Appeals Convenor

Environmental Protection Act 1986

REPORT TO THE MINISTER FOR ENVIRONMENT

APPEAL IN OBJECTION TO THE CONTENT OF, AND RECOMMENDATIONS IN, AN ENVIRONMENTAL PROTECTION AUTHORITY REPORT

EPA REPORT 1624: EAST ROCKINGHAM WASTE TO ENERGY REVISED PROPOSAL

PROPONENT: NEW ENERGY CORPORATION PTY LTD

Appeal Number 025 of 2018

February 2019

Appeal Summary

This report related to an appeal lodged against the report and recommendations of the Environmental Protection Authority (EPA) Report 1624 for the East Rockingham Waste to Energy (WtE) Revised Proposal.

The appellant raised a number of concerns in respect to the EPA's assessment of the proposal, including that the EPA:

1. took into account outdated policy and guidance, and failed to take into account new policy
2. failed to consider the waste hierarchy and the concept of a circular economy
3. mischaracterised the proposal against another proposals and failed to take into account cumulative impacts
4. failed to adequately assess and consider emissions from the facility, and their impacts on the environment and human health.

The EPA assessed the original proposal in 2014, and that proposal was approved by the former government in January 2015.

The revised proposal incorporates a number of changes from the original proposal, including an increase in throughput, addition of sewage sludge to the waste types accepted, change to technology pf the plant, and removal of the materials recovery facility.

In assessing the revised proposal, the EPA identified air quality and social surrounds as the key environmental factors.

On the information available through the appeal investigation, it is concluded that the EPA considered relevant policy in its assessment of the proposal: this includes its strategic advice from 2013 in respect to WtE plants in Western Australia (WA), and relevant emissions standards applying to these types of plant in the European Union (EU). The strategic advice includes six key principles for the successful operation of WtE plants, including that proposals must demonstrate best practice that, at a minimum, meets the European Union's Industrial Emissions Directive (IED) at all times and that waste sourced as input must target genuine residual waste that cannot feasibly be reused or recycled.

While the appellant was correct in observing that the EPA overstated the scale of a WtE proposal at Eastern Creek (NSW), the EPA's conclusions on the comparability of that proposal with the revised proposal were justified on other grounds.

In relation to air quality impacts, it is considered that these can be appropriately reviewed and the subject of conditions through Part V of the *Environmental Protection Act 1986,* as suggested by the EPA. It is expected that, through this process, monitoring requirements and emission limits will be applied that are consistent with best practice standards applicable in the EU for WtE plants, consistent with the strategic advice.

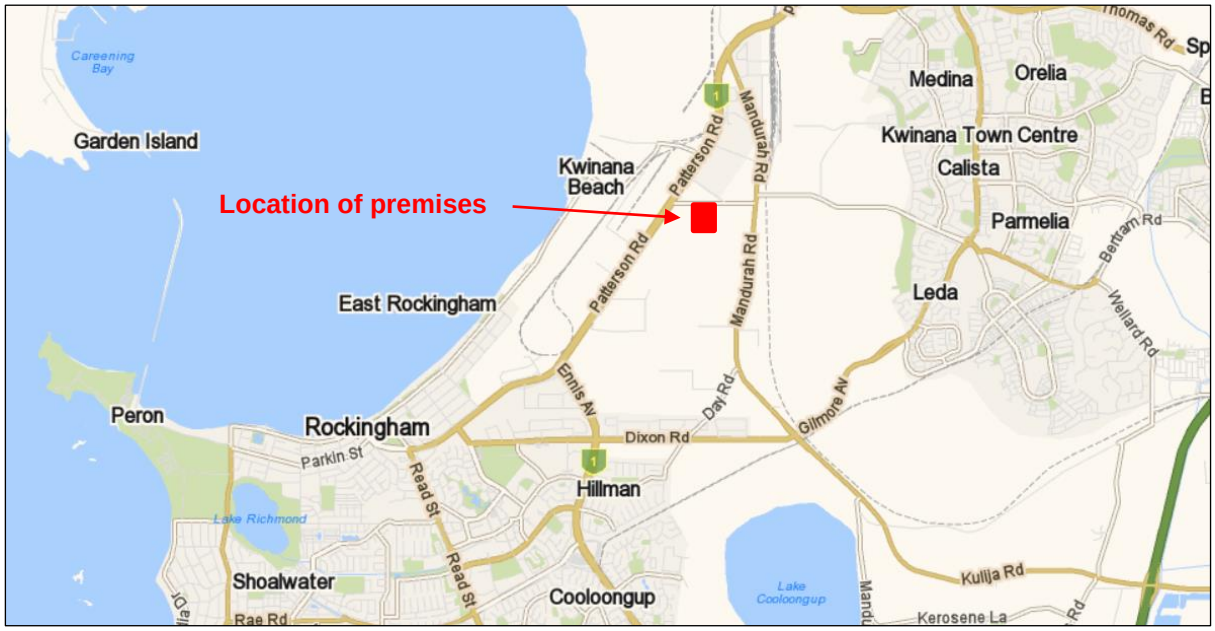
Recommendation
For the reasons stated in this report, it is recommended the appeal be dismissed.

INTRODUCTION

This report related to an appeal lodged by Ms Jane Bremmer in objection to the report and recommendations of the Environmental Protection Authority (EPA) for the Revised East Rockingham Waste to Energy Proposal (EPA Report 1624). The location of the proposal is shown in Figure 1.

The proposal was originally assessed by the EPA in 2014 (EPA Report 1513), and was then described as the East Rockingham Waste to Energy and Materials Recovery Facility, located at Lot 1 Office Road, East Rockingham (the original proposal).

Figure 1 – Proposal location *(Source: Whereis.com 2019)*



The scope of the original proposal was summarised in Report 1513 as follows:

> The proposal incorporates a MRF [materials recovery facility] and a WtE [waste to energy] plant. Waste delivered to the facility would be sorted in the MRF and recyclables and incompatible materials would be removed from the waste stream and sent off-site to be recycled or disposed of at a licensed facility. The remaining waste is baled and used to generate electrical power in the WtE plant.[1]

In its assessment of the original proposal, the EPA identified 'air quality' as the key environmental factor for consideration. After considering the information available to it, the EPA concluded that the original proposal could meet its objective for air quality provided that the facility meets, or performs better than the European Union Waste Incineration Directive 2000/76 (WID) or its updates at commissioning and throughout its operational life. As a result, the EPA recommended that the original proposal could be implemented subject to conditions.[2]

The original proposal was approved by relevant decision making authorities, and a Ministerial Statement to that effect was published by the then Minister for Environment on 20 January 2015 (Ministerial Statement 994).

The proponent now wishes to amend the proposal by:

[1] EPA, Report 1513: East Rockingham Waste to Energy and Materials Recovery Facility, June 2014, page 2.
[2] EPA, Report 1513: East Rockingham Waste to Energy and Materials Recovery Facility, June 2014, pages 13 to 14.

- changing the technology from WtGas-Res gasification to Hitachi Zosen Inova (HZI) grate combustion
- increasing the waste throughput from 225,000 tonnes per annum (tpa) to 300,000 tpa accepting up to 30,000 tpa of sewage sludge for processing
- increasing the thermal capacity of the plant from 72 MWt to 101.8 MWt
- removal of the MRF for the sorting of municipal solid waste (MSW)
- construction and operation of a bottom ash treatment plant to treat up to 68,880 tpa of bottom ash.

In its assessment of the revised proposal, the EPA identified air quality and social surrounds as the key environmental factors. The EPA concluded that the proposal is environmentally acceptable and recommended that it be implemented subject to the conditions set out in Report 1624.[3]

The appeal the subject of this report was lodged under section 100(1)(d) of the *Environmental Protection Act 1986* (EP Act) in objection to the EPA's report.

OVERVIEW OF APPEAL PROCESS

In accordance with section 106 of the EP Act, a report was obtained from the EPA in relation to the issues raised in the appeal. The proponent was also given the opportunity to address the matters raised in the appeal.

During the appeal investigation the Appeals Convenor consulted the appellant and the proponent. The appellant requested a copy of the EPA's report on the appeals, and provided additional information in response which was considered during the appeal investigation. Additional discussions were held at officer-level with staff of EPA Services within the Department of Water and Environmental Regulation (DWER).

The environmental appeals process is a merits-based process. For appeals in relation to an EPA report and recommendations, the Appeals Convenor normally considers the environmental merits of the assessment by the EPA, based on objectives as set by the EPA as well as other environmental factors. The appeals process considers environmental significance, relevance of factors, additional information not considered by the EPA, technical errors and attainment of policy objectives. Where the development has been the subject of previous EPA assessments, those assessments and any subsequent Ministerial appeal decisions also need to be taken into account.

OUTCOME SOUGHT BY APPELLANT

The appellant requested that the proposal not be approved, or alternatively, that more detailed assessment of the identified risks be undertaken. Consistent with the Minister's powers under section 101 of the EP Act, the investigation of the appeal focussed on the adequacy of the EPA's assessment, to determine whether the proposal ought be remitted to the EPA for further assessment.

[3] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, page 21.

GROUNDS OF APPEAL

The appeal raised a number of concerns over the EPA's assessment of the revised proposal. These concerns can be summarised as relating to the following matters:

1. Use of outdated policy and standards
2. Waste hierarchy
3. Eastern Creek proposal; cumulative impacts
4. Air quality

These grounds of appeal are considered in turn.

GROUND 1: USE OF OUTDATED POLICY AND STANDARDS

By this ground of appeal, the appellant raised concern that the EPA recommended the revised proposal be approved based on outdated policy and guidance, including:

- the EPA's 2013 report under section 16(e) of the EP Act *Environmental and health performance of waste to energy technologies* (the Strategic Advice)
- European Union (EU) Directive 2010/75/EU on industrial emissions (integrated pollution prevention and control) (the IED)

Specifically in relation to the Strategic Advice, the appellant stated:

> … [it] was written in 2013 and based largely on hand picked industry data … [which] avoided any adverse information about the performance of this industry and its impacts on human health and the environment. Since 2013 there have been considerable and significant EU policy changes in relation to waste, incineration and sustainability. The EU no longer grants renewable energy subsidies to this industry and is proposing to tax this industry sector for the significant climate pollution it causes. In addition the EU has legislated for all states to remove organic waste from the MSW stream (unlike WA), and has drafted policy guidance for member states to decommission old incinerators and not build new ones.[4]

The appellant further submitted that because the EU has announced a review of the IED, the EPA's recommendation that this proposal should be approved without regard to the implications of the new developments will leave Western Australia with a defective regulatory framework.

Consideration

The Strategic Advice was a report of the EPA and Western Australian Waste Authority, setting out advice to government on the environmental and health impacts associated with waste to energy technologies. Relevantly, the Advice states that:

> … subject to conditions and matching suitable technologies to types of waste input and appropriate plant scale, waste to energy plants employing best practice can be operated with acceptable impacts to our community.[5]

In reaching this conclusion, the Strategic Advice identified six principles that were considered to be key to the successful operation of waste to energy plants in Western Australia:

- Only proven technology components should be accepted for commercially operating waste to energy plants.
- The expected waste input should be the main consideration for the technology and processes selected.

[4] Appeal 025/18, Ground 1, 5 November 2018.
[5] EPA, *Environmental and health performance of waste to energy technologies,* Report 1468, April 2013, page i.

- Proposals must demonstrate best practice that, at a minimum, meets the European Union's Waste Incineration Directive standards for emissions at all times.
- The waste sourced as input must target genuine residual waste that cannot feasibly be reused or recycled.
- Continuous emissions monitoring must occur where feasible, and non-continuous emissions monitoring must be required for all other emissions of concern.
- Residual by-products must be properly treated and disposed of to an appropriate landfill, except where it is demonstrated that they can be safely used elsewhere with acceptable impacts to the environment or human health.[6]

The Strategic Advice concluded that it had been demonstrated internationally that modern WtE plants could operate within strict emission standards with acceptable environmental and health impacts to the community if a plant is designed and operated using best practice technologies and processes.

In response to the appellant's claim that the Strategic Advice is out of date, the EPA advised that it:

> … was developed based on the technical advice from the investigation by WSP Environment and Energy Ltd and makes recommendations that are relevant to WA. It provides a framework for the assessment of WtE proposals in a local context and was published in April 2013.
>
> The strategic advice identifies six principles that the EPA and Waste Authority seen as key to the successful operation of WtE plants in Western Australia. One of the principles identified is that "Proposals must demonstrate best practice that, at a minimum, meets the European Union's Waste Incineration Directive (EU WID) standards for emissions at all times". It does not require proponents of WtE proposals to abide by the EU WID (2000/76/EC) or its updates, rather it is to demonstrate that best practice technologies and processes are used and that strict emission limits would be met to minimise the risks to human health and the environment.
>
> The EU WID has since been replaced with the EU IED (2010/75/EC) and Schedule 1 of the recommended environmental conditions includes a requirement that emissions shall not exceed the limits specified in Annex VI of the EU IED (2010/75/EC) or its updates. Should there be further updates, the proposal would be required to meet the replaced standards. It should also be noted that further emission limits can be applied through the works approval and licence process under Part V of the EP Act.[7]

The appellant was given an opportunity to respond to the EPA's advice on the appeal. In its reply, the appellant stated:

> The EPA has failed to adequately address the issues raised in our appeal (and previous submissions) instead referring to the previous governments [WSP] technical report series commissioned for the WA DWER waste management department in 2012 …
>
> [These] reports are focussed solely on the treatment of MSW. Clearly the New Energy project is targeting C&D, C&I and sewage sludge, all of which have not been assessed in the WSP technical series upon which the EPA has relied and cited to dismiss our appeal. In addition, the WSP technical series provides a framework within which to consider this technology and was never designed to be an instrument for the EPA to assess specific local projects against as the EPA has inferred …
>
> The EPA appears to be arguing that the project does not have to meet the EU IED but that when the new EU IED standards come in, this project will be required to abide by them. The EPA's confusion over the appropriate environmental protection standards that should apply to this project are further exacerbated by the deferral of the most critical aspects of

[6] EPA, *Environmental and health performance of waste to energy technologies,* Report 1468, April 2013, pages i-ii.
[7] EPA, Response to appeal 025/18, 27 November 2018, page 3.

> these projects – air quality protection standards and environmental protection regulations and compliance standards – to a works approval process which provides for lesser stakeholder engagement or independent scrutiny.[8]

In its response to the appeal, the proponent disputed the appellant's contention that the review of European standards represents a move away from waste to energy technology:

> The EU is actively seeking to encourage member states to continuously invest in expanding and improving infrastructure for producing energy from waste as safe an effective approach to the treatment of municipal, commercial and industrial residual waste streams. This is evident from its Integrated Pollution Prevention and Control policy, which is integrated across its wider Waste Management Policy and Circular Economy Strategy which sees the decline of landfill and the embedding of energy from waste as a credible and safe solution.
>
> Most of the EU developed states have moved to or in the process of moving towards a 10% landfill target of residual waste by 2030, as a result of recognising the valid place of energy from waste as a credible, safe and preferable alternative to landfill. The level of investment in both upgrading and developing energy from waste on the back of such policies is strong and increasing, particularly in the less developed EU states. This is hardly then indicative of a perception or evidence-based understanding of energy from waste as being any threat to the environment or public heath – in fact the opposite is true.[9]

In regard to the appellant's concern about the content and currency of the Strategic Advice, to the extent that Advice is relevant to the EPA's assessment of this proposal, its application is considered to be appropriate. Specifically, it is apparent the EPA had regard to the impacts of the proposal in forming its recommendations, having regard to applicable policy as it considered to be relevant.

In relation to the IED, the EPA states that the proposal is required to meet emission criteria specified Directive and that the modelling undertaken for the proposal predicts that emissions from the facility would comply with the IED.[10] Provided the proposal meets the IED (and its updates), the EPA considered that impacts to air quality are 'manageable and would no longer be significant'.[11] The adherence to the IED and its updates is referenced in Schedule 1 of the EPA's recommended conditions for the proposal, consistent with recommendations made for other proposals.

In assessing the proposal's compliance with best available technology, the proponent's Environmental Review Document (ERD) noted that the recommendation in the Strategic Advice that:

> … waste to energy plants should be required to use best practice technologies in order to meet the equivalent emissions standards in the European Union's Waste Incineration Directive (WID) (2000/76/EC). WID (200/76/EC) has been replaced by the European Union's Industrial Emissions Directive (IED) (2010/75/EC) to provide the framework that regulates air emissions from plants such as waste to energy facilities. IED (2010/75/EC) references the establishment of best available technology (BAT) reference (BREF) documents which form the basis against which permits to operate are approved. The adopted BREF document for waste incineration was released in 2006 (European Commission, 2006) has since undergone a review with a draft revision of the BREF for Waste Incineration released in May 2017.[12]

[8] Appellant, response to EPA advice under s106, 7 January 2019, pages 1-2.
[9] Proponent, Response to appeal 025/18, 20 November 2018, pages 1-2.
[10] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, page 15.
[11] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, pages 16-17.
[12] Proponent, East Rockingham Waste to Energy Facility Environmental Review Document, 30 October 2017, Section 2.6.5.

In addition to noting the EPA's advice that the proposal complies with the IED emission values, Table 12 of the ERD states that emissions from the proposal comply with the associated emission levels in the 2017 draft of the BREF.

A final draft BREF was published by the European Union in December 2018.[13] A review of the 2017 and 2018 drafts indicates only minor changes were made to associated emission levels. As a result, it can be concluded that the proponent's statement that the proposal complies with the associated emission levels in the 2017 draft of the BREF are also applicable to the 2018 final draft of BREF.

The EPA has not recommended conditions for monitoring the proposal to assess compliance with the IED. Rather, the EPA has put forward its view that this is best undertaken by DWER through works approval and licence provisions:

> The EPA notes that a works approval and licence is a statutory requirement under Part V of the EP Act, and that any requirement for air emissions monitoring is best regulated through this process. The EPA recommends that continuous monitoring should be required for key pollutants, particularly for nitrogen dioxide and particulate matter (PM_{10} and $PM_{2.5}$). The EPA also recommends that consideration be given to regulating odour through the licensing process, including provision of a Complaints Management System, under Part V of the EP Act.[14]

The EPA also noted that a continuous emissions monitoring system (CEMS) would be implemented to monitor key parameters:

> … including particulates, carbon monoxide, sulphur dioxide, hydrogen chloride, oxygen, nitrogen oxides, and volatile organic compounds. In the first year of operation, routine stack testing for other compounds would also be done on a quarterly basis, including nitrous oxide, hydrofluoric acid, cadmium, thallium, mercury, antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel, vanadium, dioxins and furans.[15]

Consideration of the adequacy of the EPA's recommendations with respect to monitoring and related matters are considered in greater detail in Ground 4 of this report.

Conclusion

For the reasons stated above, the EPA's position in respect to the Strategic Advice and IED is considered to be justified. As noted by the EPA, if the proposal is approved under section 45 of the EP Act, DWER is expected to consider and apply appropriate monitoring and emission limits under Part V, consistent with relevant contemporary standards.

It follows that it is recommended that this ground of appeal be dismissed.

GROUND 2: WASTE HIERARCHY

By this ground of the appeal, the appellant objected to the EPA's recommendation that the revised proposal be approved, despite the deletion of the materials recovery facility (MRF) element of the original proposal. The appellant considered this to be inconsistent with the notion of a 'circular economy' and relevant principles relating to waste recovery and recycling:

> [T]he New Energy project is not aligned with the new WA Waste strategy as it diverts residual waste from more sustainable outcomes, relying on the fact that this waste stream is not scanned, sorted or separated, despite this being a requirement for the project …

[13] European Union, Best Available Techniques (BAT) Reference Document for Waste Incineration (final draft), December 2018.
[14] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, page 22.
[15] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, page 16.

> The EPA announcement that the MRF component is removed and the waste throughput increased, demonstrates that the true intention of this project is to secure the large volumes of waste (feedstock) required to power the plant at the expense of more sustainable waste management outcomes. This is contrary to the aims of the WA Waste Hierarchy and represents a direct threat to other waste initiatives such as the Container Deposit Scheme which is likely to become a direct fuel feedstock for this incinerator.[16]

The appellant also noted that ash generated from the proposal will require disposal to landfill, which was not assessed by the EPA, and is inconsistent with the waste hierarchy; and that the EPA relied on false assumptions in commenting on greenhouse gas savings from the operation of the plant compared to the waste being sent to landfill.

Consideration

As the appellant correctly identified, the revised proposal includes (among other things) the removal of the MRF from the original proposal, and an increase in throughput of the plant by almost 50%.

In response to this ground of the appeal, the EPA advised:

> The Government is moving towards a circular economy, with a greater focus on avoidance as well as targets for material recovery and environmental protection in addition to landfill diversion. As outlined in the draft *Waste Strategy [2030],* the Government is supportive of more sustainable waste management that is higher in the waste hierarchy than energy recovery.
>
> In line with the Government's position on waste, the EPA has recommended a condition specifically to ensure that the proposal has the ability to accept genuine residual waste only in accordance with the waste hierarchy as defined in the *Waste Avoidance and Resource Recovery Act 2007.* This is also consistent with one of the principles recommended by the EPA and Waste Authority in its strategic advice on WtE technologies (2013) that *"The waste sourced as input must target genuine residual waste that cannot feasibly be reused or recycled."*[17]

In relation to the deletion of the MRF from the proposal, the EPA stated:

> The proponent has chosen to remove the MRF that was part of the original proposal, as it was noted that local councils have a preference for municipal solid waste to be sorted on the curbside through a three-bin system, rather than a dedicated MRF. As noted in EPA Report 1624, not all local governments currently have a three-bin system in place, and the proponent will be receiving residual municipal solid waste through either a two- or three-bin collection system. However, the State Government's Better Bins Program supports local governments to improve source separation and material recovery rates, and the three-bin system is likely to be adopted by additional councils in the future.[18]

On the issue of ash management and disposal, the EPA advised the proposal includes a bottom ash treatment plant for the reuse of bottom ash in the construction industry or as cover material:

> Bottom ash recycling has been established in Britain and the proponent will be working with the DWER on the approach to recycling bottom ash. The proposal is based on the reuse of bottom ash in accordance with UK Standard Rules SR2012 No. 13 of the Environmental Permitting (England and Wales) Regulations 2010. The proponent will be undertaking a thorough assessment of all solid residues from the combustion system to demonstrate suitability of the ash for use as aggregate, including an agreed testing regime.

[16] Appeal 025/18, Ground 1, 5 November 2018.
[17] EPA, Response to appeal 025/18, 27 November 2018, page 9.
[18] EPA, Response to appeal 025/18, 27 November 2018, page 10.

> The proponent has advised that should the treated materials not be suitable for aggregate use, it would be disposed at an appropriately licensed Class III landfill.[19]

In relation to the appellant's submission in respect to the scale of greenhouse gas emissions, the EPA responded as follows:

> The EPA may decide to assess greenhouse gas emissions within the environmental impact assessment process if a proposal's expected total greenhouse gas emissions are deemed to be significant. The greenhouse gas estimates provided by the proponent were used to assess the scale and significance of the greenhouse gas emissions that would be produced from the proposal, rather than to demonstrate a greenhouse gas saving.[20]

As noted by the EPA, it has recently reported to the Minister for Environment under section 46 of the EP Act in respect to the conditions applying to the four approved WtE plants in WA (Report 1623). This report follows a request of the Minister in November 2017 for the EPA to 'investigate the types of waste to be used by approved WtE proposals, ensuring that waste feedstocks at these facilities were restricted to 'residual waste' in accordance with the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act).'[21]

In Report 1623, the EPA recommended the inclusion of a new condition for 'residual waste' that requires proponents to develop and submit a waste acceptance system plan, which shows that the technology has the ability to operate on 'residual waste' only; describes the waste types accepted and the source separation process, and details the procedures and measures to be implemented. These requirements are to be reported in the annual compliance report.[22]

The EPA has recommended 'residual waste' be defined in all WtE implementation conditions as:

> Waste that remains after the application of a best practice source separation process and recycling systems, consistent with the waste hierarchy as described in section 5 of the *Waste Avoidance and Resource Recovery Act 2007* (WARR Act), and the Waste Strategy approved or revised from time to time under the WARR Act.[23]

The EPA also recommended a new condition be added to all WtE proposals for waste acceptance monitoring and management that requires proponents to develop and submit a plan. The plan is to include identification of the suppliers of waste, describe the types of waste accepted and record the waste loads and quantity accepted, with the results of the monitoring required to be retained.[24]

In making the above recommendations, the EPA noted in Report 1623:

> … that the WTE proponents do not currently have control over all source separation practices for all the waste generators. Due to this, the EPA considers that having conditions which require the proponent to have technology that can operate on residual waste only is the most reasonable approach, and allows proponents to be able to accept only residual waste as waste generators improve source separation practices.[25]

[19] EPA, Response to appeal 025/18, 27 November 2018, page 7.
[20] EPA, Response to appeal 025/18, 27 November 2018, page 8.
[21] EPA, Report 1623: Boodarie, Red Hill, East Rockingham and Kwinana Waste to Energy Projects Inquiry under section 46 of the EP Act, October 2018, page 2.
[22] EPA, Report 1623: Boodarie, Red Hill, East Rockingham and Kwinana Waste to Energy Projects Inquiry under section 46 of the EP Act, October 2018, page 8.
[23] EPA, Report 1623: Boodarie, Red Hill, East Rockingham and Kwinana Waste to Energy Projects Inquiry under section 46 of the EP Act, October 2018, page 7.
[24] EPA, Report 1623: Boodarie, Red Hill, East Rockingham and Kwinana Waste to Energy Projects Inquiry under section 46 of the EP Act, October 2018, page 8.
[25] EPA, Report 1623: Boodarie, Red Hill, East Rockingham and Kwinana Waste to Energy Projects Inquiry under section 46 of the EP Act, October 2018, page 8.

The draft *Waste Strategy 2030* includes a material recovery target for waste of 70% by 2025, and 75% by 2030.[26] A 'headline strategy' to achieve these targets is a commitment to:

> Deliver a harmonised kerbside collection system, which includes food organics and garden organics (FOGO), in all Perth and Peel regions by 2025 – provided by local governments with funding support from the state.[27]

In its response to this ground of appeal, the proponent stated that it is directly aligned with the draft Waste Strategy:

> New Energy's proposal is currently based on only accepting residual waste that currently is landfilled. All waste streams accepted at the facility are derived from one of the following source separation or treatment processes:
>
> - Source separated waste derived from either a 2- or 3-bin kerbside waste collection system
> - Residual waste streams from waste material recovery facilities treating MSW, C&I or C&D to recover organics and recyclables. These residual waste streams currently directed to landfill.
>
> The facility will not accept waste derived from either source separated organics or recyclable kerbside bins.
>
> Further, New Energy builds into its contracts the ability for suppliers to divert, without penalty, any portion of the contracted waste stream from the facility at any time that a higher and better use in the Waste Hierarchy can be demonstrated. This means as new technologies become available and economically feasible, thereby allowing a greater proportion of the residual waste stream to be recycled, then waste suppliers can take the new management option up with[out] suffering cost penalties.
>
> This approach means that the New Energy project does not impede the adoption of new strategies that divert residual waste from landfill.
>
> Finally, in this regard, the EPA has proposed statutory conditions in relation to acceptance of residual wastes that will be imposed on the Ministerial Statements for all Waste to Energy Facilities.[28]

The conditions recommended by the EPA in Report 1623 are (at the time of writing) the subject of consultation between the Minister for Environment and relevant decision making authorities under section 45(1) of the EP Act. Should the changes be approved, they will take effect at the time the Minister issues a statement to that effect under section 45(5) of the Act.

Assuming the changes are approved, the EPA's recommended conditions require proponents to ensure their proposals have the ability to accept residual waste only, having regard to the evolving nature of waste management reflected in the draft Waste Strategy.

Conclusion

Noting the foregoing, it is considered that the EPA's assessment appropriately took into account relevant information relating to the environmental management of waste, including the waste hierarchy, and the implications for the removal of the MRF.

It is also noted that, although in draft form, the draft Waste Strategy seeks to significantly increase recovery of organic waste from municipal waste streams, with the implementation of a FOGO system in the Perth and Peel region by 2025. This is considered to align with the appellant's characterisation of developments in the EU, and is consistent with the waste hierarchy. It is recommended, therefore, that this ground of appeal is dismissed.

[26] Waste Authority, Draft Waste Strategy 2030, October 2018, page 6.
[27] Waste Authority, Draft Waste Strategy 2030, October 2018, page 6.
[28] Proponent, Response to appeal 025/18, 20 November 2018, page 5.

GROUND 3: COMPARISON WITH EASTERN CREEK; CUMULATIVE IMPACTS

By this ground of appeal, the appellant contended that the EPA mischaracterised the proposal to develop a Waste to Energy plant at Eastern Creek in Sydney, which was rejected by the New South Wales (NSW) Independent Planning Commission (IPC) in July 2018:

> The EPA has misled the Minister by stating that the Eastern Creek incinerator has different elements and therefore the determinations of the NSW EPA, Health, Environment and Planning are not applicable to the New Energy project.
>
> The EPA is incorrect to state that the Eastern Creek project would have burned 1.25 million tonnes of waste when the project clearly states 552,500 tpa. This is less than the two projects planned for the Kwinana/Rockingham location. The fact that the EPA did not get their [sic] facts correct before granting approval for this project suggests a serious regulatory failure to adequately assess human health and environmental impacts of such serious pollution threats in our state. To disregard the NSW assessment of the same technology which rejected the project on health and environmental impacts while this project is a mere 1.1 kms from residents (as if it is somehow a great improvement on 900 m) knowing full well such projects leave an air quality footprint of 10 km radius is simply indefensible. In addition the proponents [sic] own report details the waste types which include hazardous wastes but seemingly the EPA has not acknowledged this.[29]

The appellant also submitted that the EPA failed to properly consider the cumulative impacts of the proposal in combination with the proposed Kwinana WtE proposal approximately 7 km to the north. The appellant stated that assessments of both proposal failed to consider cumulative impacts despite it being well known that incinerator pollution deposits within a 10-20km radius:

> Without a complete and dedicated combined, cumulative and synergistic assessment of all technology impacts to the region, including air quality and ash management claims made about the safety and impact of the project cannot be proven. Therefore the project should not proceed until a full combined assessment of both projects is undertaken.[30]

Consideration

This ground of appeal relates to the reference made by the EPA to a decision of the IPC in July 2018 to refuse development consent in respect to the Eastern Creek Waste from Energy proposal, approximately 35 kilometres west of Sydney, as well as cumulative impacts associated with the combined emissions of the proposal with the Kwinana WtE proposal.

In Report 1624, the EPA stated that it:

> … considered the key elements of the Eastern Creek proposal and notes that various elements differed from the East Rockingham revised proposal. The Eastern Creek proposal is for processing up to 1.105 million tpa of residual waste, is located 900 m from the nearest residential sensitive receptors, and would be processing some hazardous waste streams including floc waste. The NSW government also determined that the waste feedstock was inconsistent with the WARR Act and its policy on energy from waste.
>
> The East Rockingham proposal, on the other hand, would process up to 330 000 tonnes of residual waste and sewage sludge, is located 2.3 km from the nearest residential sensitive receptors, and would not be processing hazardous waste streams. The EPA has also considered the proposal in the context of a circular economy and ensuring that only genuine residual wastes are accepted, consistent with the waste hierarchy described in the WARR Act.[31]

[29] Appeal 025/18, Ground 3, 5 November 2018.
[30] Ibid.
[31] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, pages 10-11.

By her appeal, the appellant submitted that the EPA had mis-described the Eastern Creek proposal, and as a result, underplayed the relevance of the decision to the proposal the subject of this appeal.

In its response to this ground of appeal, the EPA advised that:

> … [f]ollowing a review of the issues raised in the submissions, the proponent amended the Environmental Impact Statement for the processing of up to 1.105 million tpa of residual waste, to be implemented in two stages. Stage one of the proposal is for the processing of 552,500 tpa.
>
> The East Rockingham WtE proposal will not be accepting hazardous waste materials and no hazardous waste will be stored on site …
>
> The East Rockingham WtE Facility is located 1.1 km from an isolated dwelling to the north-north-east of Wellard Road, and other residential premises are located 2.3 km east of the site …
>
> The New South Wales Government noted that the Eastern Creek development is likely to use material for energy recovery instead of utilising this material to achieve higher order resource recovery outcomes … [T]he EPA has recommended that a condition be implemented specifying that the proposal is required to have the ability to accept residual waste, which is defined as waste that remains after the application of a best practice source separation process and recycling systems, consistent with the waste hierarchy as described in section 5 of the *Waste Avoidance and Resource Recovery Act 2007* and the Waste Strategy.
>
> The EPA has considered the East Rockingham WtE proposal on its own merits, and has concluded that the proposal can be managed to be environmentally acceptable, provided the recommended environmental conditions are implemented.[32]

In response to the EPA's advice, the appellant submitted the NSW EPA's recognition of the significant environmental and public health risks posed by WtE technology is well documented and referenced, and that 'it is clear that the WA EPA has not fully comprehended the NSW EPA assessment and decision'.[33]

A decision to refuse a development application for the construction and operation of a WtE facility at Eastern Creek in NSW was made by the IPC on 19 July 2018.[34] As part of the background to the proposal the subject of that decision, the IPC noted that:

> The Amended EIS reduced the scale of the facility to thermally treat up to 1.105 mtpa [million tonnes per annum] of residual waste, to be implemented in two stages comprising 552,500 [tpa] for each stage.
>
> The applicant further amended its application … to seek approval for Stage 1 only, with Stage 2 to require a separate development application.[35]

From this, it is apparent that the Eastern Creek proposal was for the thermal treatment of 552,000 tpa, with a future stage increase to 1.105 mtpa to be the subject of a separate development application. The appellant is correct, therefore, in her characterisation of the scale of the proposal that was considered by the IPC.

The IPC noted that the closest residential properties are located 900 metres to the west of the proposed Eastern Creek facility (Erskine Park), and that there are approximately 4,965

[32] EPA, Response to appeal 025/18, 27 November 2018, pages 10-11.
[33] Appellant, response to EPA advice under s106, 7 January 2019, page 5.
[34] Independent Planning Commission (NSW), State Significant Development Decision: Refusal of Development Application SSD 6236, section 4.38 of the *Environmental Planning and Assessment Act 1979* (NSW), 19 July 2018.
[35] Independent Planning Commission (NSW), Statement of Reasons Eastern Creek Energy from Waste Facility (SSD 6236), 19 July 2018, page 3.

residential properties, six schools and six childcare centres within 3 km of the site.[36] By contrast, the proponent of the East Rockingham proposal advised that there are approximately 900 residential properties and one school within 3 km of the proposed facility, with only one residential property within 2.5 km.[37]

In relation to the waste types, the Eastern Creek facility proposed to accept construction and demolition (C&D), commercial and industrial (C&I), materials recovery facility (MRF), auto floc, and chute residual waste (CRW). 'Auto floc' is described as the residue from the shredding of car and metal recyclables.[38] For the Eastern Creek proposal, up to 15% of the design fuel (i.e. waste throughput at the facility) was proposed to be auto floc. In considering this fuel type, the NSW Department of Planning and Environment noted:

> The thermal treatment of floc waste may result in harmful air emissions and/or contaminants in ash and slag by-products which have the potential to cause harm if not properly managed.
>
> As part of the RTS, the Applicant provided the results from a compositional waste audit of floc waste received at the Genesis landfill over the period of six days. The composition audit identifies the composition of floc waste as mainly characterised as *Fines* (58.1 %). There is no explanation of what this category includes, or the potential for variability in the floe material over time.
>
> The EPA advises floc waste can be highly variable and has the potential to exhibit hazardous waste properties and/or characteristics, depending on the source and processing of the material. The RTS does not provide adequate information about the source, composition and temporal variability of the floc waste for the EPA to be satisfied that it is not hazardous. The EPA also notes floc waste is not a permitted type of waste at the Ferrybridge facility, the Applicant's nominated reference facility.
>
> As part of its consideration of this issue, ARUP obtained a copy of the environmental permit for the Ferrybridge facility from the UK Environment Agency. ARUP confirmed the permit does not allow for the acceptance of floc waste of a similar composition and nature to what is being sought by the Applicant.
>
> ARUP concurred with the EPA that, given the high percentage of fines in the floc waste, it is possible the fines could contain hazardous material. ARUP and the EPA concluded floc waste is a potentially hazardous waste which makes up a significant portion of the Applicant's proposed design fuel (15%) and is an excluded waste under the EfW Policy.[39]

In its response to the appeal, the proponent for the East Rockingham facility noted that:

> The nature of the wastes proposed for acceptance at the Eastern Creek facility was poorly defined and created uncertainty as to the likely air emission profile and modelled ground level concentrations. This was particularly true for a waste stream called "auto floc" which is the residual waste from crushing and processing used cars. This waste stream is highly heterogeneous and hard to accurately characterise.[40]

In further advice as to the appellant's claim that the facility will accept hazardous waste, the proponent advised:

> The facility is constructed and intended to accept three classes of waste …:
>
> - Municipal waste from the green or red topped bin

[36] Independent Planning Commission (NSW), Statement of Reasons Eastern Creek Energy from Waste Facility (SSD 6236), 19 July 2018, page 3.
[37] Proponent, Email to Office of the Appeals Convenor, 31 January 2019.
[38] Independent Planning Commission (NSW), Statement of Reasons Eastern Creek Energy from Waste Facility (SSD 6236), 19 July 2018, page 9.
[39] Department of Planning and Environment (NSW), Assessment Report for Eastern Creek Energy from Waste Facility, April 2018, pages 40-41.
[40] Proponent, Response to appeal 025/18, 20 November 2018, page 7.

- Residual waste from waste sorting plants handling Municipal Waste or Commercial and Industrial Waste
- Sewage Sludge from the Water Corporation Rockingham Waste treatment facility.

> The ERD … specifically excludes any hazardous waste materials including Autofloc …
>
> The proposal was specifically formulated to exclude the acceptance of hazardous wastes [and] the facility will be fully occupied handling the waste streams listed above and there is no intention to accept hazardous waste.[41]

The proponent's ERD specifically provides:

> The MSW, C&D and C&I groupings are common terminology in the waste industry, but do not define the waste sufficiently. New Energy will be seeking a licence to receive and process waste on site that meet Class III landfill criteria as defined in the document *Landfill Waste Classification and Waste Definitions 1996* (As amended December 2009). The main waste streams to be accepted will be MSW waste, residuals from MRFs handling Recyclables and C&I wastes, residuals from Mechanical Biological Waste Plants (MBTs). Other wastes may be accepted in the future where they are agreed for acceptance under the Department of Water and Environmental Regulation (DWER) Part V licensing process.
>
> Although New Energy seeks approval to accept wastes meeting the definition of Class III wastes, the majority of waste will be MSW or residual materials derived from MSW. It is not proposed that the facility process materials such as soils or sludges contaminated with significant concentrations of heavy metals such as lead or arsenic soils. The sophisticated control and monitoring systems built into the system allows a safe combustion performance at all times with the proposed waste composition.[42]

Taking into account the foregoing, the appellant's claim that the EPA overstated the throughput of the Eastern Creek proposal is acknowledged. Despite this, it is considered that the EPA's general conclusions about the comparability of the two proposals were justified. Specifically, it is noted that the waste material proposed for the Eastern Creek facility included up to 15% of 'auto floc' which was found likely to be hazardous in nature, and the location of the Eastern Creek facility is in closer proximity to a significantly larger number of sensitive receptors, including residences, schools and childcare centres, when compared to East Rockingham. Furthermore, while the EPA overstated the scale of the Eastern Creek proposal, that proposal remained materially larger than East Rockingham (552,500 tpa v 330,000 tpa).

On the appellant's submission that the EPA also failed to consider that the East Rockingham and Kwinana proposals, in combination, were larger than the Eastern Creek proposal (730,000 tpa v 552,500 tpa), the proponent advised:

> [A]ir modelling results … show that for the key pollutants of concern the highest contribution from the … facility above existing background levels is typically less than 1% of the adopted assessment criterion. Even when accounting for background concentrations of key contaminants compliance with relevant criteria is maintained.[43]

In its assessment report for the original proposal in 2014, the EPA stated:

> Considering the cumulative context, it should be noted that the EPA is also separately assessing Phoenix Energy Australia Pty Ltd's Kwinana WtE plant as a PER. However, the Kwinana WtE plant proposal is not as advanced as the East Rockingham WtE and MRF and emissions data is not publicly available. Therefore the Kwinana WtE plant assessment will need to address the cumulative context including considering the proposed emissions from the East Rockingham WtE and MRF.[44]

[41] Proponent, Email to Office of the Appeals Convenor, 31 January 2019
[42] Proponent, Environmental Review Document, East Rockingham Waste to Energy Facility, 30 October 2017, Section 2.6.3.
[43] Proponent, Response to appeal 025/18, 20 November 2018, page 6.
[44] EPA, Report 1513: East Rockingham Waste to Energy and Materials Recovery Facility, June 2014, page 12.

In its subsequent assessment of the Kwinana WtE facility in 2015, the EPA noted:

> [T]he proponent has provided further information … which examined the potential for cumulative impacts associated with the Kwinana WtE facility and the proposed East Rockingham WtE and MRF [which] concluded that:
>
> > The likelihood of cumulative impacts occurring in association with emissions from Phoenix Energy's proposed Kwinana WtE facility and the proposed East Rockingham facility is considered to be very low given the location of each site in relation to one another; and the infrequency with which meteorological conditions occur that could potentially result in an alignment of emissions between the two facilities. Furthermore, the GLCs predicted at distances of 3 km or more from each of the proposed facilities are many orders of magnitude below the concentration of emissions at the point of release. The GLCs at a distance of 4.7 km or more from the proposed facilities (the distance over which emissions would be dispersed before plume interaction could occur) would be even lower, and as such, the potential for cumulative impacts to occur in association with the two proposals is considered negligible.
>
> The EPA supports this conclusion.[45]

The proponent concurred with the EPA's conclusions, stating that an assessment of the cumulative impact of emissions from the two facilities:

> … confirm[ed] that the low emissions produced by modern waste to energy facilities and the substantial separation distance between the two facilities means that there is no significant cumulative impact from the two facilities.[46]

The above analysis was conducted on the original East Rockingham proposal, and not the revised proposal the subject of this appeal. The Air Quality Impact Assessment Report accompanying the ERD included assessment of maximum predicted ground level concentrations of key pollutants from the revised proposal alone, as well as taking into account background levels.[47] The results of this modelling were included in the EPA's report, and are reproduced as Table 1.

Table 1 – Air Emission Modelling Results – Air Quality Impact Assessment Report[48]

Emission	Averaging time	Assessment criteria ($\mu g/m^3$)	Direct emissions at sensitive receptors		Cumulative emissions at sensitive receptors	
			Max predicted GLC ($\mu g/m^3$)	% of assessment criteria for GLC	Max predicted GLC ($\mu g/m^3$)	% of assessment criteria for GLC
NO_2	1 h	246	53.8	21.9%	138	56.1%
SO_2	1 h	570	33.8	5.9%	68.4	12%
CO	8 h	10,000	21.9	0.2%	837	8.4%
PM_{10}	24 h	50	2.17	4.3%	26.5	52.9%
$PM_{2.5}$	1 y	8	0.0338	0.4%	7.43	92.9%

In concluding that the revised proposal could meet its objective for air quality, the EPA had particular regard to the above results which predicted emissions from the air dispersion model, including cumulative impacts, would meet relevant air quality standards.

While the appellant's observation that cumulative $PM_{2.5}$ emissions at sensitive receptors are close to the annual maximum level identified in NEPM is acknowledged, the combined

[45] EPA, Report 1538: Kwinana Waste to Energy Project, February 2015, page 12.
[46] Proponent, Response to appeal 025/18, 20 November 2018, page 6.
[47] Environmental Alliances Pty Ltd, Air Quality Impact Assessment Report, December 2017.
[48] EPA, Report 1624: East Rockingham Waste to Energy Revised Proposal, October 2018, Table 3.

contribution of the revised proposal and the Kwinana WtE proposal to $PM_{2.5}$ is, on the advice of the EPA, considered to be minor. For the other criteria pollutants referenced in Table 1, all are identified as being well below relevant NEPM standards. In these circumstances, it is considered that the EPA was justified in relying on the results of the cumulative impact assessment carried out for the Kwinana WtE plant in assessing the impacts of the revised proposal the subject of this appeal.

The appellant's concerns in respect to the data used in the assessment of $PM_{2.5}$ emissions is considered in ground 4 of this report, below.

Conclusion

Noting the smaller scale, significantly fewer sensitive receptors, and nature of wastes to be accepted at the East Rockingham facility compared with the Eastern Creek proposal, it is considered the EPA's conclusions with respect to the two facilities were justified.

In relation to cumulative impacts, it is considered that the EPA took into account background emissions as well as the combined emissions of both WtE plants in the region in forming the view that the revised proposal can meet its objective for air quality.

It follows that it is recommended this ground of appeal be dismissed.

In addition to the above, the EPA noted that any requirement for air emissions monitoring is best regulated through works approval and licencing under Part V of the EP Act. Through this process, it is expected that DWER will undertake a detailed risk assessment that considers the best available data on baseline and cumulative emissions at that time.

GROUND 4: AIR QUALITY

By this ground of the appeal, the appellant raised a number of concerns about the EPA's assessment of risks associated with emissions to air from the proposal. Specific concerns include:

- emissions model failed to take into account fugitive emissions, bypass events and de novo synthesis of dioxins
- baseline data used was out of date and only included five criteria air pollutants;
- $PM_{2.5}$ assessment inadequate
- impacts from odour
- monitoring requirements inadequate
- wet scrubber required for control of mercury emissions
- no requirement for pre-treatment of sewage sludge
- incorrect identification of comparison sites
- public accessibility of data
- no accident management plan or environmental management systems.

Consideration

<u>Emissions model</u>

By this element of the appeal, the appellant stated that the:

> … emissions model failed to include fugitive emissions (especially dust generated from the ash disposal and treatment facility), emissions outside of the stack created through De Novo Synthesis and all bypass events.[49]

[49] Appellant, Supporting submission, 8 November 2018, page 6.

In response to this issue, the EPA advised:

> The proposal has been designed to minimise the release of fugitive emissions including odour and dust. Wastes are delivered to site in enclosed vehicles and are processed in enclosed buildings. The proposal includes the provision of an enclosed waste bunker with an airlock design for the doors to the waste receival area and the area would be maintained under negative air pressure. During an emergency shutdown, a shutdown air extraction system would also be used. Residuals produced from the processing of waste including bottom ash are directed for treatment for reuse or off-site for disposal. The bottom ash generated from the combustion of waste would be transported via a covered conveyor to a roofed and bunded structure for handling and temporary storage for treatment. The bottom ash is also received in a wet state and as part of the maturation process, water is routinely added to speed the stabilisation process. Dust control measures including regular watering of exposed surfaces and stockpiled ash would be used to manage fugitive dust.
>
> … [T]he combustion techniques from the proposal destroy dioxins and furans in the waste, and design and temperature controls are used to reduce de-novo synthesis. De-novo synthesis is minimised by achieving a rapid temperature drop to below 450 degrees Celsius, the temperature at which furans and dioxins are most likely to be produced. In addition, carbon based adsorbents are expected to reduce final emissions to air.[50]

In its response to the appeal, the proponent provided the following comment in relation to de-novo synthesis of dioxins:

> De-novo synthesis of dioxins does not occur outside of the stack. De-novo synthesis of dioxins is a process whereby dioxins are formed within the cooling gas stream after the incineration process is complete. The process only occurs in a critical temperature range between 250 and 450 C. Modern incinerators a designed to achieve a rapid quench of hot gases through this critical range to minimise the possibility of dioxin formation. The gas cleaning system subsequently captures the very low-level dioxins that may be created through de-novo synthesis. Research shows that catalytic activity from materials such as fly ash or metallic surfaces is also required for the de novo synthesis process to occur. Ambient temperatures outside the stack are far too low for de-novo synthesis process to occur. The emission data used in New Energy's air dispersion modelling accurately accounts for the very small quantity of dioxins created emitted from the stack.[51]

The proponent additionally disputed the appellant's claims in respect to altered emissions during shutdowns, stating that effect of the identified design and management systems is that emissions during emergency shutdowns will not deviate from normal operations.[52]

On the advice of the EPA, it is understood the proposal includes three mechanisms to control dioxin and furan emissions: firstly, the combustion proposed for the plant destroys dioxins and furans in the waste due to the temperatures proposed; second, de novo synthesis is controlled through rapid reduction in temperature after the incineration process; and third, pollution control will be applied through the use of carbon adsorbants to reduce final emissions to air.

Taking the above into account, it is considered that the emissions model and the EPA's assessment of emissions was appropriate. In addition, and noting the EPA's advice that the premises are subject to works approval and licensing requirements of the EP Act, it is expected DWER will undertake a risk assessment of the design and operation of the plant on a range of emission types, including fugitive emissions and dioxins and furans. DWER will also, consistent with the EPA's report, be expected to consider what monitoring requirements and limits on emissions should be applied commensurate with the identified level of risk and applicable standards applying in the EU.

[50] EPA, Response to appeal 025/18, 27 November 2018, pages 6-7.
[51] Proponent, Response to appeal 025/18, 20 November 2018, pages 12-13.
[52] Proponent, Response to appeal 025/18, 20 November 2018, pages 10-11.

Baseline data

The appellant submitted that baseline data used in the assessment was insufficient (only two sites) and included only five criteria air pollutants. The appellant noted that the assessment relied on the 2005-2010 air quality monitoring report, yet the DWER website provides more current data (up to 2017) and is readily accessible.[53]

In response to this issue, the EPA advised:

> The proponent has used available background monitoring data were available in the air dispersion assessment. As described in Appendix 7 [of Report 1624], the background concentrations for criteria pollutants were obtained from the Department of Water and Environmental Regulation (DWER) ambient monitoring report for 2016 ...[54]

The proponent's Air Quality Impact Assessment Report confirms that the background concentrations for criteria pollutants were obtained from the DWER ambient monitoring report for 2016.[55] This was the most up-to-date data available at the time that report was finalised.

$PM_{2.5}$

By this element of the appeal, the appellant submitted that, while the quoted figures indicated annual $PM_{2.5}$ annual rates will be below NEPM, this ignores growing knowledge about the risks posed by small particle fractions. In this regard, the appellant noted that the annual average for $PM_{2.5}$ is proposed to be reduced to 7 µg/m^3 by 2025. In the view of the appellant, this move requires reconsideration of the decision to locate the revised proposal in this location.[56]

In response to this issue, the EPA advised:

> NEPM (ambient) is a reporting standard for comparing to monitoring air quality data in population centres above 20 000 and was not designed as a site specific limit. The criteria for $PM_{2.5}$ was introduced in July 2018. It is noted that the goal for the standards for $PM_{2.5}$ would be 7 µg/m^3 over a 1 year averaging period in the year 2025. However, the current standards are 8 µg/m^3 over a 1 year averaging period. It is noted that while the cumulative emissions are predicted to reach 92.9 percent of the criteria, the proposal would only contribute to 0.4 percent of the background concentrations. Additionally, the EPA notes that monitoring data for the south west of WA has identified that the elevated background levels are due to episodic events such as bushfires and prescribed burns rather than high average emissions from industry.[57]

Noting the relatively minor contribution the proposal is predicted to make to $PM_{2.5}$ emissions within the airshed, it is considered the EPA's conclusions with respect to this issue was justified. As noted elsewhere in this report, the EPA has advised that assessment of emissions from the facility (if approved) will be considered by DWER through future works approval and licensing provisions.

Odour

The appellant stated that odour assessment identifies exceedances of identified criteria will occur within 748 metres, and that this leaves an insufficient buffer to sensitive receptors for impacts to be attenuated. The appellant noted that bypass events regularly occur (up to at least 12 times a year or more) for most plants in operation in the EU.

[53] Appellant, Supporting submission, 8 November 2018, page 6.
[54] EPA, Response to appeal 025/18, 27 November 2018, page 6.
[55] Environmental Alliances Pty Ltd, Air Quality Impact Assessment Report, December 2017, page 17.
[56] Appellant, Supporting submission, 8 November 2018, page 6.
[57] EPA, Response to appeal 025/18, 27 November 2018, pages 5-6.

In response to this issue, the EPA advised that the odour assessment undertaken by the proponent:

> … predicts that during normal operations, the residential criteria for odours would not be exceeded outside of the site and are considered negligible as the odorants from the waste are completely oxidised.
>
> During combustion system shutdown, the model predicts that the residential criteria is exceeded approximately 748 m from the site, however the residential criteria is not exceeded at any actual residential areas which are located 2.3 kilometres (km) from the site. Odour levels in excess of the acceptable residential standard under both normal and upset conditions are confined to industrial zoned land to the west of Old Mandurah Road. The EPA notes that unplanned shutdowns are expected to occur less than 9 percent of the time.
>
> To minimise the risk of fugitive odour emissions from the facility, the proponent will be ensuring that waste delivery would occur in enclosed vehicles and provision of an enclosed waste bunker with an airlock design for the doors to the waste receival area. The waste receival area would be maintained under negative air pressure by drawing air for injection into the combustion chamber to oxidise odorous gases. During shutdown times, the auxiliary fan would also extract odorous air to the shutdown stack for dispersal.
>
> The proponent would undertake odour testing during commissioning, including testing the bunker building and reception hall for air tightness, and odour emissions from the shutdown stack. In the event that odour levels are higher than predicted, the proponent would implement contingency actions including installing an atomiser to suppress odour and dust inside the waste bunker during combustion system shutdowns, constructing a semi-porous wind fence along the southern boundary, upgrading the capacity of the shutdown air extraction system, and repositioning the air extraction intake vents in the bunker.
>
> The proponent would also implement an odour complaints register and resolution procedure, which would act as a trigger for an odour emissions investigation and implementation of mitigation actions to address any concerns raised by the public.
>
> The EPA considers that the regulation of odour, including the provision of a Complaints Management System, could be regulated through the licensing process under Part V of the EP Act.[58]

Taking the above into account, and noting that the nearest residential area is 2.3 kilometres from the premises, it is considered that the EPA's position in respect to odour was justified.

Monitoring type and frequency

By this element of the appeal, the appellant submitted that the monitoring proposed for the facility is inconsistent with that proposed as part of the 2017 draft BAT:

> For example, dioxin is required to be monitored monthly. Mercury is also required to be monitored monthly. HF is required continuously, as are also particulates and PCBs. This methodology for monitoring emissions is needed to confirm that the technology is operating to the EU IED (BREF) and complying with the air quality standards and the methodologies are stated.[59]

In response to this issue, the EPA advised that:

> … the proponent will be implementing a Continuous Emissions Monitoring System to monitor key emissions including particulates, carbon monoxide, sulphur dioxide, hydrogen chloride, oxygen, nitrogen oxides, and volatile organic compounds. Routine stack testing for other compounds would also be undertaken on a quarterly basis in the first year of operation for compounds including nitrous oxide, hydrofluoric acid, cadmium, thallium, mercury, antimony, arsenic, lead, chromium, cobalt, copper, manganese, nickel,

[58] EPA, Response to appeal 025/18, 27 November 2018, pages 8-9.
[59] Appellant, Supporting submission, 8 November 2018, page 1.

> vanadium, dioxins and furans. The EPA considers this to be reasonable and notes that air emissions monitoring is best regulated under Part V of the EP Act.[60]

The Strategic Advice states that in order to demonstrate that a WtE plant is in full compliance with emissions limits, continuous emissions monitoring of emissions of concern should be undertaken where the technology to do so is available (e.g. particulates, TOC, HCl, HF, SO_2, NO_x, CO).[61] Where the technology is not available, the Strategic Advice states that non-continuous emissions monitoring should be undertaken.[62]

The Strategic Advice also notes:

> The extent of non-continuous monitoring required will initially be set more frequently, particularly during the commissioning phase of the plant. This phase is most likely to have emissions closer to the limits and so is a key point to closely monitor emissions. Once the plant is fully commissioned and has demonstrated continuous operation within the limits, the non-continuous emissions monitoring frequency may be reduced. These monitoring requirements will form part of the Works Approval and Licence issued for a prescribed premises under Part V of the EP Act.[63]

As noted in ground 1 of this appeal, the EU published a final draft BREF in December 2018. Under this document, minimum monitoring frequencies for identified substances are specified, as shown in Table 2.

Table 2 – Minimum monitoring frequencies under draft final BREF[64]

Substance/ parameter	Minimum monitoring frequency	Comment
NO_x	Continuous	
NH_3	Continuous	When SCR or SNCR is used
CO	Continuous	
SO_2	Continuous	
HCl	Continuous	
HF	Continuous	Continuous measurement may be replaced by periodic measurements with a minimum frequency of once every six months if the HCl emission levels are proven to be sufficiently stable
Particulates	Continuous	
Metals	Once every 6 months	
Hg	Continuous	For plants incinerating wastes with a proven low and stable mercury content (e.g. mono-streams of waste of a controlled composition), the continuous monitoring of emissions may be replaced by long-term sampling or periodic measurements with a minimum frequency of once every six months
VOC	Continuous	
Dioxins and furans	Once every 6 months	

[60] EPA, Response to appeal 025/18, 27 November 2018, page 4.
[61] EPA, *Environmental and health performance of waste to energy technologies,* Report 1468, April 2013, pages 14 and 15.
[62] EPA, *Environmental and health performance of waste to energy technologies,* Report 1468, April 2013, page 14.
[63] EPA, *Environmental and health performance of waste to energy technologies,* Report 1468, April 2013, page 14.
[64] European Union, Best Available Techniques (BAT) Reference Document for Waste Incineration (final draft), December 2018, pages 474-475.

Noting the above, and in particular the EPA's advice that air emissions monitoring is best regulated under Part V of the EP Act, it is considered that the type and frequency of monitoring will be a matter for DWER to consider through any future works approval and licence applications. Through this process, it is expected that (consistent with the Strategic Advice) DWER will consider application of continuous monitoring of all relevant substances where technology is available, and appropriate periodic testing for all other emissions of concern.

Wet scrubber for removal of mercury

The appellant submitted that the 2017 draft BREF provides that, to reduce emissions of mercury to air, the use of a wet scrubber is recommended.

In response to this issue, the EPA advised:

> The proposal would not be utilising a wet scrubber, rather it uses a dry flue gas cleaning system downstream of the boiler to control air emissions. Hydrated lime is injected into the flue gas where it neutralises acidic components. At the same injection point, activated carbon is added to the flue gas which adsorbs gaseous mercury and other components including dioxins and furans. The air emissions modelling predicts that mercury emissions for the 1 hour category would be 1.9 percent of the relevant criteria.[65]

The final 2018 draft BREF identifies a number of techniques to reduce mercury emissions to air resulting from the incineration of waste. This includes the use of a wet scrubber (as identified by the appellant), but also a number of other measures, including adsorption by injection of activated carbon or other reagents.[66]

Noting the above, there are multiple acceptable techniques to reduce mercury emissions to air from waste incineration plants, and the efficacy of what is proposed will be considered by DWER through any future works approval or licence application.

Pre-treatment of sewage sludge

By this element of the appeal, the appellant expressed concern that there appears to be no requirement for drying or pre- treatment of sewage sludge in the EPA's recommendations.[67] This is taken to be a reference to the equivalent of the commentary in the final 2018 draft BREF in respect to pre-treatment of sewage sludge in waste incineration plants.[68]

In its response to the appeal, the EPA stated:

> The proponent has not described whether the sewage sludge/biosolids accepted require pre-drying or pre-treatment. However, the EPA notes that the grate combustion system is designed for mixed wastes and up to 10 percent of sewage sludge/biosolids. The sewage sludge/biosolids would be subject to an ongoing program of sampling and analysis to provide an assessment of the key contaminants to assess its suitability for processing at the East Rockingham WtE Facility. Sludges contaminated with significant concentrations of heavy metals would not be accepted.[69]

Noting the EPA's advice, and in the absence of any submission from the appellant as to the risks associated with this element of the appeal, it is considered that the EPA's position is justified.

[65] EPA, Response to appeal 025/18, 27 November 2018, page 4.
[66] European Union, Best Available Techniques (BAT) Reference Document for Waste Incineration (final draft), December 2018, page 492.
[67] Appellant, Supporting submission, 8 November 2018, page 1.
[68] European Union, Best Available Techniques (BAT) Reference Document for Waste Incineration (final draft), December 2018, para 2.2.3.2.
[69] EPA, Response to appeal 025/18, 27 November 2018, page 4.

Comparison sites

By this element of the appeal, the appellant submitted:

> The Human Health Risk Assessment claims that there are no air quality impact risks to the community based upon the comparison with other facilities of the same technology operating in other jurisdictions. However, a perusal of HZI reference plants demonstrates that this is not entirely the case. This does beg the question as to why the EPA and other regulatory agencies did not identify this.
>
> The New Energy project for East Rockingham proposes to use an air-cooled grate combustion system. Yet of all the projects listed in the reference plant document only 10 out of the 23 listed confirm that they use an air- cooled system and two plants have different waste feedstocks. In addition, none of the Japanese or Chinese plants listed have details of their cooling systems or waste feedstocks.[70]

The appellant submitted further that no actual emissions data or regulatory compliance evidence is provided in the Air Quality Assessment Report to substantiate the claims made. In addition, the appellant asserted that a number of the plants identified had been identified as being in non-compliance with emission limits, including plants in the United Kingdom and United States.[71]

In response to this issue, the EPA advised:

> The emissions data were based on a review of data from the Greatmoor WtE Plant, Severnside Energy from Waste Plant, and Ferrybridge Energy from Waste Plant. Appendix 18 of the ERD provides an example of air emissions data collected from the Greatmoor WtE Plant in the United Kingdom, which is comparable in size to the East Rockingham WtE Facility, uses similar waste feedstock, and utilises an air cooling system.[72]

The proponent advised in response to this issue that the use of an air- or water-cooled grate has no impact on the incinerator emissions profile: the grate cooling type is determined by the average calorific value of feedstock, and where high calorific value wastes are used, a water-cooled grate is used to prevent damage to the grate.[73]

Noting the rationale for the chosen reference plants, and the proponent's characterisation of the materiality of the difference between a water or air-cooled grate type, it is considered the EPA's position in respect to this issue was justified.

Public accessibility of data

By this element of the appeal, the appellant submitted that public access to all compliance monitoring data is recognised in BAT, but not applied to the proposal the subject of this appeal.[74]

In response to this issue, the EPA advised:

> The proponent has noted in its ERD that it would be developing a comprehensive monitoring framework that will operate for the life of the project. Monitoring results will be published on the company website.[75]

Consistent with the EPA's characterisation, the ERD states that the proponent is:

[70] Appellant, Supporting submission, 8 November 2018, page 2.
[71] Appellant, Supporting submission, 8 November 2018, pages 3-6.
[72] EPA, Response to appeal 025/18, 27 November 2018, page 6.
[73] Proponent, Response to appeal 025/18, 20 November 2018, page 12.
[74] Appellant, Supporting submission, 8 November 2018, page 1.
[75] EPA, Response to appeal 025/18, 27 November 2018, page 4.

> … is committed to achieving and maintaining full statutory compliance at all times in a co-operative and open dialogue with regulatory agencies.
>
> New Energy will provide monitoring results to the community. This will be achieved by publishing information on the company website.[76]

To the extent the EPA has given advice that monitoring of emissions from the premises is best regulated under Part V of the EP Act, it is expected that DWER will consider monitoring and reporting requirements as part of its assessment of any future works approval and licence for the premises.

Accident management and environmental management systems

By this element of the appeal, the appellant expressed concern that the proponent has not been required to prepare an accident management plan or implement an environmental management system (EMS).

In its response to this issue, the EPA advised that the proponent has stated it will be developing and EMS as well as a fire and emergency management plan.[77]

Noting the EPA's advice, and in the absence of any submission from the appellant as to the risks associated with these documents not being conditioned, no change to the conditions recommended by the EPA is considered necessary.

Conclusion

Taking into account the information presented in respect to this ground of the appeal, and for the reasons stated above, it is considered the EPA's position in respect to air quality and related parameters was justified. It is recommended therefore that this ground of appeal be dismissed.

While the appellant has expressed concern that deferring monitoring requirements to DWER lacks transparency, the position adopted by the EPA is consistent with its past practice, and consultation and appeal rights exist in respect to conditions applied to Part V instruments. Given the importance of monitoring to ensure the predictions of the proponent are verified, and relevant EU limits to protect human health and the environment are not exceeded, it is expected that DWER will undertake a thorough risk assessment for emissions from the facility, and apply monitoring conditions and other controls, as required. In this regard, and consistent with the EPA's advice, this would be expected to include the application of applicable EU standards to the frequency and type of monitoring for all applicable parameters.

Any person who objects to the conditions of a works approval or licence has a right to appeal to the Minister.[78] This provides an opportunity for the appellant to raise specific objections in respect to the adequacy of monitoring of pollutants, technology deployed, and response management in any such future instrument.

[76] Proponent, Environmental Review Document, East Rockingham Waste to Energy Facility, 30 October 2017, Section 2.6.34.17.
[77] EPA, Response to appeal 025/18, 27 November 2018, pages 3-4.
[78] EP Act, s.102(3).

CONCLUSION AND RECOMMENDATION

For the reasons stated in the report, it is considered that the EPA appropriately assessed the revised proposal the subject of this appeal, and that as a result, its conclusions and recommendations were justified. It follows that it is recommended that the appeal be dismissed.

Consistent with the Strategic Advice and the EPA's advice in respect to this proposal, and subject to section 45 of the EP Act, monitoring and limits on emissions of concern will be considered by DWER through any future works approval and licence applications under Part V of the EP Act.

Jean-Pierre Clement
A/APPEALS CONVENOR

Investigating Officer:
Tonya Carter, Senior Appeals Officer