment and scales.
- Currently, there is no national accredited product stewardship scheme, nor identified intention to establish a scheme, for these products in Australia.
- The generally hazardous components of these items mean they are only safe and suitable for disposal, rather than recycling, would not result in beneficial outcomes and present a significant risk for perverse outcomes related to environmental impact.

Table A1 Categories and item examples with refinements from consultation outcomes

	Category	Item examples
Western Australian e-waste ban initial scope	Screens, IT and telecommunications	Television screens and monitor screens
		Computers, laptops and tablets
		Printing, copying, transmission and projection machines
		Information technology equipment
		Computer peripherals including internal and external devices, cords and cables for various functions
		Telecommunication equipment (mobile phones, pagers, base stations, answering machines, etc.)
	Lighting and lamps	Compact fluorescent lamps
		Straight tube fluorescent lamps
		Special lamps
		Light-emitting diode (LED) lighting
		Portable lights and lamps
		Household luminaires
	Large appliances	Dishwashing machines
		Kitchen equipment (large furnaces, ovens, rangehoods, extraction and like-cooking equipment)
		Washing machines, dryers and combination machines
		Dispensers (non-cooled vending, coffee, ticket, etc.)
	Batteries	All batteries
	Temperature exchange equipment	Freezers and fridges
		Air conditioners (installed and portable, household and professional)
Other cooling equipment (dehumidifiers, heat pump dryers, cooling displays)		
Dispensers (cooled vending, bottles, candy, etc.)		
	Heating and ventilation (household and professional)	
Medical devices	Professional medical devices	
Future phases	Photovoltaics	All items listed under any future Australian Government PV systems product stewardship scheme/s (anticipated for 2025)
	Small appliances	Microwaves (including combined, excluding grills)
		Other small household (small ventilators, irons, clocks, adapters)
		Food (toasters, grills, food processing, frying pans)
		Hot water (coffee, tea, water cookers)
		Vacuum cleaners (excluding professional)
		Personal care (toothbrushes, hair dryers, razors)
		Small consumer electronics (headphones, remote controls)
		Portable audio and video (MP3 players, e-readers, car navigation)
		Music and musical instruments, radio, HiFi (including audio sets)
		Video (video recorders, DVD players, Blu-ray, set-top boxes)
		Speakers
		Cameras (camcorders, photo, and digital still cameras)
		Tools (all household saws, drills, cleaning tools, garden tools, etc.)
		Toys (small toys, toy vehicles, small musical toys)
Game consoles (video games and consoles)		
Monitoring and control equipment	Monitoring (professional monitoring and control, garage, diagnostic, etc.)	
	Monitoring (alarm, heat, smoke, security [excluding screens])	
	Household health monitoring (small thermometers, blood pressure meters)	

Appendix B – Detailed qualitative assessment

Table B1 shows a detailed assessment of three ban implementation options against the following evaluation criteria:

Objectives

- Recover more value and resources from waste
- Protect the environment by managing waste responsibly

Outcomes

- Results in positive outcomes
- Limits perverse outcomes

Guiding principles

- Reduce environmental impacts
- Alignment and consistency
- Evidence based
- Maximise efficiency
- Reasonable access
- Shared responsibility
- Future proofing
- Beneficial to state

Table B1 Qualitative assessment of options against objectives, guiding principles and outcomes

Evaluation criteria		Option 1: voluntary	Option 2: regulatory with encouragement	Option 3: regulatory with extensive obligations
Objectives	Recover more value and resources from waste	✗ Unlikely to result in a significant increase in e-waste recovery because it relies on action from stakeholders and parties without a legislative basis. This option is similar to the current situation in Western Australia where e-waste recycling options are available, but do not result in the majority of e-waste being recovered.	✓ Hyder Consulting's <i>Landfill ban investigation</i> (2011) report provides evidence that the model of regulatory bans combined with complementary measures are effective in reducing waste to landfill over time.	✓ See option 2
	Protect the environment by managing waste responsibly	✗ Unlikely to result in a significant change to hazardous e-waste recovery as it relies on action from stakeholders and parties without a legislative basis. This option is similar to the current situation in Western Australia where e-waste recycling options are available, but do not result in the majority of e-waste being recovered.	✓ The Hyder report provides evidence that the model of regulatory bans combined with complementary measures are effective in reducing waste to landfill over time – in turn reducing the environmental impact of landfilled e-waste.	✓ See option 2
Outcomes	Results in positive outcomes	✓ May produce limited positive outcomes, such as voluntary community participation and awareness. Unlikely to result in: <ul style="list-style-type: none"> a measurable increase in the collection and capture of e-waste items and/or increase in capture of hazardous materials and by-products of e-waste an increase in gross operating revenue of e-waste collection and processing industry in the state stimulation of new markets for recycled and processed e-waste as supply of recovered material is unlikely to increase additional job creation via development of recovery and recycling industry investment in research, innovation and local technology. 	✓ Likely to produce positive outcomes because of the obligation of parties to participate in the ban at various level of influence and impact, supported by complementary measures. Likely to result in: <ul style="list-style-type: none"> a measurable increase in the collection and capture of e-waste items as well as the capture of hazardous materials and by-products of e-waste an increase in gross operating revenue of e-waste collection and processing industry in the state, building resilience and capacity of Western Australia stimulation of new markets for recycled and processed e-waste because of an increase in supply of available waste product streams and material types additional jobs generated through the creation and development of recovery and recycling industry investment in research, innovation and local technology. 	✓ Likely to produce positive outcomes because of the obligation of parties to participate in the ban at all levels of influence and impact, supported by complementary measures. Likely to result in: <ul style="list-style-type: none"> a measurable increase in the collection and capture of e-waste items as well as the capture of hazardous materials and by-products of e-waste an increase in gross operating revenue of e-waste collection and processing industry in the state, building resilience and capacity of Western Australia stimulation of new markets for recycled and processed e-waste, due to an increase in supply of available waste product streams and material types additional job creation through the creation and development of recovery and recycling industry investment in research, innovation and local technology.
	Limits perverse outcomes	✗ Option may have an unfavourable outcome of increased community awareness not being supported with service expansion. May also result in deliberate addition of e-waste into mixed streams to avoid disposal costs, as there would be no enforceable penalty deterrents.	✓ This option limits the risk of perverse outcomes because it obligates influential parts of the management chain, reducing the likelihood of illegal dumping and kerbside contamination. This option also focuses funding incentives on parts of the collection and processing network that would ensure maximum gains for the e-waste recovery industry. Would likely limit perverse outcomes such as: <ul style="list-style-type: none"> non-recovery stockpiling of recyclable e-waste illegal dumping of e-waste items deliberate addition of small amounts of e-waste into mixed streams to avoid disposal costs removal of collection services where the cost of recovery has increased due to the inability to landfill some items or materials. 	✗ This option is very likely to result in perverse outcomes such as additional illegal dumping of e-waste items and increased instances of kerbside contamination by householders, community, charitable recyclers and commercial operations to avoid penalties.
Guiding principles	Alignment and consistency	✗ This option does not align with national or State Government waste policies, strategies and plans. This option is also	✓ This option aligns with national and State Government waste policies, strategies and plans and draws on elements in the	✓ This option aligns with national and State Government waste policies, strategies and plans. Approaches implemented in

Evaluation criteria	Option 1: voluntary	Option 2: regulatory with encouragement	Option 3: regulatory with extensive obligations
	inconsistent with approaches implemented in other jurisdictions with e-waste bans.	other jurisdictional landfill ban legislation as well as national policy, as relevant for the Western Australian context.	other jurisdictions with e-waste bans regulate households, South Australia, Victoria.
Evidence based	<p style="text-align: center;">✘</p> <p>Hyder (2011) concluded that juridical and financial instruments are a key inclusion for implementation of a landfill ban. Current recycling and disposal data and information show that e-waste recycling is relatively low. It is likely to continue to be low without regulatory instruments, from a data evidence perspective.</p>	<p style="text-align: center;">✔</p> <p>The Hyder report provides evidence that the model of regulatory bans combined with complementary measures are effective in reducing waste to landfill over time and juridical and financial instruments are a key inclusion for implementation of a landfill ban. Material flows analysis data and recycling data provide evidence towards an increase in supply from a regulated landfill ban would benefit the economy.</p>	<p style="text-align: center;">✔</p> <p style="text-align: center;">See option 2</p>
Maximise efficiency	<p style="text-align: center;">✘</p> <p>This option partially meets this principle by using existing community education mechanisms. However, a non-regulatory approach to a ban does not use existing legislative instruments that influence waste and recovery, such as EP Act, EP Regulations (including Part V licensing) and WARR Regulations.</p>	<p style="text-align: center;">✔</p> <p>This option meets this principle by using existing regulatory and legislative instruments and community education mechanisms. A complementary regulatory approach would maximise efficiency by using existing legislative instruments that influence waste and recovery, such as EP Act, EP Regulations (including Part V licensing) and WARR Regulations. This option also allows for the creation of new legislation and regulations to address any gaps in the existing juridical landscape.</p>	<p style="text-align: center;">✘</p> <p>This option partially meets this principle because it uses existing regulatory and legislative instruments and community education mechanisms. However, a blanket approach to regulation of parties would mean that an onerous compliance and enforcement regime would be required to give effect to regulatory instruments.</p>
Reasonable access	<p style="text-align: center;">✘</p> <p>This option would be unlikely to result in significant changes to the access network (including costs, distance, capacity, features, etc.) as a voluntary ban may not motivate industry and local government to alter services, facilities, costs and other access considerations.</p>	<p style="text-align: center;">✔</p> <p>This option would be likely to result in significant changes to the access network (including costs, distance, capacity, features) as targeted sectors of the waste management, collection, recycling and processing chain would expand to provide reasonable access and expanded services to meet regulatory obligations and community needs. Targeted application of regulation and penalties in the generation, recycling, and disposal chain also mean costs to participate with the ban will be equitable across stakeholders according to influence and impact.</p>	<p style="text-align: center;">✘</p> <p>This option places regulatory liability on all stakeholders (including households, charities, not-for-profit organisations, etc.), which may increase costs to a high degree and negatively affect accessibility to e-waste management options. Pressure on waste service providers via obligations on households may result in an expansion of services and access to facilities.</p>
Shared responsibility	<p style="text-align: center;">✘</p> <p>This option suggests voluntary participation to stakeholders but does not place responsibility and obligation on any parties in the waste management chain.</p>	<p style="text-align: center;">✔</p> <p>This option places regulatory obligation and legal expectations on entities in control of e-waste collection, recycling, processing and disposal while encouraging recycling and providing access to recycle to entities with less control. This model shares responsibility for e-waste recycling in an equitable manner.</p>	<p style="text-align: center;">✔</p> <p>This option places regulatory obligation and legal expectations on all stakeholders, regardless of impact or influence. Responsibility is not equitable in this option.</p>
Future proofing	<p style="text-align: center;">✘</p> <p>This option is unlikely to result in an increase in recycling and recovery without legislative and regulatory mechanisms. As future electronic innovation, generation, use and disposal behaviours emerge, this option would continue to be ineffective.</p>	<p style="text-align: center;">✔</p> <p>This option allows for ad hoc amendments and inclusions to the ban if national trends or technological innovations indicate. The option also allows for inclusion of new collection, processing and recycling technologies and innovations to be incorporated into the suite of complementary measures.</p>	<p style="text-align: center;">✘</p> <p>This option would be increasingly onerous and costly to monitor and enforce as changes occur in electronic innovation, generation, use and disposal behaviours due to the regulatory obligations on households and commercial e-waste generators. Expansion and increases in generation would result in exponential increases to required regulatory efforts and resources.</p>
Beneficial to state	<p style="text-align: center;">✘</p> <p>Hyder (2011) concluded that bans have the potential to deliver net benefits in environmental and financial areas. Additionally, Hyder concluded that bans can be effective to drive the</p>	<p style="text-align: center;">✔</p> <p>Hyder (2011) concluded that bans can be effective to drive the development of the infrastructure to recover waste. This option includes necessary regulatory mechanisms to increase the</p>	<p style="text-align: center;">✔</p> <p style="text-align: center;">See option 2</p>

Evaluation criteria	Option 1: voluntary	Option 2: regulatory with encouragement	Option 3: regulatory with extensive obligations
	<p>development of the infrastructure to recover the waste. Without regulatory instruments to give effect to a ban, this option would be unlikely to yield net benefits to the state.</p> <p>This option is notionally consistent with circular economy principles but lacks the meaningful action (regulation) to achieve those principles.</p>	<p>likelihood of improved recycling yield which would drive investment in the state.</p> <p>This option is consistent with circular economy principles and the inclusion of regulatory mechanisms signifies meaningful action towards achieving those principles.</p>	

Appendix C – Brief summary of stakeholder consultation comments and responses

Theme	Summary of issues raised	Summarised response
Ban approach and mechanisms		
Legislation, regulations and enforcement	<ul style="list-style-type: none"> Legislation is preferred over a voluntary option to give effect to a ban. Legislation should form the basis of the ban and underpin any related policy. Any new or amended legislation (including regulations) should complement existing laws, and participants managing e-waste should be subject to licensing requirements where appropriate. To be effective, a ban will need good supporting regulations that mitigate perverse outcomes, include record keeping and reporting obligations to track e-waste, have power to apply appropriate penalties to appropriate entities, and include consideration of special circumstances such as exemptions for material that cannot be recycled because of damage or similar issues. Once regulations are in place, the agency in charge of applying the ban needs to be well resourced so that compliance, monitoring and enforcement activities occur. 	<ul style="list-style-type: none"> The ban will have a legislative foundation, accompanied by regulations. Existing legislation and regulations will be utilised to complement new legislation to ensure efficiency and prevent duplication. Consideration of the compliance and enforcement activities will look for ways to align with existing policies and will be clearly communicated to obligated and affected parties.
Scope of the ban		
Definitions and product details	<ul style="list-style-type: none"> Definition of e-waste, with reference to items such as e-scooters Banned categories and the crossover with management under the Household Hazardous Waste Program and B-Cycle scheme Specifics of medical devices that would be included in initial ban phases 	<ul style="list-style-type: none"> Clarity and detail on an e-waste definition and included items will be provided in upcoming communications and broader industry and community education. Communication materials will continue to encourage the community to utilise responsible waste management pathways such as the Household Hazardous Waste Program and B-Cycle. The E-waste Technical Advisory Group will be consulted about specific devices such as medical devices.
Future phases and inclusions	<ul style="list-style-type: none"> Consider emerging and future e-waste streams for future ban phases 	<ul style="list-style-type: none"> The department is committed to monitoring the impacts and opportunities for expansion, particularly regarding banning materials in future phases where it is appropriate and practical to do so. Work on the development of a regulatory product stewardship scheme for PVs has progressed, with the Australian Government releasing a consultation paper <i>Wired for change: Regulation for small electrical products and solar photovoltaic system waste</i> (DCCEEW 2023).
Residual and out of scope waste	<ul style="list-style-type: none"> Clarification and detail regarding residual waste, in the context of the ban What will happen to non-banned items in the initial phases of the ban such as small household items? 	<ul style="list-style-type: none"> More detailed information on defining residual waste is underway and will be made available as part of stakeholder communication and education before the ban comes into effect. E-waste items that are not included in the initial phase of the ban, or are not yet banned, are able to continue to be managed using existing management pathways in place before the ban.
Suggestions for inclusions	<ul style="list-style-type: none"> Small household items Vapes and e-cigarette devices 	<ul style="list-style-type: none"> The Australian Government is considering waste from small household items through release of the previously mentioned consultation paper. Resulting state and national action will likely result in expansion of the list of inclusions when appropriate. On 2 May 2023, the Australian Government announced a series of measures to reduce vaping, and consequently vape waste, in Australia.
Implementation timeline	<ul style="list-style-type: none"> Detail regarding ban implementation timelines 	<ul style="list-style-type: none"> Detailed implementation planning is underway for the ban and will be released when finalised. A proposed implementation timeline is included as Appendix D.
Evaluation		
Evaluation and review of the ban	<ul style="list-style-type: none"> Monitoring (compliance, data collection, reporting, and record keeping) to measure outcomes <ul style="list-style-type: none"> Data collection could include the length of time a consumer owned an item before recycling/disposal and tracking of e-waste export activity Provision of verification audits to measure effectiveness of the ban and mechanisms A scheduled review of the ban after implementation 	<ul style="list-style-type: none"> Recordkeeping and reporting obligations proposed under the ban will facilitate the collection of more detailed Western Australian e-waste management data, which will in turn inform improvements to monitoring and evaluation of the ban over time. A formal evaluation framework for the ban is in the planning phase and suggestions received as part of the consultation process will be considered in the final framework development. It will likely include reviewing compliance and enforcement activities under the proposed regulations and complementary law practice.

Theme	Summary of issues raised	Summarised response
National alignment		
National alignment, harmonisation and product stewardship	<ul style="list-style-type: none"> Lessons learnt from existing bans in Victoria and South Australia The importance of alignment and harmonisation with national processes, including existing product stewardship schemes Aligning the ban timing with future national product stewardship schemes (including identified priority “electrical and electronic products” expected in 2025) State and federal funding support for product stewardship scheme materials Harmonisation across jurisdictions to increase retail cohesion 	<ul style="list-style-type: none"> Lessons learned from other jurisdictions have helped inform the development of the proposed Western Australian ban implementation options. Western Australia has consistently confirmed its support for product stewardship and a coordinated national approach to waste policy. The initial phase of the ban largely focuses on e-waste with established national product stewardship schemes, which will help to support shared financial responsibility and participation of industry. The State Government will continue to seek information from, and work closely with, the Australian Government and states that have bans in place to achieve best outcomes and national harmonisation.
Financial implications		
Costs of participation (costs to local governments and residents)	<ul style="list-style-type: none"> Collecting e-waste for recycling may require financial investment from local governments to establish and operate. These costs may then be passed on to residents through rate increases or gate/drop-off costs. The focus of the E-waste Infrastructure Grant funding on collection and processing infrastructure does not consider ongoing operational costs. Costs for local governments to deal with potential increase in ‘bi-catch’, or items not covered under product stewardship schemes, because of the ban. The ban may result in collectors charging individuals a fee to drop-off banned e-waste items for recycling. There is potential for cost inequity between local government areas: <ul style="list-style-type: none"> Drop-off services may become overburdened with costs of collecting, transporting, and/or processing recycling from residents living outside of catchment areas. Those offering pick-up services to any person in the state will incur extra costs for others that do not offer recycling programs for e-waste to their residents. A potential increase in illegal dumping may result in increased costs to local governments. It was suggested that local governments be required to accept e-waste at no charge and be subsidised by private industry, because private industry is likely to financially benefit from increased recycling volumes. 	<ul style="list-style-type: none"> The State Government is considering the financial effects of implementing the ban and anticipating an increase of e-waste items to the collection and recycling network. In terms of the CBA, costs to local governments were estimated using information available at the time. Actual costs will be monitored in the early stages of the ban’s implementation to inform any remedial action that may be necessary. The scope of e-waste in the initial ban has been tailored to include those with established alternative pathways. Waste acceptance criteria for e-waste from non-residents may need consideration. Charges for e-waste management across local authorities may also need review and evaluation. The collection network, including local governments, may consider the application of the ‘user pays’ principle. Ban-specific communications will help to ensure the community is aware of the full scope of items included under the ban and the range of collection and recycling options for the state’s e-waste, including alternatives to local government collection and drop-off. E-waste Infrastructure Grant funding is aiding an expansion of local e-waste processing capacity and anticipates a reduction in costs for the collection network. Investigation and prosecution of illegal dumping offences under the EP Act will continue as normal. Incidences and frequency will be considered in performance evaluation. Commercial contractual arrangements between waste service providers and local governments are an agreement between involved parties, and outside of the remit of the department. The E-waste Technical Advisory Group includes the Western Australian Local Government Association as a member and provides an opportunity to consult on cost and implementation concerns in more detail.
Costs of participation (impact on charities, including costs)	<ul style="list-style-type: none"> The ban may impact charities if banned items are donated and can’t be resold. Grant funding may not be applicable for reuse and repair activities in a charity shop setting. 	<ul style="list-style-type: none"> An increase in the volume of unsalable e-waste left at charity locations and bins (i.e. illegal dumping) was seen in other jurisdictions as an unintended consequence of landfill bans. In Western Australia, the preferred approach to the ban does not place regulatory obligations on households in terms of what is placed in kerbside recycling bins. The approach uses community education and encouragement to play a key role in minimising problematic waste management choices. Messages that reiterate the importance of donating only saleable goods to charities, including e-products, will continue via long-term behaviour change initiatives like the WasteSorted program (Waste Authority 2019b). Charities may see benefits from partnerships with waste management providers, in turn delivering higher rates of recycling and an increase in recovery of unsalable products received. E-waste Infrastructure Grant funding is aiding an expansion of local e-waste processing capacity and anticipates a reduction in costs for the collection network. <ul style="list-style-type: none"> Grant funding announced in Round 1 will help provide a reduction in e-waste management costs for customers, including charities. One project that assists with reuse, involves the purchase and provision of asset recovery cages and shelving to the collection network to support source separation of e-waste. The E-waste Technical Advisory Group includes Charitable Recycling Australia as a member and provides an opportunity to consult on implementation concerns in more detail.
Geographic cost disparity	<ul style="list-style-type: none"> Greater recycling costs for regional, remote, non-metropolitan local governments due to transport costs and availability of collection and processing infrastructure 	<ul style="list-style-type: none"> The ban is not prescriptive in how e-waste is collected; local governments may tailor collections and choose options that work best for their geographical circumstances.

Theme	Summary of issues raised	Summarised response
	<ul style="list-style-type: none"> Suggestion that private industry should collect e-waste from non-metropolitan local governments if recycling is economically favourable for those companies 	<ul style="list-style-type: none"> In regional locations, periodic community drop-off events have been funded previously and are an example of collaboration of neighbouring areas to increase recycling outcomes and minimise costs. Communications from local governments will inform residents of these options and can be adapted as needed. The ban largely focuses on e-waste with established national product stewardship schemes to support shared financial responsibility and the participation of industry. The State Government will continue to advocate for improvements to national product stewardship schemes to ensure they reflect the full costs of collection and management from regional areas.
Financial incentives and support	<ul style="list-style-type: none"> State Government could provide financial incentives for local governments to participate State Government could provide support for local governments outside of the E-waste Infrastructure Grant funding process (additional resourcing for landfills, operational costs for local governments, etc.) Incentives could be provided for collection centres, including support for job creation Financial incentives could apply to e-waste generators when recycling an item, like a container deposit scheme model Financial assistance and support for charities Incentives for individuals to repair items (such as tax deductions) State government should support technological innovation that is not yet independently commercially viable Extended producer responsibility schemes and increased federal support through existing product stewardship schemes may reduce local government costs Funding for some federal product stewardship schemes has reduced over time Cost transparency across industry could assist local governments in securing cost competitive contract arrangements 	<ul style="list-style-type: none"> The preferred approach to the ban is multifaceted, where regulations are supported by communication, education and financial incentives to achieve a balanced result. The ban largely focuses on e-waste with established national product stewardship schemes to support shared financial responsibility and participation of industry. The preferred approach considers known existing collection and processing infrastructure capacity in Western Australia. Future growth in the waste industry is anticipated to increase processing capacity to meet the needs of the state. Additionally, well developed markets are likely to increase competition and reduce costs for participants, collectors and processors over time. It is expected that local governments will continue to tailor collections and choose options that work best for their circumstances following implementation of the ban. The commercial arrangements between waste contract providers and local governments are an agreement between involved parties, including cost of services to collect, store and transfer e-waste. Alternative e-waste collection options outside of local government-provided services may include drop-off, pick-up and take-back schemes. Some consumer return schemes/device upgrade programs offer discounts for upgraded products. Future incentive and financial assistance programs will be considered, with monitoring and evaluation data collected during the stages of the ban to provide key input into incentives and assistance needs. Financial incentives akin to a container deposit scheme model are not currently being considered as part of the ban. However, as mentioned above, there are options available to consumers that incentivise recycling of goods through brand-associated item return discounts and cash-back schemes. The department is also working with other State Government agencies such as the Department of Jobs, Tourism, Science and Innovation, to support and encourage innovation in e-waste recycling.
Cost benefit analysis	<ul style="list-style-type: none"> Western Australian costs are higher than what was represented. Disparity in geographical differences in Western Australia was not explicitly represented. Details about local government costs were less represented than industry benefits. 	<ul style="list-style-type: none"> Costs to local governments as part of the e-waste ban were stated as an estimation in the CBA. Further analysis and planning will be undertaken as part of detailed implementation work for the ban. Recordkeeping and reporting obligations proposed under the ban will facilitate the collection of more detailed Western Australian data, which will allow for further detailed monitoring and evaluation of the ban after implementation.
Capacity, infrastructure and access in Western Australia		
Market: drivers, development and support	<ul style="list-style-type: none"> Market development is required for ban success, specifically: <ul style="list-style-type: none"> increased competition among recyclers and processors end-market development for recycled materials. Submitters questioned whether there was excess recycling capacity in the state because of low demand for materials. Some items such as whitegoods have low value metal recovery as a recycling pathway. 	<ul style="list-style-type: none"> Predictions and modelling of e-waste material flows shows moderate and iterative increases of e-waste provided to the state's collection and recycling network, with national volumes of approximately 23 kilograms per capita generated by 2030. Government intervention such as regulation can be an effective driver of waste management market development, including through increasing supply of e-waste for recyclers. The grants are also funding 16 collection and storage infrastructure projects, which help achieve source separation of e-waste. Separated material streams are less contaminated by other materials and are easier and less costly for recyclers to recover. This represents a higher value product to recycling markets and supports end market development.
Infrastructure	<ul style="list-style-type: none"> Concerns about the capacity of Western Australian recycling industry, and whether this would be sufficient with an increased volume of materials following a ban Concerns about whether there is existing infrastructure in the state to recovery materials from e-waste Local infrastructure solutions are critical to the success of the ban It is important to build local capacity to reduce waste export activities 	<ul style="list-style-type: none"> The preferred approach to the implementation of the ban considers existing collection and processing infrastructure capacity in Western Australia and is providing infrastructure grants to help to grow the state's capability and capacity for managing e-waste. A state waste infrastructure plan is being developed to provide a long-term information framework to guide decision-making for the planning and development of waste infrastructure in Western Australia.

Theme	Summary of issues raised	Summarised response
Reasonable access	<ul style="list-style-type: none"> Reasonable access to services (including proximity, cost, ease of participation etc) for individuals should be considered. Geography and distance will impact access to services. A collection network beyond local government services would increase access. 	<ul style="list-style-type: none"> A map of collection points in regional Western Australia developed from publicly available information was provided in the consultation paper. It showed options for e-waste offered by local governments, including drop-off and pick-up services, as well as by private industry. Grants to support the expansion of industry capacity and increase recycling volumes are a key part of the ban and are not limited to local government services. Round 1 of grants funding will see 21 projects funded under the two streams, totalling \$6.5 million and providing pathways for 17,000 tonnes of e-waste to be diverted from landfill, with processing for 920,000 customers. Monitoring to assess performance and practicality will be carried out, including monitoring of the effects implementation on regions.
Reuse and repair	<ul style="list-style-type: none"> Development of reuse and repair markets should be considered. Grant funding for reuse and repair would assist in increasing options to reduce the frequency and volume of e-waste disposal. 	<ul style="list-style-type: none"> Government intervention such as regulation can be an effective driver of market development, including within the reuse and repair sectors. Round 1 of the E-waste Infrastructure Grant program accepted applications for eligible projects for equipment that assists with the reuse of e-waste. This aims to support industry capacity to reprocess e-waste, aligned with sustainable practices and a transition to a circular economy. Projects focusing on reuse, supported from Round 1 include: <ul style="list-style-type: none"> expansion of an e-waste refurbish and reuse workshop, with provision of tools, storage, benches from grant funding provision of cages and shelves for storing e-waste collected and to enable items to be readily assessed for repurposing and reuse sanitation equipment to divert up to 10,000 hard drives from landfill per year.
Waste to energy	<ul style="list-style-type: none"> Waste to energy facilities could impact the ban in relation to non-banned materials. There was a question about whether waste to energy facilities could process residual waste from e-waste recycling processes. 	<ul style="list-style-type: none"> More detailed information on residual material, and the intersection with waste to energy, will be available as part of stakeholder communication and education. Waste to energy activities and premises are subject to works approval and licensing requirements under the EP Act and EP Regulations. Waste to energy would continue to be an option for the contracting of waste services by local governments and/or private industry.
Education and engagement		
Community education	<ul style="list-style-type: none"> Detailed and accessible community recycling and disposal behaviour education Specific community education about what, how, and where to recycle, including information on product stewardship schemes that are in place Emphasis on reuse and repair education 	<ul style="list-style-type: none"> Work on delivery of the communications to support the ban has started and the department has committed to working with the collection network and recyclers to ensure immediate and ongoing messaging is timely, informative and relevant. The implementation program for the ban will utilise existing education mechanisms and new education materials to assist the community in participating in the ban.
Industry education and better practice guidance	<ul style="list-style-type: none"> Guidance material for industry and local government Education and guidance materials that have a best practice focus 	<ul style="list-style-type: none"> Details and information will be made available as part of stakeholder communication and education in the coming months. Supporting guidance will be provided to the community to describe and detail complementary collection and processing pathways.
Engagement and consultation	<ul style="list-style-type: none"> Ongoing engagement and consultation will assist implementation Engagement and consultation with Aboriginal and remote communities to address specific challenges faced by these communities 	<ul style="list-style-type: none"> Further community engagement will be undertaken as part of the ban implementation. Specific engagement with regional and remote First Nations communities about waste avoidance and resource recovery strategies is part of a review of the waste strategy that is currently underway.
Logistics and management		
	<ul style="list-style-type: none"> The impact of contractual arrangements between collectors and processors Whether degassing and other procedures would be ensured How landfills will monitor whether banned waste is entering a facility Issues such as space restrictions at charity and donation stores impacting whether banned e-waste products could be accepted, stored and transported for recycling 	<ul style="list-style-type: none"> Commercial arrangements between waste contract providers and local governments are an agreement between involved parties. Similarly, methodologies for acceptance and monitoring procedures are also determined by individual entities based on requirements. Local governments, landfill, private industry and other entities may tailor activities and choose options that work best for their circumstances. The ban is not prescriptive in terms of how e-waste is collected and managed, including which electrical and electronic items local governments, charities and other entities should accept or not accept. Entities should tailor acceptance options to work best for their circumstances. Illegal dumping will be subject to existing legislation and regulations under the EP Act.

Theme	Summary of issues raised	Summarised response
Risk and hazards		
	<ul style="list-style-type: none"> • Fire hazard resulting from the collection and recycling of batteries • Management of hazardous materials that can be found in some electrical and electronic products (such as heavy metals) • Risk of increased illegal dumping of banned materials 	<ul style="list-style-type: none"> • Hazardous materials and the associated risks, including fire hazards, will be managed using existing legislative and regulatory mechanisms. • Western Australia is working with the federal Department of Climate Change, Energy, the Environment and Water and other jurisdictions to manage hazardous e-waste materials, including their movement as managed under international conventions. • Illegal dumping will continue to be subject to existing legislation, regulations and support under the EP Act.
Extended producer responsibility		
	<ul style="list-style-type: none"> • The role of extended producer responsibility (including package labelling, retail take-back schemes and product design) in reducing the volume of e-waste generated in Western Australia, with potential actions including: <ul style="list-style-type: none"> - joint responsibility for waste reduction and recycling from retailers, manufacturers and local governments - legislation and regulations to mandate extended producer responsibility - delay of the ban until national extended producer responsibility initiatives are in place 	<p>The consultation process for the ban is limited to issues about the implementation options outlined within the consultation paper. The process to legislate and mandate manufacturer actions and processes is outside the scope of this commitment.</p>
Consultation and change process		
	<ul style="list-style-type: none"> • Public consultation and grant processes running concurrently reflects a lack of genuine consideration of submission feedback • Influence of the consultation process on the final decision • Access to public consultation limited by the lack of in-person engagement • Guiding principles are not reflected in the ban options 	<ul style="list-style-type: none"> • To allow sufficient time for the waste industry to establish necessary infrastructure using grant funding, the consultation and grant processes were run concurrently. • Public submissions for the e-waste ban are being considered in accordance with guidance from the Department of Treasury's Better Regulation Unit (2020). • Suggested methods included in the Better Regulation Unit guidance include public meetings and briefings, calls for submissions, direct communication to affected entities, media and advertising and large-scale social media activities. These options have all been undertaken as a part of this process. • Guiding principles of the ban option design are detailed the consultation paper (Table 4), along with an assessment of whether each option aligns with each guiding principle (Table 7).
Other issues		
	Circular economy	Implementation options for the ban consider several guiding principles in line with the focus of a Western Australian circular economy.
	Technological investment	Infrastructure to support new technology will be considered for grant funding.
	Government partnership with private industry (engagement and information)	Research into the most effective tools for community engagement, education, accurate information from recyclers and collectors, and industry participation will be undertaken prior to the ban coming into effect.
	Government funded resale activity	Suggestion was noted.
	Additional information provided on: <ul style="list-style-type: none"> • Regional recycling locations • B-Cycle premises 	Information was noted.
	Grant assessment processes	The E-waste Infrastructure Grant program was developed using the department's grants administration framework and toolkit, which closely aligns with the whole-of-government <i>Western Australian Grants Administration Guidelines 2022</i> (WA Government 2022). A key principle of government grants administration is open, transparent and equitable access to grants, and consistent and equitable grant funding decisions.
	Sustainable government procurement	Information was noted.

Appendix D – Implementation plan (proposed)

Department of Treasury Better Regulatory Practice recommends that a decision regulatory impact statement should discuss implementation plans and provide an outline of review plans (DoT 2021).

D1 Introduction

The State Government made an election commitment to deliver a statewide ban on e-waste disposal to landfill by 2024, to improve the management and recycling of the e-waste we produce.

This commitment builds on growing community expectations about how we manage end-of-life products. When Western Australians provide e-waste items for collection, it is important they are recycled and not taken to landfill. By removing landfill as an option, combined with community education and government grants to support collection and recycling infrastructure, the ban is anticipated to significantly increase the amount of e-waste being recycled by Western Australians.

The ban aligns with the vision, targets and objectives of the waste strategy and aligns with the department's *Strategic plan 2022–26* (DWER 2022).

D2 Purpose

The purpose of the implementation plan is to give an outline of actions, timing and governance of the implementation of a ban on the disposal of e-waste to landfill in Western Australia.

D3 Design and development

In 2021, following announcement of the commitment to ban e-waste from landfill by 2024, the department was tasked with the design, development and implementation of the ban.

The core approach underpinning the design of the ban was ensuring that an alternative to landfill disposal provided a practical approach that complemented established waste management schemes, supported industry and the economy, maximised resource recovery of materials and aimed to limit the risk of perverse outcomes.

Since 2021, the following actions have been undertaken:

- 2021: Publication of *Western Australia e-waste material flow analysis* (Encycle Consulting 2021)
- 2022: Publication of *Cost benefit analysis of options for an e-waste landfill ban in Western Australia* (Synergies Economic Consulting 2022)
- 2021–22: Research, policy, and development work to design potential implementation options to give effect to an e-waste to landfill ban in Western Australia
- 2023: Publication of *E-waste to landfill ban in Western Australia: Consultation paper* (DWER 2023a) and completion of 10-week public consultation process

- 2023: Round 1 E-waste Infrastructure Grants administered (open for applications, assessment period, grant funding recipient decisions)
- 2023: Publication of *E-waste to landfill ban in Western Australia: Consultation summary report* (DWER 2023b)
- 2023: Establishment of, and engagement with, the E-waste Technical Advisory Group
- 2023: Publication of *E-waste to landfill ban in Western Australia: Decision regulatory impact statement*
- 2023: Development of draft regulations: Waste Avoidance and Resource Recovery (e-waste) Regulations.

The ban is expected to be enacted before December 2024.

D4 Proposed Implementation Activities

Key action areas/milestones for the successful implementation of the ban have been identified. They are:

- ban commencement
- regulatory actions
- ancillary governmental changes
- communication and engagement
- ban evaluation and monitoring (including cost monitoring)
- reporting and recordkeeping
- grant funding.

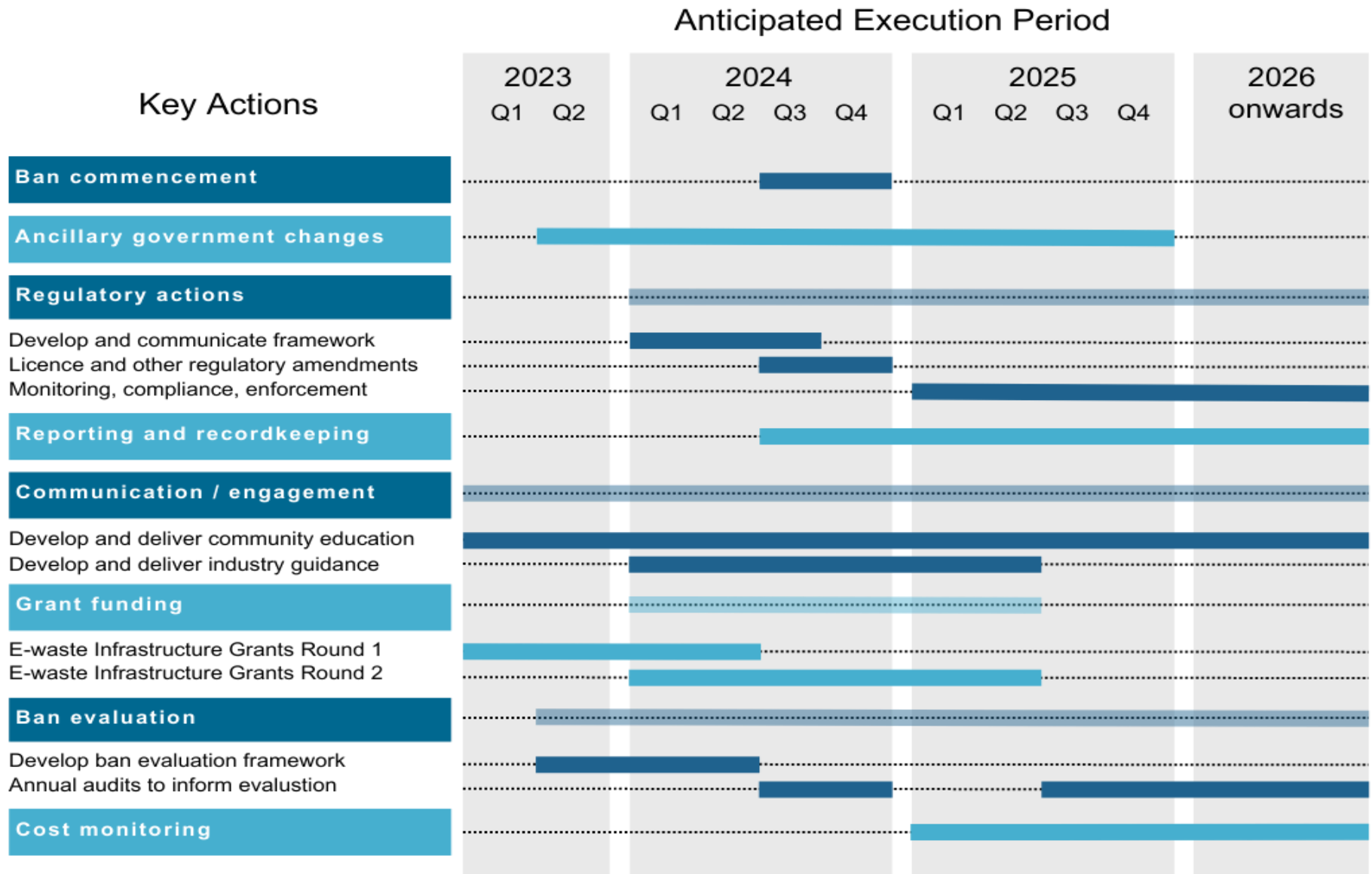
A brief description of each action area is provided below.

Table D1 Key implementation actions

Key action	Description	Responsible
Ban commencement	Legislation and regulatory change signalling commencement of a ban on e-waste disposal to landfill	State Government: <ul style="list-style-type: none"> • Department of Water and Environmental Regulation • Parliamentary Counsel's Office • Executive Council • Joint Standing Committee
Ancillary governmental changes	<ul style="list-style-type: none"> • Identify and implement updates, changes, and/or reviews for government procurement processes including Common Use Agreements in line with ban and objectives 	State Government: <ul style="list-style-type: none"> • Led by Department of Finance • Applicable to and actioned by all relevant government agencies, boards, and committees
Regulatory actions	<ul style="list-style-type: none"> • Develop and communicate framework for compliance, monitoring, and reporting required outside of, or in conjunction with, existing mechanisms 	State Government: <ul style="list-style-type: none"> • Department of Water and Environmental Regulation

Key action	Description	Responsible
	<ul style="list-style-type: none"> • Amendments to licences and other regulatory requirements where required • Conduct monitoring, compliance and enforcement under the ban following commencement 	
Reporting and recordkeeping	<ul style="list-style-type: none"> • Seek and receive reporting data (via independent expert) to inform recycling rates and inform ban performance 	State Government: <ul style="list-style-type: none"> • Department of Water and Environmental Regulation • Independent consultant
Communication and engagement	<ul style="list-style-type: none"> • Develop and deliver community education and awareness campaign • Develop and deliver industry guidance and/or education materials 	State Government: <ul style="list-style-type: none"> • Department of Water and Environmental Regulation • Waste Authority (long term messaging program)
Grant funding	<ul style="list-style-type: none"> • Advertise and deliver another round of funding through the E-waste Infrastructure Grants program • If remaining funds are not allocated to projects, further grant rounds will be undertaken 	State Government: <ul style="list-style-type: none"> • Department of Water and Environmental Regulation
Ban evaluation	<ul style="list-style-type: none"> • Develop ban evaluation framework through engagement of an external expert to ensure fair and independent evaluation metrics are developed • Utilise independent expert to undertake annual audits to inform ban evaluation 	<ul style="list-style-type: none"> • Led by Department of Water and Environmental Regulation • Undertaken by independent consultant
Cost monitoring	Ongoing cost monitoring for e-waste collectors, waste managers, e-waste recyclers, processors, charities, etc.	State Government: <ul style="list-style-type: none"> • Department of Water and Environmental Regulation

D5 Proposed implementation timeline



D6 Governance

An internal governance board was established in 2021 and has been in place throughout the work on the e-waste ban to oversee progress and monitor risk.

A project sponsor was appointed in 2021 and will continue to have oversight of risks and governance of the project after commencement until 2025.

Following enactment, legislative requirements for the regulator (the department) will apply.

D7 Continuous improvement

As outlined in the key implementation actions and anticipated timeline, there will be opportunities to consider annual audit data and evaluation events.

Collection and careful assessment of data is anticipated following the first year of commencement to inform initial performance of the ban, including the identification of any amendments that may be needed.

The long-term review horizon for the ban and associated regulations is intended to align with complementary and relevant legislative review processes within the department, such as the waste strategy and WARR Act reviews.

The E-waste Technical Advisory Group established in June 2023 comprises representatives from industry, government, not-for-profits, and peak bodies. The group will continue to be key advisory touchpoints over implementation and review-planning stages.

The government will continue to work closely with the Australian Government on national product stewardship schemes and will make ban amendments outside of scheduled reviews if required.