D25/23363

Carolyn Jackson

Deputy Secretary, Regions, Environment, Climate Action and First Peoples

Department of Energy, Environment and Climate Action

Level 1, 8 Nicholson Street

EAST MELBOURNE VIC 3002

4 March 2025

Dear Ms Jackson,

Regulatory Impact Statement FOR THE Circular Economy (Waste Reduction and Recycling) (Waste to Energy Scheme) Amendment Regulations 2025

I would like to thank your staff at the Department of Environment, Energy and Climate Action (the Department) for working with the team at Better Regulation Victoria on the preparation of the Regulatory Impact Statement (RIS) for the Circular Economy (Waste Reduction and Recycling) (Waste to Energy Scheme) Amendment Regulations 2025 (the proposed Regulations).

The Commissioner for Better Regulation is required to provide independent advice on the adequacy of RISs in accordance with the Subordinate Legislation Act 1994 Guidelines (the Guidelines). However, as the office of the Commissioner for Better Regulation is currently vacant, the Secretary to the Department of Treasury and Finance (or their delegate) is responsible for providing independent advice on the adequacy of RISs, in accordance with the Guidelines. The Secretary has delegated this responsibility to me in my capacity as Deputy Secretary of Economic Division.

A RIS is deemed to be adequate when it contains analysis that is logical, draws on relevant evidence, is transparent about any assumptions made, and is proportionate to the proposal’s expected effects. The RIS also needs to be clearly written so that it can be a suitable basis for public consultation.

I am pleased to advise that the final version of the RIS received on 4 March 2025 meets the adequacy requirements set out in the *Subordinate Legislation Act 1994*.

**Background and problems**

Waste to energy (WtE) is any technology that is applied to waste to generate energy resources such as electricity, gas, and liquid fuels. This includes processes that generate heat, steam, fuels, and electricity from combustible waste, and can include thermal and biological WtE technologies. Thermal waste to energy, which is the focus of this RIS and the proposed Regulations, is defined by the *Circular Economy (Waste Reduction and Recycling) Act 2021* (the Act) as a thermal process used “to recover energy from waste in the form of heat” or “to produce fuel from waste.”

The Department explains that thermal WtE is expected to play a key role in Victoria’s transition to a ‘circular economy,’ in which the Victorian Government, households and businesses maximise the value extracted from materials, minimise waste, and encourage reuse, repair and recycling. The Department explains that WtE can support Victoria’s circular economy objectives by extracting energy and other materials from waste which would otherwise be sent to landfill. The Department outlines that unless new waste processing facilities or landfills are opened, Victoria’s landfill capacity will be exhausted in the mid-2030s based on current projections. The Department also highlights WtE’s emissions benefits, which arise from displacing electricity generated by the grid and avoiding landfill emissions.

The regulatory framework for Victoria’s thermal WtE scheme is provided for by the Act and the Circular Economy (Waste Reduction and Recycling) (Waste to Energy Scheme) Regulations 2023 (the current Regulations). Under the Act and current Regulations, WtE operators require a licence issued by the Head, Recycling Victoria (RV), and can only process waste material that cannot reasonably be further sorted, reused or recycled in thermal WtE facilities. WtE licences also specify how much permitted waste WtE operators can process in each financial year.

The Act also allows for the Government to set a cap limit in regulations for the total amount of permitted waste that can be processed by WtE facilities in Victoria each financial year. Permitted waste processed by the four facilities that received approval prior to 1 November 2021, amounting to approximately 1 million tonnes per annum (Mtpa), does not contribute to the cap.

The Department explains the cap limit is intended to prevent over-investment in WtE, which may result in a ‘feedstock shortfall’ (where total WtE capacity exceeds the available feedstock of permitted waste). Under a feedstock shortfall, WtE facilities may have to temporarily reduce operating capacity or, in the worst-case scenario, enter a state of dormancy. The Department however notes that that the Head, RV must consider commercial viability (including feedstock availability) when granting licences, and has discretion to allocate cap licence amounts below the total cap limit.

The RIS for the Circular Economy (Waste Reduction and Recycling) (Waste to Energy Scheme) Amendment Regulations 2024, released in December 2023, assessed cap limits of 0.5 Mtpa, 1 Mtpa and 2 Mtpa. Following consultation on the RIS in December 2024, the Government made regulations setting an initial cap limit of 2 million Mtpa. The Government also proposed a further increase to the cap limit to 2.5 Mtpa in the Economic Growth Statement released in December 2024, subject to a RIS being completed.[[1]](#footnote-2)

In the RIS, the Department explains that updated waste generation projections from RV’s Waste Projection Model have now become available, which show that there will be more permitted waste feedstock that can be processed by WtE than was previously forecast in the 2023 RIS. As permitted waste feedstock is projected to exceed the current cap limit, the Department argues that Victoria would miss out on additional WtE benefits (lower net emissions, increased electricity generation, preserved landfill space and increased material recovery) at the current 2 Mtpa cap.

**Options Analysis**

In the RIS, the Department analyses three options for the cap limit:

* **Option 1** (base case): cap limit of 2 Mtpa, which reflects the current Regulations;
* **Option 2** (preferred option): cap limit of 2.5 Mtpa; and
* **Option 3**: cap limit of 3 Mtpa.

In the RIS, the Department analyses the impacts of increasing the cap limit to 2.5 Mtpa (Option 2) or 3 Mtpa (Option 3), against the base case of retaining the current 2 Mtpa cap limit (Option 1). The Department analyses the options against six key factors: feedstock availability, material recovery, avoided use of landfill, electricity generation, net emissions and economic outcomes (including revenue impacts).

The Department’s quantitative analysis in the RIS draws on a feedstock availability model which projects the volume of permitted waste available for WtE up to 2050. In estimating the feedstock of permitted waste, the model accounts for population growth and improvements to the ‘recovery rate’ for waste materials. The Department expects that the implementation of material recovery and recycling initiatives (such as the container deposit scheme (CDS), kerbside waste reforms, and improvements to industrial waste separation and recycling technology) will partially mitigate the waste generating effects of population growth, moderating the projected increase of permitted WtE feedstock up to 2050.

Based on the feedstock availability model and its assumptions that facilities above the current 2 Mtpa cap will come online from 2038-39, the Department projects that under Option 3, there will be a feedstock shortfall between 2040 and 2047. During this period, the Department forecasts an average feedstock shortfall of 158,000 tonnes per year (4 per cent of induced capacity) at the 3 Mtpa cap limit. This shortfall arises due to its assumption that 0.25 Mtpa of WtE capacity will come online per year after 2037-38. If WtE capacity were to come online at a slower rate, there may be no feedstock shortfall under the 3 Mtpa cap limit, however the Department notes that facilities are likely to come online in line with the requirements of their cap licences. Under the 2 Mtpa (base case) and 2.5 Mtpa (Option 2) cap limits, the Department does not forecast any feedstock shortfalls for the period up to 2050, under the central estimate of feedstock availability.

In terms of material recovery, the Department explains that Incinerator Bottom Ash (IBA) and metals (ferrous and non-ferrous) can be recovered from WtE processes and used in manufacturing and construction. The Department estimates that increasing the cap limit will enable additional materials to be recovered from WtE, outlined below:

|  |  |  |
| --- | --- | --- |
| Additional materials recovered relative to the base case | Option 2: 2.5 Mtpa cap | Option 3: 3 Mtpa cap |
| Metals, ferrous and non-ferrous (tonnes) | 101,000 | 165,000 |
| Incinerator bottom ash (tonnes) | 1,022,000 | 1,670,000 |

The Department explains that increasing the cap limit will divert more permitted waste from landfill, reducing pressures on Victoria’s existing landfill capacity and the need to open new landfills. Assuming no new landfills open beyond what is currently planned, the Department estimates that increasing the cap limit to 2.5 Mtpa (Option 2) or 3 Mtpa (Option 3) will yield an additional 11 per cent and 17 per cent in landfill space savings respectively, relative to the base case.

The Department estimates that increasing the cap limit will enable more electricity to be generated by WtE, displacing energy generated in the grid, as outlined in the table below:

|  |  |  |
| --- | --- | --- |
|  | Option 2: 2.5 Mtpa cap | Option 3: 3 Mtpa cap |
| Additional WtE electricity generated up to 2050 (MWh) | 5,421,000 | 8,855,000 |

Based on its assumption of a constant spot price that is not materially affected by the relatively minimal output of WtE electricity generation, the Department presents electricity generation as a financial transfer rather than a cost or benefit. That is, it expects that the revenue gains for WtE operators will equal revenue losses for ‘displaced’ non-WtE energy generators in the National Electricity Market (NEM).

The Department explains that there are three types of greenhouse gas (GHG) emissions to consider when estimating the net emissions impacts of waste to energy:

* direct emissions from WtE incineration;
* avoided landfill emissions; and
* avoided emissions from displaced energy generation in the NEM.

In the RIS, the Department estimates the direct incineration and avoided energy emissions from increasing the cap limit up to 2050, with avoided landfill emissions estimated up to 2150. Avoided landfill emissions are estimated for a longer period to account for their longer emissions time profile compared to WtE.[[2]](#footnote-3) The Department notes that in the short term, raising the cap limit will increase net emissions, due to the delayed impact of landfill emissions. However, the Department estimates that the Options 2 and 3 both deliver a net emissions benefit over the long term, outlined in the table below:

|  |  |  |
| --- | --- | --- |
| Emission type | Option 2: 2.5 Mtpa cap | Option 3: 3 Mtpa cap |
| Direct WtE incineration emissions (Mt CO2) | 3.58 | 5.85 |
| Avoided landfill emissions (Mt CO2) | -2.81 | -4.58 |
| Avoided generation emissions – NEM (Mt CO2) | -1.20 | -1.96 |
| Net lifetime emissions (Mt CO2) | **-0.43** | **-0.70** |

The Department also considers the revenue impacts of increasing the cap limit on WtE operators, landfill operators, and the Government. Outside of electricity generation and material recovery, WtE also generates revenue through the ‘gate fees’ charged to process waste. However, this comes at the cost of reduced gate fee revenue for landfill operators and reduced waste levy revenue for the Government, as waste is diverted from landfill to WtE. In estimating these revenue impacts, the Department has made simplifying assumptions that:

* gate fees charged to process waste are effectively the same for landfill as for WtE facilities; and
* the landfill levy rate will remain at the level set in July 2025 (in real terms).

Based on these assumptions, the Department projects that these revenue impacts will cancel each other out. Accordingly, they are presented as financial transfers in the RIS, with no net impact on the economy.

To estimate the economic impacts of increasing the WtE cap limit, the Department conducts a cost-benefit analysis (CBA) in the RIS. The CBA incorporates the analysis of feedstock availability, material recovery, electricity generation, net emissions (up to 2100),[[3]](#footnote-4) and revenue transfers outlined above. These results of the CBA are presented in the table below in 10-year net present value (NPV) terms:

|  |  |  |
| --- | --- | --- |
|  | Option 2: 2.5 Mtpa cap | Option 3: 3 Mtpa cap |
| Benefits ($m, NPV) | 922 | 1,465 |
| Costs ($m, NPV) | 835 | 1,327 |
| Net benefit ($m, NPV) | 88 | 137 |
| Benefit-cost ratio (BCR) | 1.105 | 1.103 |

The CBA shows that both options have net economic benefits compared to the current cap (Option 1), with Option 3 delivering a higher net economic benefit than Option 2. The Department notes that the CBA does not include difficult-to-value impacts, notably the risks of feedstock shortfalls and landfill capacity savings. To capture these impacts, the Department uses a multi-criteria analysis (MCA) to identify its preferred option.

In the MCA, the Department uses the following criteria and weightings:

* maximise the amount of residual waste diverted from landfill (30 per cent);
* limit the risk of WtE capacity exceeding available feedstock (30 per cent);
* increase the value of waste managed in Victoria (20 per cent); and
* minimise GHG emissions from waste processing and energy generation (20 per cent).

The MCA identifies Option 2 as the Department’s preferred option. While the landfill capacity, material recovery and net emissions benefits are approximately 60 per cent higher under Option 3 compared to Option 2, the risk of a feedstock shortfall is expected to be much lower under Option 2. The Department emphasises the potential harms of a feedstock shortfall, including WtE facilities suspending operations or importing waste from other jurisdictions. The Department assesses that Option 1 (the base case) is not preferred given the other options generate greater net benefits.

**Implementation and Evaluation**

The Department expects that the proposed Regulations will come into effect in late May 2025. This will enable the Head, RV to issue cap licences up to the amended cap limit set by the proposed Regulations for the first round of cap licence allocations. The Department expects implementation to be straightforward, as the proposed amendments will only affect the cap limit and no other elements of the WtE licencing scheme. It also commits to working with RV to ensure that licence applicants and other impacted stakeholders are made aware of changes to the cap limit.

In the RIS, the Department outlines that RV will collect data to assist the monitoring and evaluation of the proposed Regulations. This data includes:

* the total processing capacity of licensed WtE facilities;
* the volume and composition of permitted waste processed by licenced facilities;
* total electricity exported from licensed facilities;
* CO2 emissions from licensed facilities; and
* the cost of licensing, monitoring and enforcement activities.

While the Department had previously committed to a partial evaluation of the Regulations in 2026 and a full evaluation in 2029, it explains that these commitments were based on the assumption that many facilities would be operational before 2030. As the Department now expects that many WtE facilities will not become operational until the 2030s, it argues that it would be premature to commit to an evaluation timeline for the scheme until there is greater clarity for when facilities will become operational. Unless the Victorian Government determines an earlier review is required, the Department explains that evaluation of the Regulations will occur prior to sunsetting in 2033.

Should you wish to discuss any issues raised in this letter, please do not hesitate to contact Better Regulation Victoria on (03) 7005 9772.

Yours sincerely,



**Paul Donegan**

Deputy Secretary, Economic

Department of Treasury and Finance

1. https://www.vic.gov.au/economic-growth-statement [↑](#footnote-ref-2)
2. Whereas WtE emits carbon dioxide (CO2) when the waste is incinerated, landfilled waste emits methane (a more potent greenhouse gas) over many decades as waste slowly decomposes. [↑](#footnote-ref-3)
3. While the Department estimates lifetime emissions to 2150, the CBA only includes net emissions to 2100 because the carbon values used are only available up to that year. The Department notes that this approach captures approximately 90% of avoided landfill emissions in the CBA. [↑](#footnote-ref-4)