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Environment Legislation Amendment (Circular Economy and Other Matters) Bill 2022

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Acronyms

EPA: Environment Protection Authority

CERCC: Circular Economy, Risk, Consequence and Contingency Plan

DELWP: Department of Energy, Land, Water and Planning

MSW: Municipal solid waste

RERCC: Responsible Entity, Risk, Consequence and Contingency Plan

UNEP: United Nations Environment Program

WTE: Waste to energy

VRIP: Victorian Recycling Infrastructure Plan

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Executive Summary

The Environment Legislation Amendment (Circular Economy and Other Matters) Bill 2022 ('the Bill') aims to support Victoria's transition to a circular economy by amending the *Circular Economy (Waste Reduction and Recycling) Act 2021*, *Environment Protection Act 2017*, *Sustainability Victoria Act 2005*, *Climate Change Act 2017* and the *Victorian Civil and Administrative Tribunal Act 1998*.

As stated in the Bill's *Explanatory Memorandum*, these amendments are part of the Government's plan to avoid disruptions — similar to those caused by China's 2018 policy shift on recyclable materials and the collapse of SKM Recycling in 2019 — and ensure appropriate Government oversight. China's policy transition was announced in July 2017 and came into effect on 1 January 2018. The policy banned certain types of solid waste from importation into China and set strict contamination limits (Legislative Council Environment and Planning Committee, 2019, p. 45). For Victoria, this meant a build-up of recyclables waiting to be processed. The collapse of SKM Recycling in July 2019 further exacerbated problems, leaving over 30 councils without kerbside recycling services, and forcing them to divert recyclables to landfill (Oaten, 2019).

This paper provides an overview of the Bill by exploring Victoria's transition to a circular economy and recent legislative changes to the waste and recycling sector. As the Bill introduces a new waste to energy (WTE) scheme, the advantages and disadvantages of thermal WTE technologies and political party responses are also considered. Finally, Australia's international waste-obligations as well as relevant legislation and waste sector developments in other Australian jurisdictions are also summarised.

Introduction

On 7 June 2022, the Bill was introduced in the Victorian Parliament by the Minister for Energy, Environment and Climate Change, the Hon. Lily D'Ambrosio. The Bill amends several Acts to support Victoria's transition to a circular economy and establishes a waste to energy (WTE) scheme.

To contextualise the scale of Victoria's waste, between 2019-2020, 15.86 million tonnes of waste were generated in Victoria from all sectors, 2.37 million tonnes of which was collected from households. Of the total generated, 4.81 million tonnes of waste was sent to landfill and 11.05 million tonnes diverted from landfill (Sustainability Victoria, 2021). According to Sustainability Victoria's waste projection model, the total waste generated in Victoria is expected to increase in the coming years. By 2040, for instance, it is predicted that 20.8 million tonnes of waste will be generated annually (Sustainability Victoria, 2022).

Second Reading Speech

In her second reading speech on 6 June 2022, the Minister explained that this Bill is an extension of reforms introduced in the *Circular Economy (Waste Reduction and Recycling) Act 2021, '*to continue the delivery of this once-in-a-generation reform of Victoria's waste and recycling system, making it more transparent, accountable and reliable' (D'Ambrosio, 2022a, p. 2203).

The Minister provided a brief background on developments leading to the introduction of the Bill, including the *Circular Economy (Waste Reduction and Recycling) Act 2021*, and the publication of the *Recycling Victoria: a new economy* plan. She emphasised how this plan underscores the Government's commitment to a circular economy and reforming the waste and recycling system across Victoria (D'Ambrosio, 2022a, pp. 2203-2204).

The Minister outlined that the thermal WTE scheme 'will ensure appropriate waste to energy investment and help Victoria transition to a circular economy, support new jobs and reduce the waste sent to landfill' (D'Ambrosio, 2022a, p. 2204).

In her speech, the Minister stated that the new *Victorian Recycling Infrastructure Plan* (VRIP) will be:

> a single, streamlined plan with a 30-year horizon that will provide long-term strategic planning, guide and inform decision making and drive private sector investment in waste and resource recovery infrastructure at state, regional and local levels.' (D'Ambrosio, 2022a, p. 2205)

She described how the requirement of the VRIP to identify industry changes, development and disruption will give flexibility in identifying 'needs and gaps' to ensure that investment is occurring where it is most needed (D'Ambrosio, 2022a, p. 2205).

The Minister also outlined the requirements for the new *Circular Economy Risk, Consequence and Contingency Plan (CERCC)*, the *Responsible Entity Risk, Consequence and Contingency Plan (RERCC)* and an annual *Market Report* to 'provide a regular update about the state of waste, recycling and resource recovery market in Victoria' (D'Ambrosio, 2022a, pp. 2205-2206).

The Minister recommitted to the Government 'pursuing an ambitious waste and recycling agenda' and highlighted how this Bill follows on from other 'major transformational reform[s] of the waste and recycling sector' (D'Ambrosio, 2022a, p. 2207).

Background

National waste and recycling developments

At a national level, the *National Waste Policy* (DEE, 2018a) was released in 2018, followed by the *National Waste Policy: Action Plan* in 2019 (DEE, 2019). This policy 'embodies a circular economy, shifting away from 'take, make, use and dispose' to a more circular approach where we maintain the value of resources for as long as possible' (DEE, 2018, p. 3).

A circular economy is one that aims to extract as much value from a resource before reusing or recycling its components (Ellen Macarthur Foundation, 2017). Essentially, 'a circular economy seeks to eliminate waste and to keep resources in a continuously flowing loop' (Otter, 2018, p. 2). For further information on the circular economy, see the Parliamentary Library's previous paper, *The Circular Economy: An explainer* (2018).

On 23 October 2019, the House of Representatives Standing Committee on Industry, Innovation, Science and Resources accepted a reference from the Minister for Industry, Science and Technology, the Hon. Karen Andrews, to inquire into innovative solutions in Australia's waste management and recycling industries. In December 2020, they released their report, *From Rubbish to Resources: Building a circular economy*. Within this report, the Committee examined WTE technology and its future in Australia (House of Representatives Standing Committee on Industry, Innovation, Science and Resources, 2020). The Committee recommended that:

- The Commonwealth Government develop a national WTE policy in consultation with state and territory governments with consideration given to how WTE fits into the waste management hierarchy (see *Figure 1*).
- The Commonwealth Government reviews current state and territory WTE regulation with a view to ensuring national consistency across planning, approval and operational processes.

In January 2021, the CSIRO released a circular economy roadmap aimed at supporting industry and government in implementing a circular economy (CSIRO, 2021).

In April 2021, the state and territory Environment Ministers agreed to 'work collaboratively to improve the harmonisation of municipal waste collection, taking the first step within each state through the implementation of standards within each jurisdiction for kerbside recycling, and a national implementation roadmap that considers costs and benefits' (Environment Ministers, 2021).

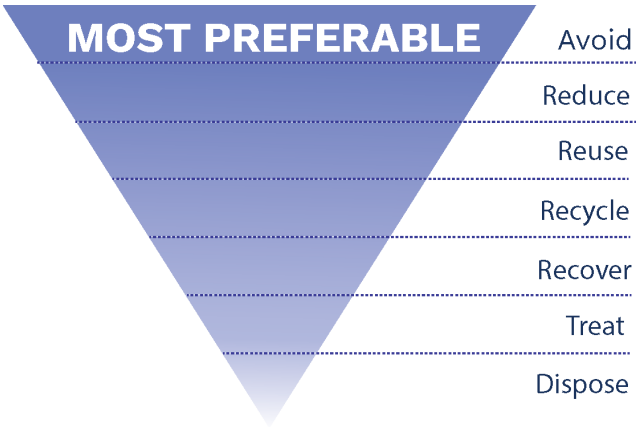

Figure 1: The waste management hierarchy (Adapted from DEE, 2018a, p.9).

Victoria's transition to a circular economy

Victoria has slowly been transitioning to a circular economy since 2015. The 2015 *Statewide Waste and Resource Recovery Infrastructure Plan,* published by Sustainability Victoria, outlined the 30-year plan for waste management. The plan provides a long-term vision to achieve an integrated system that:

- effectively manages the expected mix and volumes of waste;
- reflects the principles of environmental justice to ensure that impacts on the community, environment and public health are not disproportionately felt across communities;
- supports a viable resource recovery industry; and
- reduces the amount of valuable materials going in to landfill (Sustainability Victoria, 2015, p. 11).

In 2015, the Andrews Government released a discussion paper proposing a ban on e-waste from entering landfill (DELWP, 2015). This was followed by the Metropolitan Waste and Resource Recovery Group's 2016 *Metropolitan waste and resource recovery implementation plan*, which focused on strategies for reducing the amount of waste being sent to landfill, the recovery of organic waste and planning for growth (Metropolitan Waste and Resource Recovery Group, 2016).

In 2017, a $2 million *Waste to Energy Infrastructure Fund* was launched to 'boost sustainable energy production using organic and other materials and divert more waste from landfill' (D'Ambrosio, 2017). In October of the same year, DELWP released a discussion paper, *Turning waste into energy* (DELWP, 2017). The discussion paper was released to explore 'the opportunities and constraints' of WTE technologies and sought feedback from the community on how WTE could be implemented in Victoria (DELWP, 2017, p. 3). In August 2017, an interim waste management policy was published.

In 2018, an update to the 2015 *Statewide Waste and Resource Recovery Infrastructure Plan* was released with the transition to a circular economy central to the Plan (Sustainability Victoria, 2018). In July 2018, the Recycling Industry Strategic Plan, which focused on building resilient kerbside recycling was published (DELWP, 2018). Part of the plan identified that the state was aiming for a 'waste and resource recovery system informed by circular economy principles' (DELWP, 2018, p. 14).

In July 2019, the Victorian Government released the discussion paper, *A circular economy for Victoria: creating more value and less waste*, and implemented the circular economy policy (DELWP, 2019; D'Ambrosio, 2019a). The objective was to meet the Government's obligations as outlined in the *Climate Change Act 2017.*

In March 2019, following the disruption to the recycling industry caused by China's policy shift and the collapse of SKM Recycling, the Legislative Council agreed to a motion for the Environment and Planning Committee to urgently inquire into 'the crisis in Victoria's recycling and waste management system.' The final report was released in November 2019 and the Government accepted 45 of the 46 recommendations in full, in part or in principle (Victorian Government, 2019).

In February 2020, DELWP published *Recycling Victoria: a new economy* as a ten-year plan for waste and recycling. The plan set four key targets:

1. Divert 80% of waste from landfill by 2030.
2. Cut total waste generation by 15% per capita by 2030.
3. Halve the volume of organic material going to landfill between 2020 and 2030.
4. Ensure every Victorian household has access to food and garden organic waste recycling services or local composting by 2030 (DELWP 2020).

In 2020, Sustainability Victoria published *The path to half: Solutions to halve Victoria's food waste by 2030* (Sustainability Victoria, 2020).

In November 2021, the *Waste to Energy Framework* was released, outlining how a WTE sector could contribute to reducing the state's reliance on landfill (DELWP, 2021). In 2022, the Minister for Environment and Climate Change announced a *Waste to Energy Bioenergy Fund* to support the transformation of organic waste into bioenergy (D'Ambrosio, 2022b).

In December 2021, the Andrews Government passed the Circular Economy (Waste Reduction and Recycling) Bill 2021. In her second reading speech, the Minister for Energy, Environment and Climate Change said the Bill was 'a central part of the Victoria Government's once-in-a-generation reform of Victoria's waste and recycling system' (D'Ambrosio, 2021). The Bill laid the foundation for transitioning to a circular economy and established a legislative framework for key parts of *Recycling Victoria: A new economy plan* to be implemented. This included:

- establishing the Head, Recycling Victoria within DELWP as a regulator to oversee and provide leadership for the waste and recycling sector;
- disbanding the seven Waste and Resource Recovery Groups and establishing Recycling Victoria;
- establishing mandatory reporting requirements for waste data (previously data reporting was voluntary and therefore incomplete);
- creating a legislative obligation on councils and alpine resort management boards to provide households with four bins for solid waste and recycling services;
- setting standards and regulation for all providers of waste, recycling or resource recovery services and waste streams; and
- establishing the container deposit scheme to be overseen by a single scheme coordinator.

In May 2022, the Legislative Council Environment and Planning Committee released their final report of their *Inquiry into Renewable Energy in Victoria*, investigating Victoria's transition to renewable energy. The inquiry included bioenergy and WTE as a renewable energy source for Victoria. The Government is yet to respond to the inquiry.

The Bill

The Bill amends the *Circular Economy (Waste Reduction and Recycling) Act 2021* and the *Environment Protection Act 2017* to further reform the Victorian waste and recycling industry. It also makes consequential amendments to the *Sustainability Victoria Act 2005*, the *Climate Change Act 2017* and the *Victorian Civil and Administrative Tribunal Act 1998*.

Amendments to the *Circular Economy (Waste Reduction and Recycling) Act 2021*

The Bill seeks to amend the *Circular Economy (Waste Reduction and Recycling) Act 2021* to:

- introduce a single *Victorian Recycling Infrastructure Plan* (VRIP);
- establish a waste to energy scheme;
- provide for powers relating to the circular economy market powers, including powers relating to risk, consequence and contingency planning for the circular economy;
- further provide for matters relating to compliance and enforcement; and
- make other miscellaneous, minor and technical amendments to the Act.

Victorian Recycling Infrastructure Plan (VRIP)

Clause 8 of the Bill inserts a new Part 2A into the *Circular Economy (Waste Reduction and Recycling) Act 2021* regarding the new VRIP. This plan will replace eight current documents under the *Environment Protection Act 2017* to support Victoria's recycling sector. The Bill will also repeal the infrastructure planning framework under the *Environment Protection Act 2017*.

The VRIP will 'provide long-term strategic planning to guide and inform decision-making in relation to waste, recycling and resources recovery infrastructure at State, regional and local levels' and 'long-term strategic planning in relation to Victoria's waste, recycling and resource recovery infrastructure needs for a period of 30 years' (Bill, 2022, cl 8).

The Head, Recycling Victoria will be responsible for drafting this plan, following advice from relevant stakeholders such as a Waste and Resource Recovery Group (WRR), Sustainability Victoria, the Secretary of DELWP, and the Environment Protection Authority (EPA). The draft of the plan must also be provided to stakeholders and their comments incorporated. Final approval will be provided by the Minister before it is released.

The Plan will provide information on:

- Development areas to meet Victoria's waste, recycling, and resource recovery infrastructure needs.
- Directions or actions to take in relation to waste, recycling, and resource recovery infrastructure at three-year intervals during the 30-year period of the VRIP.
- A list of future waste, recycling and resource recovery infrastructure needed for the state to manage waste to:
    - provide for the development of infrastructure based on the state's needs; and
    - minimise risk to human health and the environment for the 30-year period of the VRIP.
- A schedule of existing landfill sites and future landfill sites required across the state for the 30-year period of the VRIP.

Waste to energy (WTE) scheme

The Bill seeks to insert a new Part 5A to the *Circular Economy (Waste Reduction and Recycling) Act 2021 to* establish a WTE scheme. Under the scheme, WTE refers to thermal processes used to 'recover energy from waste in the form of heat, which may be converted into steam or electricity and/or to produce a fuel from waste' and excludes:

- advanced recycling processes;
- biological waste to energy processes (for example, anaerobic digestion);
- landfill gas collection and combustion;
- the incineration of waste without energy recovery;
- processes that recover energy from a material other than waste; or
- a process prescribed in regulations not to be a thermal waste to energy process (DELWP, 2021).

Wastes permitted to undergo WTE processing are captured in *Figure 2.* Permitted wastes are residual wastes for which no further recycling is practical. Banned wastes are recyclable or need further recycling or sorting, and exempt wastes are either already commonly used for renewable thermal bioenergy production in Victoria, or have more important priorities for their management, such as hazardous wastes.

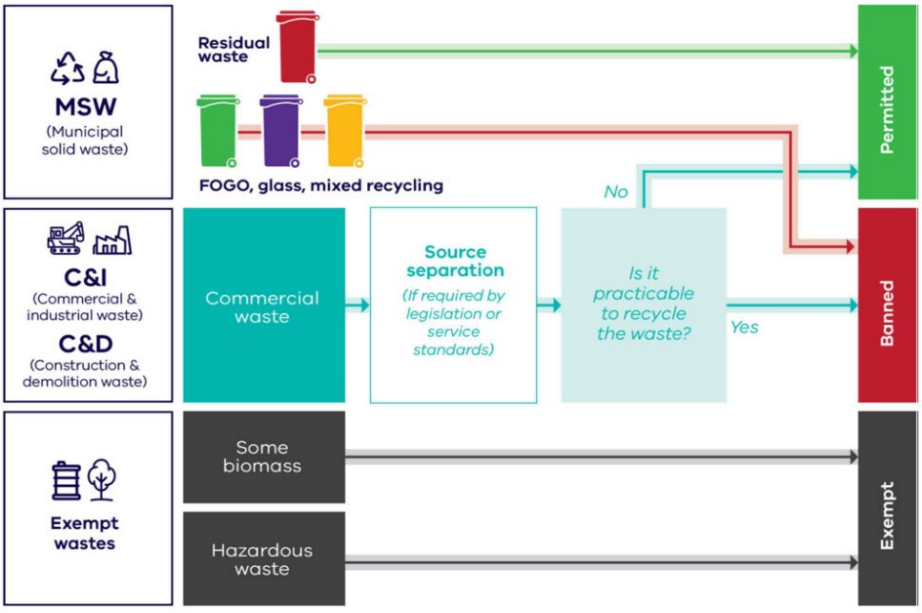

Figure 2: Permitted, banned and exempt wastes under the Victorian waste to energy framework (DELWP, 2021, p. 12).

The WTE scheme establishes an annual cap limit on the amount of waste that can be sent to thermal WTE facilities in Victoria. The Bill, however, does not explicitly specify the limit amount. According to the *waste to energy framework*, the cap will limit the amount of waste that can be sent to thermal WTE facilities in Victoria to 1 million tonnes per year until 2040.

The framework outlines that the cap:

- should encourage investment in facilities that achieve the goals and targets of Recycling Victoria;
- support a diverse and competitive waste to energy market;
- should be applied through a consistent, transparent and fair mechanism.

The cap limit will operate and be regulated through cap licences. As described in the framework, cap licences will be allocated through a competitive process (illustrated in *Figure 3*) as coordinated by the WTE cap scheme regulator. The *Victorian waste to energy framework* details how the cap licence applications will be assessed, and the conditions applied to licence holders.

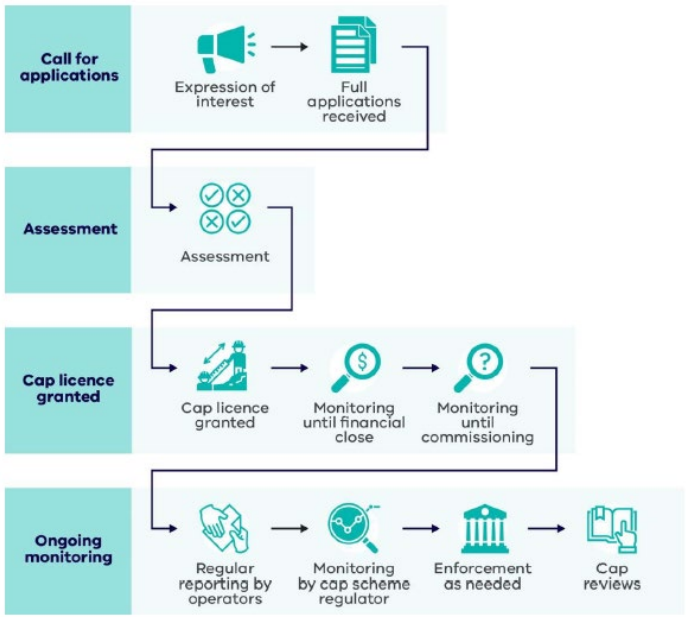

Figure 3: Cap license applications and assessment process under the Victorian waste to energy framework (DELWP, 2021, p. 16).

It should be noted that certain exceptions are expected to apply to the cap licence scheme.

For instance:

- Facilities already operating or in possession of a planning permit as of 28 June 2021 will not have to comply with the 1 million tonne annual cap but must still hold a cap licence. Such facilities will not be assessed against the evaluation criteria and instead 'will automatically be granted a cap license following receipt of a completed application.'
- Melbourne's south-east will be given priority to meet a critical waste infrastructure need.
- Facilities processing only exempt waste will not require a cap licence for their operations.
- Facilities using advanced recycling processes, converting waste into new raw materials, are not considered thermal WTE facilities and therefore do not fall within the cap scheme (DELWP, 2021).

Circular economy market powers

The 2019 *Inquiry into recycling and waste management* found that SKM was responsible for approximately 50% of Victoria's recycling (Legislative Council Environment and Planning Committee, 2019, p. 51). SKM sent a significant portion of their waste overseas to China, the processing of which was impacted by China's waste policy transition. The collapse of SKM Recycling came about after repeated breaches of safety standards leading to fines and bans from EPA Victoria (EPA Victoria, 2019a; 2019b; 2019c; 2019d). After the collapse of SKM, the Government assisted with a $6.6 million relief package for councils and a $10 million loan to SKM's receivers KordaMentha to help clean up the sites and resume processing (D'Ambrosio, 2019b; D'Ambrosio, 2019c). SKM was later acquired by Cleanaway Management Limited (Cleanaway, 2019). The interim period meant some councils had to send their recyclable materials to landfill (Legislative Council Environment and Planning Committee, 2019, pp. 52-53).

One of the Committee's findings was that:

> There was a significant overreliance on one company to provide recycling services, which utilised a business model that relied on export to overseas markets for processing Victoria's recycling material. This exposed Victoria to sudden market fluctuations and changes. (p. 51)

Accordingly, to avoid similar disruptions in the future, the Bill includes three additional plans to help mitigate any future disruptions: the *Circular Economy, Risk, Consequence and Contingency Plan (CERCC)*; the *Responsible Entity, Risk, Consequence and Contingency Plan (RERCC);* and the *Market Plan*.

Circular Economy, Risk, Consequence and Contingency Plan (CERCC)

The Head, Recycling Victoria must prepare and submit a CERCC Plan on or before 31 December each year. This plan will:

- Outline possible interruptions or failures in the provision of waste, recycling or resource recovery service.
- Identify any financial risks to the transition responsible entities and to Victoria transitioning to a circular economy.
- Identify any possible disruptions to the waste, recycling and resource recovery sector within the circular economy markets or part of the market (Part 2, Division 4, section 74B).

Responsible Entity, Risk, Consequence and Contingency Plan (RERCC)

RERCC Plans will be developed and maintained by responsible entities. This statutory requirement will be reported to Recycling Victoria annually via a Statement of Assurance. The entities that will be required to develop an *RERCC* will be outlined in future regulations.

An *RERCC* will identify 'risks of serious failure, disruption or hindrance to the provision' of waste and recycling services and specify actions to access them (section 74F).

Responsible entities will be required to demonstrate that the *RERCC* complies with the *CERCC*. The statement of assurance must be submitted on or before 20 September 2024 and on or before 30 September each year.

Market Plan

Part 2 section 7 inserts a new Section 32 regarding market strategies and a new Section 32B regarding a market report. The Head, Recycling Victoria may submit to the Minister a Market Plan to 'foster sustainable markets for recycled materials and resources recovered from waste' (Part 2, clause 7, Section 32).

The new section 32B will require the Head, Recycling Victoria, to submit a Market report that will 'provide a regular update about the state of the waste, recycling and resource recovery market in Victoria' (Explanatory Memorandum, p. 7). This report may provide an overview of:

- the circular economy market, its performance and any developments or changes within the market;
- the market for products and materials generated within the circular economy market;
- an assessment of the circular economy market within the circular economy;
- any recommendations regarding possible market instability including performance issues or supply issues within the circular economy market;
- the goals or priorities of the Head, Recycling Victoria in relation to the circular economy (Section 32C).

Amendments to the *Environment Protection Act 2017*

The Bill will make several amendments to the *Environmental Protection Act 2017* to 'enhance the operation and effectiveness of the Act, including the operation and effectiveness of the Environment Protection Regulations 2021' and ensure that EPA Victoria can properly complete their regulatory functions (Bill, 2022, Part 3, cls 25-71).

Amendments to the *Sustainability Victoria Act 2005*

The Bill will enable Sustainability Victoria to share information for purposes relating to environmental sustainability, environment protection and the circular economy (Bill, 2022, Part 4, cls 76-78).

Amendments to the *Climate Change Act 2017*

The Bill also seeks to amend Schedule 1 in the *Climate Change Act 2017* to require 'persons making certain decisions under the *Circular Economy (Waste Reduction and Recycling) Act 2021* to take climate change into consideration' (Bill, 2022, Part 4, cl 79).

The *Climate Change Act 2017* provides the legislative framework to manage 'climate change risks, maximise the opportunities that arise from decisive action, and drive our transition to a climate-resilient community and economy.' The Act defines climate change as 'a change of climate which is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and which is in addition to natural climate variability observed over comparable time periods.'

Amendments to the *Victorian Civil and Administrative Tribunal Act 1998*

Finally, the Bill aims to amend the *Victorian Civil and Administrative Tribunal Act 1998* to vary the operations of section 51 of that Act in relation to the review of decisions relating to the WTE scheme (Bill, 2022, Part 4, cl 80).

Thermal waste to energy considerations

Waste to energy (WTE), also referred to as energy from waste (EfW) and energy recovery (ER) (Australian Renewable Energy Agency, 2022), can be defined as a range of technologies that convert waste into electricity, heat, fuel, or other usable materials, as well as a variety of residues such as fly ash, sludge, slag, boiler ash, wastewater and emissions (UNEP, 2019). These technologies vary based on the type of waste used (feedstock), processing methods and the type of energy generated (House of Representatives Standing Committee on Industry, Innovation, Science and Resources, 2020, p. 85).

The main WTE processes are:

- thermal, including incineration, gasification, pyrolysis and plasma arc technologies;
- biological processes such as anaerobic digestion; and
- capturing methane from landfill emissions for use in electricity generation.

There are both advantages and disadvantages of WTE technologies and, as such, it is a contentious subject in waste management and resource recovery. Below, the benefits and concerns of thermal WTE technology, as being developed under the new waste to energy scheme, are explored.

Advantages

- WTE technologies offer a potential solution to waste that currently cannot be recycled or reused. WTE facilities therefore divert this type of waste from landfill (House of Representatives Standing Committee on Industry, Innovation, Science and Resources, 2020).
- WTE can reduce greenhouse gas emissions if used as an alternative to open burning, uncontrolled dumping and sanitary landfills. As described in the UNEP *WTE report*, 'WTE can avoid methane gas emissions from decomposing organic waste in landfills and prevent environmental pollution associated with leaching' (UNEP, 2019).
- WTE may be a renewable energy source when the feedstock used is produced using renewable, non-finite resources. Such feedstock may include wood waste, agricultural waste, food and food processing waste; and the biomass components of municipal solid waste (MSW) and sewage (House of Representatives Standing Committee on Industry, Innovation, Science and Resources, 2020).
- The technology may offer a localised waste management option where waste is managed close to the generation location to minimise transportation costs and emissions (House of Representatives Standing Committee on Industry, Innovation, Science and Resources, 2020).

Disadvantages

- Economic factors: As outlined by the UNEP (2019), thermal WTE plants require large investment and operation costs that are generally higher than other waste treatment methods.
- Potential human health impacts: Despite growing global interest in WTE technologies, there remains a dearth of research on the potential health impacts of WTE-related emissions.
    - A 2019 systematic overview of the health impacts of waste incineration identified significant associations between neoplasia, congenital anomalies, infant deaths and miscarriage (Tait et al., 2019). The authors noted that newer incinerator technologies may reduce the health impacts, but advocated for a precautionary approach and the need for more research (Tait et al., 2019, p. 40).

- Environmental impacts: There are significant concerns around the release of emissions by thermal WTE technologies.
    - While dependent on the content of the feedstock being incinerated, a range of emission pollutants, including dioxins and toxic emissions have been associated with thermal WTE processes. For example, plastics are likely to produce more toxic emissions than other materials as they are predominately oil and gas based (Harrabin, 2018). Although new incinerator technologies have filtration systems that capture much of the dioxins released, the dioxins are simply transferred into a solid form of ash residue, which then needs to be disposed.
- Social concerns: Public opposition is often a major obstacle for thermal WTE projects.
    - For example, in Victoria, a petition was submitted to the Mount Alexander Shire Council in October 2021, urging the council to prohibit any new facilities for thermal treatment of waste by incineration, pyrolysis or any other methods (Lamb, 2021). There was also opposition to plans for a WTE facility in Lara, Geelong (Coates, 2021).
- Potential lock-in effect: As described by the UNEP (2019), the lock-in effect refers to the requirements for a fixed amount of waste for incineration over a plant's life, which could undermine other waste management efforts, ultimately threatening the transition to a circular economy.
    - As an example, in Sweden in 2014 there was a shortage of MSW for thermal incineration due to successful waste reduction efforts and overcapacity of the WTE plant. Overcapacity in this instance was solved by importing waste from neighbouring countries (UNEP, 2019, p. 34).

Political Party positions

Unsurprisingly, given the varied arguments for and against WTE technologies, debate surrounds the necessity of WTE in Victoria's transition to a circular economy.

The Liberal-National Coalition

On July 17 2022, the Victorian Opposition Leader Matthew Guy unveiled the Liberal-National Coalition policy to legislate an emissions reduction target of 50% by 2030 if the Coalition wins the November 2022 state election (Goddle, 2022). As part of this target, the Liberal-National Coalition are in favour of further development of WTE across Victoria.

In the Legislative Council Environment and Planning Committee's *Inquiry into Renewable Energy in Victoria* (2022), the Nationals Member for Eastern Victoria Region, Melina Bath, moved to include the words 'opportunities to enhance energy from waste projects should be encouraged.' The addition, however, was voted down. In response, on 19 May 2022, the Liberals and Nationals released a minority report to 'address the shortcomings' of the Committee's majority report (2022). According to the Nationals' 26 May 2022 media release, the Inquiry had 'failed to acknowledge the positive contribution that waste to energy and hydrogen can make in helping Victoria to achieve its commitment to net-zero by 2050' (Bath, 2022).

This position follows the Liberal-National *Zero to Landfill Plan* (2019), which sets out to:

- commit $120 million over four years from the states' Sustainability Fund to create a Zero to Landfill Fund. This Fund will have a 'Recycling Futures' stream to help upgrade recycling facilities and an 'Energy from Waste' stream to deliver energy-from-waste projects in Victoria;
- commit government departments to work with industry to expedite approvals to get Victoria's waste management and recycling back on track; and
- set an ambitious target to eliminate household waste going to landfill by 2035.

The Greens

On 12 September 2019, the Victorian Greens introduced a motion calling for a moratorium on any plans for waste incineration across the state, citing that waste incinerators had been given the green light 'with minimal environmental or health safeguards.' Leader of the Victorian Greens, Samantha Ratnam, is quoted as saying 'mass incineration is a short-cut that Victoria's environment can't afford.' (Ratnam, 2019).

With their 12 September 2019 media release, the Greens also released a WTE factsheet, *Waste to energy incinerators: Greenwash at its best*. The key arguments outlined that:

- incineration will undermine the transition to zero waste and a low-emissions circular economy;
- waste incineration plants generate significant volumes of greenhouse gas emissions;
- waste incinerators are energy inefficient and expensive;
- incinerators generate hazardous waste and bottom ash, which contains hazardous elements that need to be disposed of in landfill in high volumes;
- incinerators may have negative public health impacts.

As of July 2022, the Victorian Greens were also urging people to sign a petition 'to stop toxic waste incinerators,' citing that 'a new polluting and hazardous industry is being given the green light in Victoria' (The Greens Victoria, 2022).

Australia's international obligations

Below are some of Australia's international obligations for solid waste management. In a 2018 submission to the inquiry into the waste and recycling industry in Australia, the Department of Environment and Energy explained that these international agreements focus on solid wastes that are 'especially hazardous or of significant risk to the environment' (2018b, p. 2).

Basel Convention

The Basel Convention aims to reduce the movement of hazardous waste between nations and prevent transfer of hazardous waste from developed to less developed countries (DCCEEW, 2021c).

Waigani Convention

The Waigani Convention is a regional commitment under the Basel Convention to reduce the amount of waste produced by signatories and regulate the international transport of hazardous wastes.

Stockholm Convention

The Stockholm Convention was adopted in 2001 and entered into force in 2004. The Convention is a global treaty to protect human health and the environment from persistent organic pollutants (POPs). POPs are pesticides and industrial chemicals that are persistent in the environment, bioaccumulate in organisms, are toxic to human health and the environment and can be transported long distances (DCCEEW, 2022b).

Rotterdam Convention

The Rotterdam Convention is multilateral agreement which establishes a procedure for obtaining and exchanging information between countries regarding certain hazardous chemicals, including pesticides and industrial chemicals that have been banned or severely restricted for health or environmental reasons (DCCEEW, 2021b).

Montreal Protocol

The Montreal Protocol is an international agreement made in 1987, which has achieved universal ratification. It was designed to stop the production and import of ozone depleting substances and reduce their concentration in the atmosphere to help protect the earth's ozone layer (DEE, 2018c).

Minimata Convention

The Minimata Convention aims to protect human health and the environment from anthropogenic emissions as well as mercury and mercury compound releases in the environment. Australia ratified the Minimata Convention on 7 December 2021 (DCCEEW, 2022a).

Other Australian legislation

Federal legislation

The *National Waste Policy Action Plan* (DEE, 2019) (as discussed on page 6) is legislatively supported by the *Recycling Waste and Reduction Act 2020*, which commenced on 16 December 2020. The Act aims to 'develop a circular economy that maximises the continued use of products and waste materials over their life cycle and accounts for their environmental impacts.'

ACT

In June 2016, the Waste Management and Resource Recovery Bill was introduced to promote and reward responsible practices in waste management and resource recovery. The Bill passed in August 2016 and was notified on 24 August 2016. The objectives of the *Waste Management and Resource Recovery Act 2016* are to:

- manage waste according to the waste management hierarchy;
- support innovation and investment in waste management;
- promote responsibility for waste reduction; and
- promote best-practice waste management.

The legislative regulation under the Act is the *Waste Management and Resource Recovery Regulation 2017*.

In May 2020, the ACT Government released its new *Waste to Energy Policy 2020-25*. The policy explicitly states that 'thermal treatment of waste including, incineration, gasification and pyrolysis will not be permitted in the ACT.' Instead 'non thermal means of energy recovery such as anaerobic digestion, or the production of refuse derived fuel (RDF) will be permitted.' This was touted by the ACT Greens as a win for the community against 'big, dirty waste polluters' (Jervis-Bardy, 2020).

New South Wales

In 2021 the NSW Government released its updated *NSW Waste and Sustainable Materials Strategy 2041.* Alongside this strategy, the *NSW Plastics Action Plan* and *NSW Waste and Sustainable Materials Strategy* were also released. The strategy set targets to reduce total waste generation, increase recovery rates to 80% from all waste streams by 2030, phase out problematic plastics and halve the amount of organic waste sent to landfill by 2030.

In September 2021, the NSW Government also released its *Energy from Waste Infrastructure Plan*, which supports the *Waste and Sustainable Materials Strategy 2041*. This Plan outlines the Government's support for thermal energy recovery as a residual waste management option 'where it can deliver positive outcomes for the community while protecting human health and the environment.'

This Plan was enacted in legislation on 8 July 2022 by the *Protection of the Environment Operations (General) Amendment (Thermal Energy from Waste) Regulation 2022*, which amends the *Protection of the Environment Operations (General) Regulation 2021.*

Queensland

The Queensland Government's *State of the Environment 2020 Report* describes that Queensland is in the early stage of its 'industry-led transition to a circular economy' (Department of Environment and Science, 2021). In 2021 the *Waste Reduction and Recycling Plan 2021-2024* was released in accordance with the *Waste Reduction and Recycling Act 2011* and the *Waste Management and Resource Recovery Strategy*.

On 4 June 2021, the Queensland Government released their *Energy from Waste (EfW) Policy* as a key action under the *Waste Management and Resource Recovery Strategy*, which is guided by principles set out in the *Queensland Waste Reduction and Recycling Act 2011* and the *Environmental Protection Act 1994*. The policy outlines the requirements for proponents establishing WTE facilities in the state to ensure that projects are technically sound, compatible with future recycling goals, and meet high standards of community engagement, environmental protection and energy production. The policy also outlines a preference for industries that produce higher value commodities such as solid or liquid fuels from residual waste materials, over the production of electricity and heat.

South Australia

Waste management in South Australia comes under the purview of the *Environment Protection Act 1993*, *Environment Protection Regulations 2009*, *Environment Protection (Waste to Resources) Policy 2010* and the *Environment Protection (Air Quality) Policy 2016*.

In April 2020, the South Australian Environment Protection Authority released their *Thermal energy from waste (EfW) activities position statement*. The statement outlines that:

> In keeping with the waste management hierarchy and circular economy objectives, thermal EfW activities using waste that would otherwise be disposed to landfill are supported once sufficient material resource recovery has been undertaken. The production and use of refuse derived fuel from waste that would otherwise be disposed to landfill will be supported where it includes appropriate material resource recovery, as set out by this position statement. (p. 1)

Western Australia

In September 2020, the Western Australian Government's Waste Authority released a *Position statement on waste to energy: Getting our Waste Sorted*, aligning with the 2019 *Waste avoidance and resource recovery strategy 2030*, and replacing the *Waste to Energy Position Statement (Thermal Treatment) 2013*. The position statement states that:

> The waste strategy recognises the role of waste to energy as an alternative to disposal to landfill. It also recognises that, consistent with the waste hierarchy and achieving a circular economy, avoiding waste and then maximising material recovery is preferable to energy recovery. To maximise material recovery, energy recovery should only be used for residual waste once better-practice source separation approaches have been exhausted. (p. 15)

The legislation currently supporting WA's waste strategy is the *Waste Avoidance and Resource Recovery Act 2007* and the *Environment Protection Act 1986*.

Northern Territory

The Northern Territory's *Circular Economy Strategy 2022-2027* outlines the Government's plans to reduce, reuse and recycle waste into a valuable resource. The strategy focuses on three key priorities (p. 9):

- modernising the regulatory framework to protect the environment and create the right regulatory settings for growing the circular economy;
- transitioning the Territory to a circular economy; and
- establishing the waste industry as a contributor to the Territory's vision to achieve a $40 billion economy by 2030.

Within this, the Northern Territory Government aims to 'ensure the regulatory regime provides a solid foundation to support the growth of a local recycling and waste recovery industry.' However, explicit regulatory guidance on thermal WTE development is yet to emerge from the Northern Territory.

Tasmania

Between March and July 2022, the *Waste and Resource Recovery Act 2022* came into effect in Tasmania, which operates alongside the *Environmental Management and Pollution Control Act 1994*. The *Waste and Resource Recovery Act* outlines the establishment of the Waste and Resource Recovery Board to provide strategic oversight to guide Tasmania's circular economy agenda. It also introduces a state-wide levy on waste disposed to landfill as a mechanism to disincentivise landfill and encourage strategic investment in Tasmania's waste and resource recovery sectors.

In terms of WTE technologies, in December 2020, the *Tasmanian Renewable Energy Action Plan* was released to assist in transforming Tasmania into a 'global renewable energy powerhouse.' A key action of the Plan was to develop the *Bioenergy Vision for Tasmania*. The draft was open for public feedback from 15 December 2021 to February 2022. The Government is currently considering the feedback and will release a final *Bioenergy Vision* for Tasmania in late 2022.

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