

ATTACHMENT A – Environment Protection Authority - The NSW Energy from Waste Policy Statement

On 6 April 2017, a parliamentary inquiry was established to inquire into and report on matters relating to the waste disposal industry in NSW, with particularly reference to energy from waste technology. This followed concerns about the proposal submitted by The Next Generation NSW Pty Ltd for an energy from waste facility at Eastern Creek. The inquiry is not yet completed and as such the findings of the inquiry have not been handed down, and the NSW Government has not had an opportunity to formally respond.

Feedback on the EPA's review of the RtS is provided herein, acknowledging that the inquiry is ongoing and the Government has not had an opportunity to respond to any forthcoming findings. This advice is based on an assessment of the RtS against the existing Policy requirements (Energy from Waste Policy Statement, dated January 2015).

Summary

The Response to Submissions Report (RtS) (prepared by Urbis, dated 14 December 2017) and the attached technical reports (henceforth referred to collectively as the 'RtS') was reviewed by the NSW Environment Protection Authority ('NSW EPA') against the requirements of the NSW Energy from Waste Policy Statement (January 2015; the 'Policy').

The RtS does not adequately demonstrate compliance with the requirements of the Policy, as summarised below:

1. The RtS does not meet the requirement of the Policy as it does not reference a fully operational plant that treats "like waste streams".
2. Floc waste, proposed as part of the feedstock material, has the potential to exhibit hazardous waste properties and/or characteristics. Facilities proposing the thermal treatment of hazardous waste materials are excluded under the Policy. Floc waste should therefore be excluded from the proposed feedstock to ensure compliance with the Policy.
3. The Policy states that if a waste has a content of more than 1% of halogenated substances, expressed as chlorine, the temperature should be raised to 1100°C for at least two seconds after the last injection of air. The proposed facility will only reach a temperature of 850°C, and does not adequately demonstrate how the risks this poses will be appropriately managed, over time.
4. The RtS has not demonstrated adherence to the waste hierarchy, in that feedstock material will have undergone a process of bona fide resource recovery.

1. FULLY OPERATIONAL PLANT TREATING "LIKE WASTE STREAMS"

Policy requirement

The Policy requires that energy recovery facilities use technologies that are proven, well understood and capable of handling the expected variability and type of waste feedstock.

This must be demonstrated through reference to fully operational plants using the same technologies and treating like waste streams in other similar jurisdictions (part 4, page 6 of the Policy).

Summary of issues

The RtS selects Ferrybridge as the reference facility for this proposal. Whilst this represents similar technology in a like jurisdiction, the waste feedstock is significantly different.

The RtS provides information on the design waste specification at Ferrybridge which is comprised of 60% Solid Recovered Fuel (SRF) from municipal solid waste, 30% mixed Commercial & Industrial waste (C&I) and 10% specified waste (wood waste from Construction & Demolition(C&D) sources). The RtS does not provide information on actual feedstock material used during plant operation.

Based on information supplied by Arup Pty Ltd, who were engaged by the EPA and the NSW Department of Planning and Environment to undertake a technical review of the RtS, SRF represents 100% of the waste feedstock material being used by the Ferrybridge facility during operation. This information was acquired by Arup by submitting a request for waste return information for the Ferrybridge facility, to the UK Environment Agency.

The following table provides a comparative summary of the waste feedstock composition provided in the Ferrybridge design waste specification and included in the RtS, the operational waste feedstock composition at Ferrybridge as informed by Arup’s technical assessment, and the fuel mix provided in the RtS for the proposed facility. Note that waste percentages for the TNG fuel mix have been rounded to the nearest figure.

	Ferrybridge design data	Ferrybridge operational data	RtS proposed fuel mix
SRF	60%	100%	0%
C&I waste	30%	0%	41%
MRF residual	0%	0%	12%
Specified waste (largely wood waste)	<10%	0%	12%*
CRW (sourced from mixed C&D)	0%	0%	20%
Floc waste	0%	0%	15%

**The average amount of wood waste in the designed fuel mix will be significantly higher at 30%.*

SRF undergoes a high level of processing and is homogenised prior to being used for energy recovery, which ensures that air emissions and facility performance are more predictable and consistent over time.

In contrast, the facility proposed in the RtS uses no SRF as a waste feedstock, and instead proposes to use C&D waste which is highly variable. The C&D waste, along with the specified wastes, greatly increase the wood waste proportion of the feedstock above that used at Ferrybridge. This wood waste increases the ash content and can lead to higher particulate emissions which can impact the performance of the facility, including the air emissions control system.

The RtS also proposes that the facility use floc waste as a feedstock material. Under their permit, the Ferrybridge facility cannot accept these types of wastes. In addition, the EPA considers that floc has the potential to exhibit hazardous waste properties, which would exclude this waste as a feedstock under the Policy (see Issue 2 below).

The RtS claims that the differences in waste feedstocks between the Ferrybridge facility and the proposed facility are inconsequential because while the waste types are different, the chemical composition is comparable. Given that the fuel mix composition was based on the

Ferrybridge design waste specification, and not actual operation waste feedstock data the RtS does not provide sufficient evidence to support this claim.

It is further noted that a comparison of operational parameters (e.g. carbon, nitrogen, oxygen) as provided in the RtS, is not a robust comparison of chemical characteristics. Key, potential contaminants (e.g. heavy metals, volatile substances) are not included in this analysis but are important in understanding the potential risk profile and suitability of the waste feedstock.

Key risks

The reference facility requirement is a key Policy requirement. It provides a means of assessing whether proposed energy from waste technologies are proven and capable of safely handling waste feedstock material.

The reference facility requirement is one line of evidence (in tandem with air emissions modelling and human health risk assessment) to assess potential risks to human health and the environment, and minimise any potentially harmful emissions, by-products and residues.

The failure to address the reference facility requirements increases the uncertainty of the medium to long term operational and environmental risks posed by this facility.

Minimum provisions to meet Policy requirements

To meet the requirements of the Policy, the feedstock at the proposed facility must treat “like waste streams” to the Ferrybridge facility. Based on information supplied as part of this review, a “like waste stream” would be 100% SRF of a similar source and composition to Ferrybridge.

2. EXCLUDED FEEDSTOCK MATERIAL

Policy requirement

Facilities proposing the thermal treatment of potentially hazardous waste materials are not considered to be undertaking genuine energy recovery and are excluded under the Policy (part 2, page 3 of the Policy).

Summary of issues

The EPA considers floc waste to 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 composition audit prepared by Anne Prince Consulting as part of the RtS identifies the composition of floc waste as mainly *Fines* (58.1%). There is no explanation of what this category includes, as well as the potential for variability in the floc material over time.

In addition, under their permit the Ferrybridge facility cannot accept these types of wastes (see Issue 1 above).

Key risks

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.

Minimum provisions to meet Policy requirements

To meet the requirements of the Policy, the proposed facility must not use floc waste as a feedstock material.

3. TEMPERATURE REQUIREMENTS AND HALOGENATED SUBSTANCES

Policy requirement

If a waste has a content of more than 1% of halogenated substances, expressed as chlorine, the temperature should be raised to 1100 degrees Celsius for at least two seconds after the last injection of air (part 4, page 6 of the Policy).

Summary of issues

Given that C&D wastes and wood wastes comprise a high proportion of the proposed feedstock material, potential halogenated substances such as plastic wastes (comprised of polyvinyl chloride (PVC)) will be present. These materials may result in chlorine levels exceeding 1% over time.

While the RtS claims that chlorine content at the facility will be maintained below 1%, the EPA does not believe that the waste composition audits and associated analysis conducted as part of the RtS were sufficiently robust to demonstrate this could be achieved over time.

Information was provided on quality control processes for the site. These processes were not detailed or robust enough to provide assurances that PVC would be removed from the feedstock material.

Given the risks, the proponent has not adequately justified the appropriateness of lower temperatures for the proposed facility.

The EPA does not believe that the RtS adequately demonstrates how risks associated with adopting the minimum temperature of 850°C will be appropriately managed, and considers that the Policy requirement to reach 1100°C is warranted in this instance.

Key risks

Higher temperatures are required to ensure the destruction of harmful compounds, such as dioxins and furans, to ensure that air emissions do not pose a risk of harm to the community and the environment.

Minimum provisions to meet Policy requirements

To meet the requirements of the Policy, the proposed facility must either:

- (a) be raised to 1100 degrees Celsius for at least two seconds after the last injection of air, or
- (b) demonstrate to the satisfaction of the EPA that risks associated with adoption of a lower temperature are adequately managed. This may include:
 - a. undertaking a full waste feedstock characterisation, including identifying the source of the waste
 - b. conducting a detailed compositional analysis which addresses potential variability in the waste feedstock (including temporal variability)
 - c. documenting robust quality control procedures for incoming material to ensure that inappropriate waste materials are identified and removed.

4. ADHERENCE TO THE WASTE HIERARCHY AND RESOURCE RECOVERY CRITERIA

Policy requirements

The Policy's objectives in setting resource recovery criteria are to drive the use of best practice material recovery processes and ensure that only residuals from bona-fide resource recovery operations are eligible for use as a feedstock for an energy recovery facility (part 4, page 7 of the Policy).

Table 1 of the Policy provides resource recovery criteria for key waste streams.

Summary of issues

The RtS estimates the amount of residual waste potentially available for energy recovery in the Metropolitan Levy Area, to justify the size and throughput of the proposed facility. The methodology used to demonstrate the amount and suitability of available feedstock, and compliance with the resource recovery criteria in the Policy is inappropriate.

The methodology applied in the RtS (*Appendix J MRA Feedstock Review*) includes an estimate of residual waste available for energy recovery in the NSW Metropolitan Levy Area. It adopts a mass balance approach, using aggregated data sources including publicly available State of the Environment data (2015) and NSW EPA 2013-2014 C&I disposal audit data. State-wide resource recovery rates, or data limited to the regulated area of NSW, cannot be used to justify the resource recovery rates of any particular facility.

To ensure that only materials which have gone through a bona-fide resource recovery operation are available for energy recovery, the resource recovery criteria must be applied to each individual facility processing mixed or source separated waste streams. Furthermore, the percentage limits provided in Table 1 of the Policy can only be applied to the residual wastes once the wastes have been processed or appropriately separated, and higher order management options have been maximised. The percentages of residual wastes that can be used for energy recovery, as specified in the Policy, are maximum limits not targets.

The report states that "MRA estimated the total amount of waste that could undergo energy recovery in accordance with the EfW Policy Statement under a hypothetical scenario of full market saturation of resource recovery." Given that the forecast figures were based on a hypothetical scenario, this data cannot be relied upon. Detailed, site specific information is required for the proposed feedstock, to demonstrate compliance with the Policy.

Key risks

The methodology adopted in the RtS undermines the intention of the resource recovery criteria. The assessment does not provide assurances that higher order waste management opportunities will not be cannibalised, and that the appropriate types of waste are available to the proposed facility.

Minimum provisions to meet Policy requirements

Site specific information must be provided for each generator, processor or facility providing residuals from a separated source streams. The resource recovery criteria should be applied to these sites individually, to demonstrate that the appropriate type and amount of waste is being used for energy recovery. This assessment must be approved by the EPA prior to the acceptance of waste from off-site.

For residuals generated at the proponent's existing or planned operations, then these residuals must undergo a genuine process of resource recovery. For the waste types identified in the RtS, and which conform to the reference facility requirements, processing through a Material Recycling Facility (MRF, at a minimum) is considered to represent the most appropriate form of processing. The appropriate resource recovery criteria (provided in Table 1 of the Policy) must then be applied to the MRF residuals, prior to their acceptance and use at the proposed energy recovery facility.