Our reference: DOC20/166757
Contact: Mr David Joseph; (02) 6333 3800

Ms Sally Munk
NSW Department of Planning, Industry and Environment
GPO Box 39
SYDNEY NSW 2001

13 March 2020

Dear Ms Munk

EPA Assessment of SSD8294 Environmental Impact Statement (EIS) – Mt Piper Energy Recovery Project

I refer to your request via the major projects portal for the Environmental Protection Authority (EPA) to provide assessment and comment on planning matter SSD8294 – the Mt Piper Energy Recovery Project (the proposal).

As requested, the EPA has considered the proposal in terms of the potential impact to air quality, noise emissions and waste usage and management. The EPA's response is contained in Attachment A.

The EPA notes that an additional independent assessment is being undertaken on behalf of the Department of Planning, Industry and Environment (the department) and the EPA. This Independent Report should be read in conjunction with this submission.

The EPA considers that the proponent has not fully addressed all EPA policy and guideline requirements in the EIS. The areas where further information is required and the actions to address these are detailed in Attachment A to this letter.

The EPA recommends that the department seek further information and clarification in respect of the matters raised in Attachment A prior to finalising its assessment of the Proposal.

Should you have any enquiries in relation to this matter please contact David Joseph at the Central West (Bathurst) Office of the EPA by telephoning (02) 6333 3800 or at central.west@epa.nsw.gov.au.

Yours Sincerely

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ATTACHMENT A: Mt Piper Energy Recovery Project EIS
EPA Comment

Background

An EIS has been prepared by Environmental Resources Management Australia Pty Ltd (ERM) on behalf of RE. Group Pty Ltd and Energy Australia Development Pty Ltd (the Proponent) for the proposed State Significant Development Project (SSD 8294) identified herein as the Mt Piper Energy Recovery Project (ERP).

The ERP is located within the existing Mt Piper Power Station (MPPS) site as defined by EPL 13007.

The EPA understands that the proposal includes generally:

- Brownfields development of waste combustion and steam generation infrastructure and all associated equipment and plant at the existing Mt Piper Power Station site at Portland, NSW;
- Dedicated receival and handling facilities for Refuse Derived Fuel (RDF) to process up to 250,400 tonnes of RDF per annum;
- 104 Megawatt Thermal (MWth) furnace and boiler expected to deliver steam sufficient for the generation of around 30MWp of electrical power and 240,000MWh of energy per annum;
- Flue gas treatment equipment;
- Steam handling and transfer infrastructure;
- Net reduction of Scope 1-3 National Greenhouse Inventory emissions of 280,000 tCO^2-e per annum;
- Road based RDF delivery system from Sydney West Metro area of up to 600 tonnes and 98 truck movements per day;
- Interfacing infrastructure for steam delivery to Mt Piper Power Station Generating Unit 2;
- Ash capture, handling and repository system;
- Creation of around 21,000 tonnes of Bottom Ash (General Solid Waste) per annum;
- Creation of around 7,600 tonnes of Fly Ash (Restricted Solid Waste) per annum;
- Lined ash repository located in the south western corner of the approved Lamberts North Ash Repository area consisting of:
    - GSW Cell
        - sub surface bearing layer
        - compacted geosynthetic clay layer
        - single 2mm HDPE liner
        - drainage aggregate layer
        - geotextile layer
    - RSW Cell
        - sub surface bearing layer
        - compacted geosynthetic clay layer
        - double 2mm HDPE liner
        - drainage aggregate layer
        - geotextile layer
    - Leachate collection and extraction system.

EPA Impact Assessment Detailed Comments:

Overview:

The following details the EPA's assessment of the proposal and the proposed management of Air Quality, Noise Emissions and Waste Management impacts described within the EIS. Comments are provided in general and detailed format within each section and a list of requests for information and actions to be completed by the proponent is provided for incorporation into the departments' assessment.

Air Quality and Emissions

Background:

EnergyAustralia and Re.Group have submitted a proposal for a State Significant Development (SSD-8294) to construct and operate the Mt Piper Energy Recovery Project (ERP), an energy from waste plant that will run on refuse derived fuel (RDF). The ERP will be located onsite at the Mount Piper Power Station and the steam generated will be piped into existing steam circuits at the power station.

Typical RDF will consist of combustible biomass (paper/cardboard, textiles, wood, vegetation and food), other combustibles (plastic bottles, other hard plastic, film plastic, PVC and rubber) and non-combustible material (rock/brick/concrete, fines, electronics, nappies and other). RDF will not consist of hazardous waste, explosives, radioactive material, liquid waste and sludge, salts and chemical waste, non-shredded bulky waste, slaughter waste, medical waste, large inert material, automotive and electrical waste. The source of the RDF is Municipal Solid Waste and/or Commercial and Industrial Waste with the composition up to 100 % of either.

The project consists of the Energy Recovery Plant where the RDF will be delivered, stored, handled and combusted. The proposed dedicated boiler will have a nominal capacity of 200,000 tonnes per annum, maximum capacity of 250,400 tonnes per annum and a power generation of 30 MW. Ash generated at the plant will be placed in the Ash Placement Facility to be located within the existing ash placement area.

An Air Quality Impact Assessment and Best Available Techniques Assessment have been provided as attachments to the Environmental Impact Statement.

The ERP plant emission control technology will consist of selective non-catalytic reduction, activated carbon, hydrated lime and a fabric filter.

The proposal was required to consider the NSW EPA's Energy from Waste policy and the European Union's Best Available Technology Conclusions for Waste Incineration (2019).

EPA Assessment:

In assessing the proposal, the EPA reviewed the following documentation:

Document	Author/Publisher	Published Date
ERM EIS: Main Report	ERM Worldwide Group Ltd	9 December 2019
ERM EIS: Appendix I – Air Quality Impact Assessment	ERM Worldwide Group Ltd	4 November 2019
ERM EIS: Appendix J – Greenhouse Gas Impact Assessment	ERM Worldwide Group Ltd	3 December 2019
Approved Methods for the Modelling and Assessment of Air Pollutants in NSW 2006 (Approved Methods)	EPA	January 2017

EPA Comments:

The following should be addressed before the Department completes is assessment:

1) Regulatory Case Emissions Scenario

The NSW Energy from Waste Policy Statement requires an energy recovery facility to use current international best practice emission control equipment design and control. To meet this requirement, the proponent has prepared one of the emissions scenarios, Scenario 1: Regulatory Case, to have emission concentrations at the more stringent of either the Group 6 *Protection of the Environment Operations (Clean Air) Regulation 2010* (the Clean Air Regulation) standards of concentration or the European Union's Industrial Emissions Directive (IED) legislative limits (as stated in the executive summary of the AQIA).

The table below compares the Group 6 Clean Air Regulation emission standards and European Union's IED emission limits with the superseded Integrated Pollution Prevention and Control (IPPC) Reference Document on the Best Available Techniques for Waste Incineration (August 2006) and the current Best Available Technology Conclusions (BATC) for Waste Incineration (December 2019) BAT emission levels. It shows the current best available technology is capable of achieving emissions significantly lower than legislation limits (either Clean Air Regulation or EU IED).

Air impurity	POEO Clean Air Regulation[a) b)]	EU IED[c)]		2006 IPPC[c)]		2019 BAT-AEL[c)]
		Daily average	30-minute average	Daily average	30-minute average	Daily average
Particulate matter	50 (36) mg/m^3	10 mg/m^3	30 mg/m^3	1-5 mg/m^3	1-20 mg/m^3	< 2 – 5 mg/m^3
SO_2		50 mg/m^3	200 mg/m^3	1-40 mg/m^3	1-150 mg/m^3	5 – 30 mg/m^3
NOx	500 (356) mg/m^3	200 mg/m^3	400 mg/m^3	120-180 mg/m^3	30-350 mg/m^3	50 – 120 mg/m^3
CO	125 (89) mg/m^3	50 mg/m^3	100 mg/m^3	5-30 mg/m^3	5-100 mg/m^3	10 – 50 mg/m^3
HCl	100 (71.5) mg/m^3	10 mg/m^3	60 mg/m^3	1-8 mg/m^3	1-50 mg/m^3	< 2 – 6 mg/m^3
HF	50 (36) mg/m^3	1 mg/m^3	2 mg/m^3 [e)]	< 1 mg/m^3	< 2 mg/m^3	< 1 mg/m^3
Type 1 & 2 substances [d)]	1 (0.71) mg/m^3					
Aggregate metals [d)]		0.5 mg/m^3 [f)]		0.005-0.5 mg/m^3 [g)]		0.01 – 0.3 mg/m^3
Cd	0.2 (0.14) mg/m^3					
Cd+Tl		0.05 mg/m^3 [f)]		0.005-0.5 mg/m^3 [g)]		0.005 – 0.02 mg/m^3
Hg	0.2 (0.14) mg/m^3	0.05 mg/m^3 [f)]		0.001-0.02 mg/m^3	0.001-0.03 mg/m^3	0.005 – 0.02 mg/m^3
Dioxins/furans	0.1 ng/m^3 [f)]	0.1 ng/m^3 [f)]		0.01-0.1 ng/m^3 [g)]		< 0.01 – 0.04 ng/m^3
VOCs	40 mg/m^3	10 mg/m^3	20 mg/m^3	1-10 mg/m^3	1-20 mg/m^3	< 3 – 10 mg/m^3
NH_3		10 mg/m^3		<10 mg/m^3	1-10 mg/m^3	2 - 10 mg/m^3

a) 1 hour averaging period

b) Values in brackets adjusted to 11 % O_2

c) 11 % O_2 reference condition

d) 13 metals per Type 1 & 2 substances (NSW POEO) and 9 metals (Sb, As, Pb, Cr, Co, Cu, Mn, Ni, V) per EU IED

e) Minimum 1-hour

f) Minimum 30 minutes, maximum 8 hours

g) Non-continuous samples

The emission concentrations modelled for Scenario 1: Regulatory Case in the AQIA are the underlined values in the above table. EPA advise that the most stringent emissions limits and emission concentrations from best available technology have not been modelled for all pollutants. Mercury (Hg) emissions have been assessed against the POEO Clean Air Regulation of 0.14 mg/m^3 (11 % O_2) rather than the more stringent IED limit of 0.05 mg/m^3 (11 % O_2). Further, the assumed emission concentrations for the Regulatory Case do not meet expected emission concentrations when using current best available waste incineration technology (BATC December 2019) or even in some cases (eg. SO_2, HCl and particulates) the previous best practice emission concentrations (IPPC August 2006).

The focus of Scenario 1: Regulatory case should be on robustly ascertaining the performance of the proposed best practice technology and the emission limits that the proponent could commit to complying with at all times. It is these best practice emission limits that need to be assessed in the Regulatory Case. It is EPA policy to set Environment Protection Licence emission limits that reflect the actual performance of the proposed plant and equipment operating in a proper and efficient manner (Section 10.2 of the Approved Methods for Modelling). The Clean Air Regulation limits are only the minimum requirements and reflect good not best environmental practice and control.

It appears that the proponent has focussed on ascertaining the performance of the proposed best practice technology. Reference is made in the AQIA to the pollutant air emission guarantees from the boiler manufacturer Steinmuller Babcock Environment (SBE).

2. Use of 24-hour emission limits in assessment

The proponent has used the EU IED's 24-hour average emission limits in the regulatory case to assess longer term averaging period (24-hour or annual) impacts for particulate matter, total organic carbon, HCl, CO, SO_2, NOx and ammonia. As any future EPL will allow the proposed ERP to operate at the 1-hour average limit for every hour of the year then the 30 minute or 1 hour average Regulatory Case emission concentration must be used to assess the impacts at longer term averaging period (annual, 24 hour).

EPA advise the modelled 24-hour and annual average impacts presented in the AQIA cannot be assessed against NSW EPA's Impact Assessment Criteria for SO_2, NO_2, $PM_{2.5}$, PM_{10}, TSP and CO

3. Reference facility emission concentrations

The emission rates for Scenario 2: Expected Case are based on emissions from the reference facility (Rudersdorf). In-stack concentrations for the reference facility are presented in Figure 8.2 of the AQIA.

EPA advise that it is unclear from the AQIA if the in-stack concentrations presented for the reference facility (Figure 8.2) are annual averages, maximum daily average or other and what of these possibilities was used for the emission rates for the expected case.

The AQIA has not provided information regarding actual emission parameters, including flow rate, at the reference facility with which to evaluate emissions and compare with the proposed ERP.

4. Inconsistent pollutants assessed between modelled scenarios

Air pollutants were not consistently included in the assessment and modelling between the regulatory case and the expected case for the ERP. The AQIA included emissions of Be, Se, Cl_2 and H_2SO_4 in the regulatory case but not the expected case. PAHs were included in the assessment of the expected case but not in the regulatory case.

5. MPPS modelled emissions

Included in both the regulatory case and expected case were air pollutants emitted from the Mount Piper Power Station (MPPS). MPPS emissions were modelled based on average operating load for the last 5 years of 63 % and assumes a linear relationship between operating load and emissions (AQIA Section 8.2.2). Additionally, the emissions used were from NPI reporting rather than from measured emissions from the MPPS. Modelled emissions for MPPS used parameters summarised in Table 9.2, however these parameters have not been justified.

6. SO_2 exceedances and Inconsistencies

Exceedances of the 1-hour SO_2 Impact Assessment Criteria of 570 µg/m^3 are predicted (Appendix B) and summarised in Table 10.5 of the AQIA. Exceedances are predicted to occur at identified receptors (R1 and R5) in the modelled regulatory case.

The contribution from the MPPS emissions is unclear and appears inconsistent between modelled cases (regulatory and expected). The 1-hour cumulative SO_2 concentrations are almost identical between modelled cases (regulatory and expected) at identified receptors and does not appear to have been correctly compiled.

Further inconsistencies exist where the executive summary states the highest 1-hour SO_2 impact from the ERP only is 23 µg/m^3, while Table 10.5 gives the maximum predicted 1-hour SO_2 concentration at an identified receptor of 41 µg/m^3 (R8) with another identified receptor having a maximum concentration of 27 µg/m^3 (R1), both of which are higher than what the executive summary states. Contour plots in Appendix B do not provide sensitive enough contour lines to clarify the inconsistencies and evaluate SO_2 impacts.

7. Ammonia impacts

The AQIA provides an emission concentration and rate for ammonia based on a daily average concentration IED limit for the regulatory case (Table 8.2 and 8.5) or daily average in-stack concentrations from the reference facility for the expected case (Table 8.8).

EPA advise that using daily averages does not adequately capture variability and short term (1-hour) maximum emissions and impacts. Further, the NSW EPA's impact assessment criteria for ammonia is for a 1 hour averaging period.

8. Metal concentrations

Metal emissions for Scenario 1: regulatory case is stated in the AQIA to have been based on "European Union compilations of in-stack metals distributions (Ramboll, 2016)". The assumed metals compositions for aggregate groups for the Regulatory Case are provided in Table 8.4 in the AQIA whilst Table 8.5 provides assumed metal emission rates.

EPA have undertaken preliminary calculations to determine the assumed metal in-stack concentrations for the ERP for Scenario 1 as these were not provided in the AQIA. Calculations were undertaken using both the actual and normalised flow rate in Table 8.1 of the AQIA. The results of these preliminary calculations are shown in the table below together with the UK Environment Agency's monitoring data from incinerators (version 4)[1].

[1] UK Environment Agency, Releases from waste incinerators – Version 4, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/532474/LIT_7349.pdf

Metal	Mt Piper ERP emission rate (g/s)	Calculated in-stack concentration (mg/Am^3)	Calculated in-stack concentration (mg/Nm^3)	UK government monitoring (maximum concentration)
As	0.00069	0.0070	0.0094	0.025
Pb	0.022	0.2244	0.3010	0.0503
Cr(VI)	0.0097	0.0990	0.1327	0.00013
Mn	0.01	0.1020	0.1368	0.06
Ni	0.0042	0.0428	0.0575	0.22
V	0.00036	0.0037	0.0049	0.006
Sb	0.0029	0.0296	0.0397	0.0115
Cu	0.0052	0.0530	0.0711	0.029
Co	0.00059	0.0060	0.0081	0.0056
Be	0.00026	0.0027	0.0036	
Se	0.00026	0.0027	0.0036	
Sn	0.00026	0.0027	0.0036	
Cd	0.0035	0.0357	0.0479	
Hg	0.01	0.102	0.1368	
Sum 1[#]		**0.6602**	**0.8854**	
Sum 2*		**0.5676**	**0.7611**	

- [#]Type 1 and 2 substances only
- *EU IED 9 metals

EPA advise the AQIA does not adequately justify the assumed metal distributions for the Regulatory Case. It is unclear if the source of the assumed metals compositions in the AQIA, "European Union compilations of in-stack metals distributions (Ramboll, 2016)", is appropriate for the Mt Piper ERP proposal. Ramboll (2016) is a technical memo prepared to support the air quality impact assessment for the Genesis Energy from Waste Facility in Eastern Creek. The technical memo appears to refer to operational data from the reference facility for the Genesis proposal. A different reference facility is being used for the Mt Piper ERP. Further, reference is made to an outdated version (version 3) of the UK Environment Agency's monitoring data from municipal waste incinerators. The assumed emission concentrations for arsenic and nickel are also significantly below the UK1 waste incinerator emissions data.

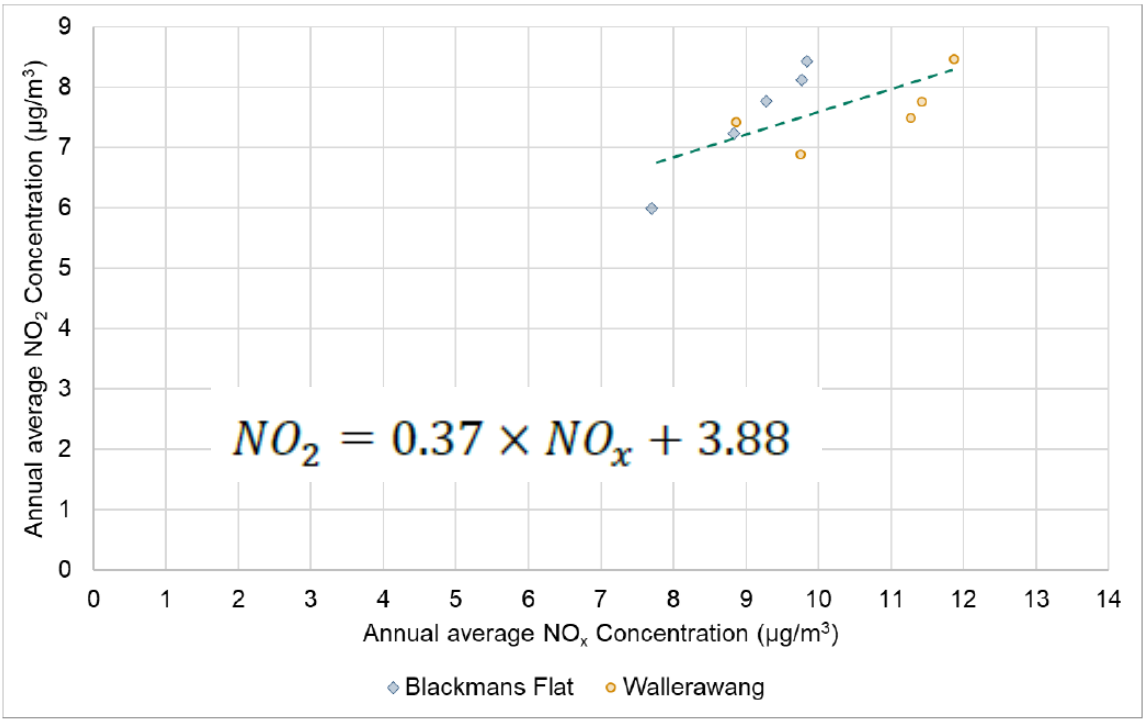
EPA also advise that calculation of emission concentrations using the normalised flow rate show the ERP would not be in compliance with the Group 6 POEO Clean Air Regulation emission limit for Type 1 and 2 substances (in aggregate) of 1 mg/m^3 at 7 % O_2 (0.71 mg/Nm^3 at 11 % O_2 used in the AQIA).

EPA advise that calculation of emission concentrations using both actual and normalised flows (Table 8.1) show the ERP would not be in compliance with the EU's IED emission limit for aggregate metals (9 metals Table 8.2). It is also likely that the assumed metal emission concentrations for the ERP would not align with the SBE pollutant air emission guarantee.

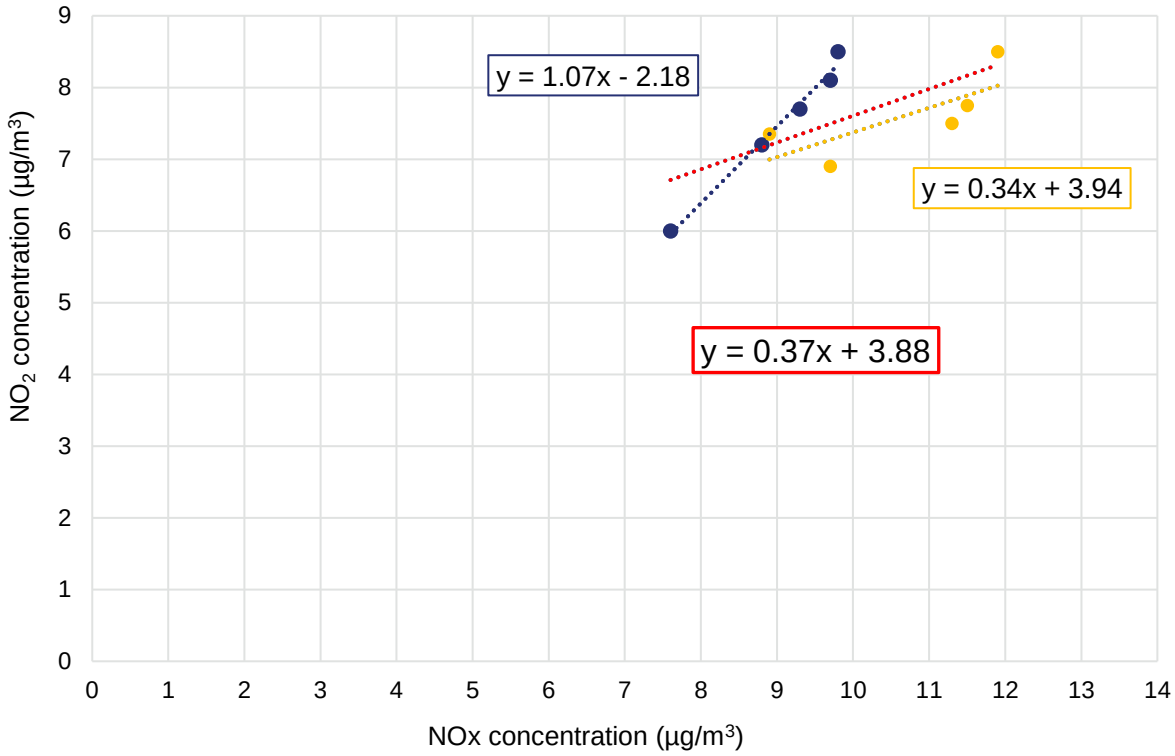
9. NOx conversion method

a) Annual average

The AQIA assessed annual average NOx to NO_2 conversion using a linear regression equation derived from data collected at Blackman's Flat and Wallerawang (Figure below from Appendix B of AQIA).



EPA advise that this method is not an EPA approved NOx conversion method. The linear regression used is heavily influenced by the Wallerawang data (see Figure below). Considering Blackmans Flat is closer to the Mt Piper Power Station and has close to a 100 % NOx conversion rate, it would be considered a more conservative and appropriate approach to assume 100% NOx to NO_2 conversion, which is also in accordance with the NSW EPA's *Approved Methods for Modelling and Assessment of Air Pollutants in NSW*.



b) Hourly averages

The AQIA has evaluated 1 hourly average NO2 using the ambient ratio method from the British Columbia Air Quality Dispersion Modelling Guide. This method is not in the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW (Approved Methods) and has not been adequately justified or validated.

EPA have attempted to determine the resulting NO2 concentrations used in the impact assessment from the formula applied to NOx concentration in the AQIA (NO2/NOx = 36 x [NOx]^-0.977) and obtained the results in the table below:

NOx concentration	NO_2/NO_x ratio	NO_2 concentration
41	0.96	39.2
50	0.79	39.4
100	0.40	40.0
150	0.27	40.4
200	0.20	40.7
250	0.16	40.9
300	0.14	41.0
350	0.12	41.2
400	0.10	41.3
411	0.10	41.3

EPA cannot reconcile the static NO_2 concentrations with increasing NOx concentrations derived from the formula and realistic offsite impacts from the proposal. The derived formula seems to be highly influenced by possible outlier NOx concentrations measured at Wallerawang.

The ambient ratio method does not take into account the distance from source of NOx emissions to receptor and the oxidation of NO to NO_2, increasing with distance from the source.

To evaluate the impact and provide adequate information to validate the method used paired NOx and NO_2 concentrations at receptors should be provided to determine the NOx conversion at each receptor.

10. Sensitivity analysis

The AQIA states exit velocities range between approximately 13 m/s and 23 m/s.

The modelled emission parameters for the ERP included an exit velocity of 22.6 m/s (Table 9.1) consistent with the maximum flow rate. A maximum flow rate will result in a worst-case emission concentration.

EPA advise that this is a high exit velocity and at the upper range of operating parameters which would result in a greater dispersion of air pollutants and potentially doesn't predict worst-case offsite impacts resulting from variability in potential flow rates (and therefore exit velocity) during operation of the ERP.

11. Start-up and shut down emissions assessment

While POEO (Clean Air) Regulation emission limits do not apply during start-up and shutdown (clause 52), air pollution (emissions and impacts) must be minimised at all times.

EPA advises that there can be considerable variation in emissions and pollution control efficiency across boiler load, including start-up and shutdown, which can result in increased peak impacts from operation. The AQIA has not considered potential impacts associated with the expected emission variability.

Further, the AQIA states the start-up procedure of the boiler will include a start-up of oil-fired auxiliary burners but has not assessed the potential emissions and impacts using the support fuel.

12. HF issues

The summary of HF impacts for the regulatory case (AQIA Table 10.9) shows no difference in HF concentrations between the ERP only and the ERP + MPPS for the 7 days and 30 days averaging period. However, for the 24 hours and 90 days averaging period, there is an order of magnitude difference between in the HF concentrations between the ERP only and the ERP + MPPS.

13. Modelling of operating hours

The AQIA states that the ERP will operate 24/7 but have stated only 8000 hours of operations resulting from downtime due to maintenance.

14. Other pollutant impact inconsistencies

Although impacts are predicted to be below the Impact Assessment Criteria, Table 10.10 of the AQIA shows no contribution from MPPS for 15-minute and 1-hour CO impacts, but approximately double the impact for 8-hours (excerpt below).

Pollutant	Averaging Period / Statistic	Criterion (µg/m³)	Units	Highest predicted concentration on the grid		
				ERP	ERP + MPPS	ERP + MPPS + BG
Carbon Monoxide	15 minute maximum	100,000	µg/m³	55	55	55
	1 hour maximum	30,000	µg/m³	42	42	1,666
	8 hour maximum	10,000	µg/m³	7.7	14	1,406

There are no differences between the predicted NO2 impacts between regulatory case and expected case (excerpt below). Considering the significant impact from the ERP, the ERP+MPPS impacts do not appear to reflect accurate emissions from the site.

Table 10.1: NO_2 – Regulatory Case

Receptor	NO_2 Predicte		
	Maximum 1 hour average		
	ERP	ERP + MPPS	ERP + MPPS + BG
R1	39	41	106
R2	31	40	105
R3	15	40	105
R4	13	41	106
R5	20	41	106
R6	16	40	105
R7	11	40	105
R8	40	40	105
R9	21	39	104
R10	19	40	105
R11	17	40	105
R12	7.0	40	105
R13	5.5	40	105
R14	6.3	40	105
Maximum (All)	40	41	106
Criterion	-		*246*

Table 10.1: NO_2 – Expected Case

Receptor	NO_2 Predicte		
	Maximum 1 hour average		
	ERP	ERP + MPPS	ERP + MPPS + BG
R1	19	41	106
R2	12	40	105
R3	6.2	40	105
R4	6.2	41	106
R5	5.1	41	106
R6	6.0	40	105
R7	4.1	40	105
R8	29	40	105
R9	8.6	39	104
R10	7.4	40	105
R11	6.5	40	105
R12	2.6	40	105
R13	2.1	40	105
R14	2.5	40	105
Maximum (All)	29	41	106
Criterion	-		*246*

15. Monitoring requirements

The Energy from Waste Policy requires continuous monitoring (CEMS) of several pollutants and parameters. The AQIA does not specify the proposed pollutants and parameters that will be continuously monitored.

The Best Available Technology Conclusions (BATC) for Waste Incineration (December 2019) includes the requirement for continuous monitoring of ammonia (NH_3) when SNCR or SNR is used.

EPA advises that SNCR is proposed to be used and there is the potential for ammonia emissions from the stack. Proper and efficient operation requires ammonia to be kept at a minimum which continuous monitoring would allow for.

16. Odour emissions and assessment

EPA advise there is the potential for odour to occur from the RDF delivered and stored at the ERP. The bunker will have a standstill odour extraction system to mitigate odour emissions, however, no odour assessment to determine offsite impacts has been conducted.

17. Chlorine content of waste and combustion chamber temperature

The AQIA does not specifically discuss the chlorine content of the waste. The EIS, however, states that the RDF will remain below 1 % with a range of 0.5 - 1 % with design specifications of 0.8 % which has been used in the regulatory case to assess impacts in the AQIA.

18. Waste Composition and emissions/suitability of reference facility

The composition ratio of RDF derived from municipal solid waste (MSW) to industry waste is assumed for the AQIA to be 50:50. However, the AQIA states that the RDF composition could be 100 % of either.

EPA advise that the impact to air emissions hasn't been evaluated when RDF composition is 100 % of either MSW or industry waste.

19. Control of gaseous metals

The AQIA has described control technology to remove multiple pollutants, however only mercury was considered of the volatile and semi-volatile gases. The efficiency of the air emissions control processes in removal of other volatile and semi-volatile gases (arsenic and cadmium) is unclear.

20. Incorrect impact assessment criteria

Table 6.1 of the AQIA incorrectly states the impact assessment criteria for dioxins/furans and PAHs.

Table 10.3 incorrectly states the impact assessment criteria for annual average PM_{10}.

Requested Information/Actions:

Prior to the department finalising its assessment of the proposal, EPA recommends that:

1) **the proponent is required to provide the pollutant air emission guarantees from SBE and present a revised Scenario 1: Regulatory Case emissions scenario based on the pollutant air emission guarantees.**
2) **for the Regulatory Case emissions scenario the proponent must evaluate 24-hour and annual impacts from the ERP using emission concentrations on a 30 minute or hourly basis in accordance with the NSW regulatory framework.**
3) **the proponent clarify the reference facility stack concentrations and emission rates.**
4) **for each pollutant at the reference facility, maximum and average in-stack concentrations and emission rates are provided for 1-hour, 24-hour and annual averaging periods (where available).**
5) **the proponent provide all emission parameters for the reference facility.**
6) **the proponent must revise the AQIA to model and assess impacts from all air impurities in both modelled scenarios.**
7) **maximum emissions and maximum approved load capacity be modelled for both ERP scenarios, and that validation of emission rates for the MPPS be provided.**
8) **the proponent provide actual emissions concentration data from monitoring and testing of point sources at the MPPS and demonstrate the assumed emission concentrations are consistent with licence conditions.**
9) **the proponent provide justification and validation of assumed emission parameters for the MPPS.**
10) **the proponent investigate SO_2 impacts further through a refined SO_2 assessment. This assessment should include a contemporaneous assessment of SO_2 impacts, evaluation of SO_2 exceedances and provide a summary of the impacts as outlined in**

Table 11.3 of the Approved Methods for the Modelling and Assessment of Air Pollutants in NSW, which includes, as a minimum:

- **Time/date**
- **ERP increment**
- **MPPS increment**
- **Adopted background**
- **Cumulative (total) impact.**

11) **the proponent evaluate short term ammonia impacts for both modelled scenarios. For the Regulatory Case emissions scenario, the proponent must provide and model maximum ammonia emissions and compare predicted ground level concentrations to the EPA's 1-hour average impact assessment criteria.**

12) **the proponent provide further information justifying all assumed Regulatory Case metal emission concentrations and rates from the proposed ERP.**

13) **the proponent must consider and present options for metal emissions that will achieve compliance the Group 6 POEO Clean Air Regulation emission limit and align with the SBE pollutant air emission guarantee.**

14) **the proponent prepare a revised AQIA that assumes 100% NOx to NO2 conversion for annual average concentrations.**

15) **the proponent investigate the accuracy of their NOx conversion method.**

16) **the corresponding NOx concentrations at receptors be provided together with predicted NO_2 concentrations for both modelled scenarios.**

17) **the proponent undertake and present in a revised AQIA a sensitivity analysis that evaluates the relationship between exit velocities, using a range of potential flow rates, and offsite impacts.**

18) **the proponent confirm whether the flow rate used results in the worst offsite impacts and if it does not, revise and remodel both emission scenarios using the flow rate determined to cause the worst-case offsite impacts.**

19) **the proponent prepare a revised assessment which adequately considers emissions and impacts from start-up and shutdown and the use of a support fuel.**

20) **the proponent clarify why the MPPS does not contribute to 7- and 30- day HF impacts while contributing to 24-hour and 90-day impacts.**

21) **the proponent clarify how many operating hours were modelled in each scenario and if only 8000 hours were modelled, how were the hours treated in the model.**

22) **the proponent clarify the impacts for all pollutants and for all scenarios to remove any incorrect values, inconsistencies and ensure accurate impacts are presented for evaluation.**

23) **the proponent clearly provide details of the pollutants and operating parameters proposed to be continuously monitored to determine compliance with the Energy from Waste Policy CEMS requirements and the BATC.**

24) **the proponent consider conducting an odour assessment or adequately justify the absence of an odour assessment.**

25) **the proponent consider and provide additional information on how the chlorine content in the RDF will be assessed on an ongoing basis and how received waste with**

greater than 1 % of chlorine will be managed, including the ability to raise gas temperature from the minimum of 850 °C to 1100 °C.

26) **the proponent evaluate the variability in emissions from differing RDF compositions than the single composition ratio assumed in the AQIA.**

27) **the proponent clarify the proposed removal processes and efficiency of arsenic and cadmium control technology.**

28) **the proponent confirm all air pollutants have been assessed against the correct Impact Assessment Criteria.**

Noise Emissions

Background:

The EPA notes several areas of the EIS requiring clarification of compliance with the Noise Policy for Industry (NPfI) (EPA, 2017) and the Interim Construction Noise Guidelines (ICNG) (DECC, 2009). The project includes various noise sources at the facility such as truck unloading operations, mechanical handling equipment, furnace, exhaust stack and steam transport and handling infrastructure.

EPA Assessment:

In assessing the proposal, the EPA reviewed the following documents:

Document	Author/Publisher	Published Date
ERM EIS: Main Report	ERM Worldwide Group Ltd	9 December 2019
ERM EIS: Appendix N: Noise and Vibration Impact Assessment	ERM Worldwide Group Ltd	4 December 2019
ERM EIS: Appendix E – Best Available Techniques Assessment	Ricardo Australia Pty Ltd	13 October 2019
ERM EIS: Appendix U – Project Plans	ERM Worldwide Group Ltd	December 2019
EPA Noise Policy for Industry (NPFI)	NSW EPA	October 2017
Interim Construction Noise Guideline (ICNG)	DECC	2009

EPA Comments:

There appears to be very few receivers who are likely to be potentially affected by noise from the ERP. These receivers are also in proximity to a long-standing industrial facility (Mt Piper Power Station). However, the measured background noise levels are very low and do not indicate that the existing power station unduly affects the noise environment. Therefore, whilst there may be existing industrial noise, it is of a low level and the proposed new modification may increase noise levels so that any additional noise from the site may be audible and louder than existing conditions, but yet remain below the Project Noise Trigger Levels (PNTLs).

The following should be addressed before the Department completes is assessment:

1. **Project Noise Trigger Levels:**

   The commercial and industrial project noise trigger levels (PNTLs) should be defined in accordance with Section 2 of the NPfI. In the case of the commercial and industrial receivers it means that the project amenity level should be defined as per Section 2.4 prior to

conversion to $L_{eq,15min}$ level for the PNTL. This issue is of minor significance as it does not affect the outcome of the report.

2. Meteorological conditions:

The Noise and Vibration Impact Assessment (NVIA) has used the Bureau of Meteorology weather station at Bathurst, which is 36km away in a different valley to establish the significance of noise-enhancing weather conditions. It is not clear why the onsite weather station at the existing power station was not used for the meteorological analysis. It is expected that the on-site weather data, would provide a more representative set of meteorological conditions for the nearest receivers to the plant. The Air Quality Assessment identified three stations, (Mt Piper, Blackmans Flat and Wallerawang) which are closer to the proposal than Bathurst.

3. Operational Noise Modelling:

The NVIA has stated that it has used existing noise monitoring data to establish the contribution from the existing operation at Mt Piper. The site is an established existing noise source and therefore the expectation is that any noise model should be validated to determine its appropriateness to the site.

Chapter 2.6.1 of the NVIA defines the meteorological conditions used in the noise modelling as standard conditions (Stability Class D with calm winds) and noise-enhancing conditions (light source to receiver winds and Stability Class F temperature inversions). Table 2.1 states that the ISO 9613-2 calculation method was used to predict noise levels. However, the ISO 9613-2 method does not contain any process to calculate noise levels under a specific stability class, nor calculate noise levels in calm conditions.

Appendix E reports that all sources were modelled at 2m emission height. Reviewing the plans in Appendix U of the EIS indicates that most sources would be significantly higher than this with the stack tip being around 70m above ground level. Appendix E also lists a stack outlet as a source, however the stack itself is not included as a noise source.

Chapter 6 does not describe which sources are modelled within buildings and the required acoustic performance of those buildings or enclosures. The safeguards in Chapter 7 state sound power levels (SWLs) that are required to meet the PNTLs. However, it is not clear if the sound power levels include the effect of enclosures or buildings.

A review of the spectral information in Appendix N indicates that there is potential for an unbalanced spectrum at the nearest receivers, i.e. C minus A weighted noise level of equal to or more than 15 dB. Also, the sound power level in Appendix N used for a heavy vehicle of 99 dBA appears to be low and does not appear to be consistent with the Sound Power Levels for similar items in Table A1 from Australian Standard AS 2436 2010 which is the nominated reference in the NVIA.

4. Road Traffic Noise Assessment:

It is unclear in Chapter 6.2 what the assumed project contribution to road traffic volumes are, split between day and night.

EPA notes that whilst the absolute noise level from road traffic with and without the project is in some cases above the Road Noise Policy (RNP) (DECCW, 2011) criteria, the project is making a change of less than 2 dB in all cases. However, it is recommended that the proponent should develop a traffic management plan with emphasis on managing driver behaviour as noise from trucks such as inappropriate engine breaking can impact receivers, even when road traffic noise is within the relevant RNP criteria.

5. Construction Noise Assessment:

EPA notes that the majority of construction scenarios are planned to take place during standard and outside of standard working hours. Only construction activities that will result

in noise levels below the Noise Management Levels described in the Interim Construction Noise Guideline (DECC, 2009) should be permitted outside of the recommended standard hours of work.

Requested Information/Actions:

Prior to the department finalising its assessment of the proposal, EPA recommends that:

1. **Any approval of the proposal be made conditional on the production of a Traffic Management Plan which places emphasis on managing driver behaviour, specifically the minimisation of engine braking.**

For Project Noise Trigger Levels;

2. **The proponent revises the NVIA to ensure that the project amenity level is defined in accordance with section 2.4 of the NPfI prior to conversion to $L_{eq,15min}$ level for the PNTL**

For Meteorological Conditions Assessment;

3. **The proponent is required to provide a justification that the meteorological data set used (Bathurst) is appropriate and representative of the local receivers potentially affected by the premises or alternatively amend the assessment based on meteorological data that better reflects conditions experience in the area.**

For Operational Noise Modelling;

4. **The Proponent is required to provide details of how the noise model was validated using the existing data from the MPPS.**
5. **The proponent is required to provide an explanation of how meteorological conditions have been accounted for in the predictions made in section 2.6.1 of the NVIA and a justification that they are appropriate.**
6. **The proponent is required to clarify the height of sources used in the noise modelling.**
7. **The proponent is required to clarify if the stack itself will be a noise source, and if not, what mitigation measures will be used to minimise its noise emission.**
8. **The proponent is required to clarify the requirements in chapter 6 and 7 for the equipment sound power levels which are required in order to meet the PNTLs.**
9. **The proponent is required to clarify if the modifying factor for low frequency noise as defined in Noise Policy for Industry (NPfI) Fact Sheet C has been appropriately calculated and applied where required.**
10. **The proponent is required to review the sound power levels in order to ensure alignment with AS 2436 2010 and amend as appropriate.**

For Road Traffic Noise Assessment;

11. **The proponent is required to clarify the assumptions used in the day and night volume split, and the volumes of both light and heavy vehicles associated with the project.**

For Construction Noise Assessment;

12. **The proponent is required to ensure that any construction activities that occur outside of recommended standard hours of work are below the Noise Management Levels described in the Interim Construction Noise Guideline (DECC, 2009)**

Management of waste as fuel and waste ash

Background:

The project uses commercial and industrial waste streams as fuel and generates significant quantities of ash as a result of burning the waste.

EPA Assessment:

In assessing the proposal, the EPA reviewed the following documents:

Document	Author/Publisher	Published Date
ERM EIS: Main Report	ERM Worldwide Group Ltd	9 December 2019
ERM EIS: Appendix G – Refuse Derived Fuel QA/QC	RE Group Ltd	November 2019
ERM EIS: Appendix F – Waste Feedstock Report	Ricardo Australia Pty Ltd	26 November 2019
ERM EIS: Appendix E – Best Available Techniques Assessment	Ricardo Australia Pty Ltd	13 October 2019
ERM EIS: Appendix D – Ash Characterisation and Assumptions Book	WSP Pty Ltd	9 December 2019
ERM IES: Appendix C – Mt Piper Encapsulation Cell Concept Design	GHD Pty Ltd	October 2019
Waste Classification Guidelines Part 1: Classifying Waste	NSW EPA	2014
Solid Waste Landfills Guidelines	NSW EPA	April 2016
EPA Energy from Waste Policy Statement	NSW EPA	January 2015

EPA Comments:

The EPA notes that an independent review of the waste related impacts of the proposal has been conducted. It should be read in conjunction with this submission.

The primary concern around waste management for the ERP is related to the sourcing, supply and quality assurance of RDF. The feedstocks into the RDF supply are identified as Municipal Solid Waste (MSW) and Commercial and Industrial Waste (CI) and while sufficient supply quantities have been identified in the feedstock report there is not currently sufficient production capacity in the market to supply the estimated 200,000 tonnes per annum that the project requires. Questions remain about how new RDF supply will be secured in the future and moreover, what QA/QC and audit regimen will be relied upon to ensure the composition of the fuel and the subsequent air emissions remain within the design specifications. The EPA understands that this particular issue is addressed further in the Independent Report.

The EPA has considered other waste management impacts associated with the proposal in addition to those considered in the Independent Report and has found that in some cases the proponent has not sufficiently identified protection or prevention measures to be used with regard to fugitive waste material.

The proposal indicates that an ash treatment plant will be required to treat ash generated through burning RDF prior to its disposal. There are no details of the types of chemicals or process that will be used to treat ash and this is required to enable a full assessment of the proposal.

The EPA notes that Section 3.3.3 of the EIS describes potential discharges of water to Lamberts North Ash Repository (LNAR) and Section 8.3 of Appendix C does not include any requirement to test Electrical Conductivity under the surface water quality monitoring program. The EIS also states that the project intends on relying upon the existing OEMP dated 2013 for the management of ash and water including the new ash facilities. The EPA requires the OEMP to be updated to include the management of the new ash facilities and management of any contaminated water generated in the facilities.

The EPA also notes that following the submission of the ERP EIS, discussions have taken place among various parties in consideration of lining of the entire Lamberts North Ash Repository (LNAR) area in a similar method to this proposal. The EPA welcomes these discussions and would support this outcome.

Requested Information/Actions:

Prior to the department finalising its assessment of the proposal, EPA recommends that:

1. **The proponent is required to clarify how RDF generation, composition, supply and audit processes will be managed in 3rd party supply contracts in order to ensure the specified emissions performance of the ERP is met on a continuous basis.**
2. **Any Approval of the proposal be made conditional on the inclusion of independent 3rd party certification of the ash repository construction, demonstrating compliance with the NSW Solid Waste Landfill Guidelines.**
3. **The proponent is required to clarify if and how the application of the waste levy will be applied to the material disposed of in the ash repository.**
4. **The proponent is required to clarify what measures will be used to manage RDF feedstock and RDF materials in order to prevent fugitive waste generation at any facilities used to process and handle those materials.**
5. **The proponent be required to provide details of how the ash will be stabilised in terms of the chemicals to be used and the proposed process;**
6. **The proponent be required to prepare a new operational environmental management plan to cover the management of all of the ash and associated contaminated water within the Lamberts North Ash repository.**
7. **The proponent is required to include a Licenced Discharge Point and monitoring program in the proposal for any waters to be discharged from within the ash repository out into LNAR. This should include the setting of pollutant concentration limits to ensure pollution does not occur through any discharge.**
8. **The proponent is required to include Electrical Conductivity as a test parameter in any ground and surface water quality monitoring programs.**
9. **The proponent should provide a timeline for periodic reviews of available options for reuse of flyash in Australia**

New Environment Protection Licence(EPL) and the impact on EPL 13007

Energy Australia currently hold EPL 13007 which includes the project area. The EIS indicates that the proponents intend to apply for a separate EPL for the project. The proponent and the licensee of EPL 13007 need to be able to practically delineate the project from EPL13007. This will require consideration of boundaries, emissions and discharge limits as well as the operational interface with the Mount Piper Power Station. This may include, among other things, impacts on NOx and SOx emissions under EPL13007 as well as the integration of monitoring and reporting systems across the licences. It will be important for the proponent to clearly explain how the disposal of ash waste

in the Lamberts North ash depository and the use of this facility to manage stormwater collected from the new ash emplacements areas should be treated by both the new and existing EPL's.

Requested Information/Actions

Prior to the department finalising its assessment of the proposal, EPA recommends that:

1. **The proponent detail how it intends to split the project as proposed from the current EPL 13007 by providing information on proposed boundary changes, emissions and discharge limits and the delineation of ash management and associated contaminated water in the Lamberts North Ash Repository.**