DOC19/995044-9; EF 14/502 (CSSI 9837)

Department of Planning, Industry and Environment
via Major Projects Portal

Attention: Mandana Mazaheri

13 December 2019

Newcastle Power Station Project - (CSSI 9837)- Environmental Impact Statement Review by the Environment Protection Authority

I refer to your email to the Environment Protection Authority (EPA) received on 13 November 2019 seeking the EPA's advice in relation to the adequacy of the proponent's Environmental Impact Statement (EIS) for the Newcastle Power Station Project above proposed development.

The proponent, AGL Energy Limited (AGL), proposes to construct a dual fuel power station, known as the Newcastle Power Station (NPS). The NPS, with gas pipelines, electricity transmission lines, site access and associated ancillary facilities would be built in Tomago in New South Wales (NSW). Together, the NPS, gas pipeline, electrical transmission lines and associated infrastructure form the Proposal.

The EPA has reviewed the EIS and has determined that it requires additional information to properly assess the proposal. The EPA's additional information requirements are provided at Attachment A to this letter.

If you require any further information regarding this matter, please contact Genevieve Lorang on 4908 6869 or by email to hunter.region@epa.nsw.gov.au.

Yours sincerely

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Encl:
Attachment A- EPA Additional information required

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ATTACHMENT A – EPA additional information requirements

Air Quality

1) Benchmarking of the preferred power station option and the final design of emission controls proposed for implementation at the power station against international best practice technology and performance.

The proposal presented four options for the Newcastle power station: gas turbine or reciprocating engine, each with either dual fuel options of natural gas or distillate. The Air Quality Impact Assessment (AQIA) only provided a cursory overview of potential controls that may be considered for the turbine and engine options.

The AQIA advises that for the gas turbine option, the turbines will be fitted with emission controls as required to meet regulatory emission limits under both natural gas and distillate oil ('distillate') operation. For the reciprocating engine option, the AQIA states the manufacturers have identified the requirement for selective catalytic reduction (SCR) and oxidation catalysts in order to meet regulatory pollution control requirements.

The EIS provides the following options for the control of NOx:

- No control
- Water or steam injection
- Dry Low NOx Combustion Systems
- Wet Low NOx Combustion Systems
- Selective Catalytic Reduction (SCR)

The EIS states that all technologies are capable of meeting the standards of concentration for electricity generation plant in Schedule 3 of the Protection of the Environment Operations (Clean Air) Regulation 2010 (the Clean Air Reg).

The AQIA does not provide detailed information on the application of specific emissions controls as power station design is yet to be finalised, rather the AQIA simply commits to complying with applicable Clean Air Reg emission limits. As such, the AQIA has not assessed the proposed plant design and emission controls against available best practice emission control measures.

Reasonably available control technology is capable of achieving emission control performance that results in concentrations well below the Clean Air Reg standards of concentration. Emissions of principal toxic air pollutants acrolein, formaldehyde, benzene and Polycyclic Aromatic Hydrocarbons (PAHs) must also be minimised to the maximum extent achievable through the application of best-practise design and emission controls.

2) An ozone and inter-regional transport assessment

This assessment must be conducted in accordance with *Tiered Procedure for Estimating Ground-Level Ozone Impacts from Stationary Sources*. This can be found at https://www.epa.nsw.gov.au/-/media/epa/corporate-site/resources/air/estimating-ground-level-ozone-report.pdf?la=en&hash=5B3D0AC78A22BE0863A37B6570108E5336E53B03

Ozone precursors, NOx and VOCs, will be emitted from the proposed power station. The AQIA does not include an ozone assessment, nor does it robustly evaluate potential for inter-regional pollutant transport.

Exceedances of national ozone standards (1 hour and 4-hour) have been recorded by the NSW Government air quality monitoring network at Lower Hunter and Central Coast monitoring sites. Given that the proposed power station is a peaking station, it is likely that the power station will operate during periods of high electricity demand on the grid. These periods typically occur during hot summer days which historically coincide with higher risks of ozone impacts.

3) A revised assessment which adequately considers emission variability, including an assessment of emissions and impacts from plant start-up, shutdowns and variable load.

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

The AQIA has stated that emissions were either estimated from manufacturer data or USEPA AP-42 emission factors (Table 6.1) and given a summary of emission rates (Table 6.6) used in the modelling to assess impacts.

4) A revised air quality assessment based on final plant design including a detailed discussion of the methodology used to calculate emission rates for each source.

The EPA needs this information because the emissions inventory is the foundation of the air quality assessment. The discussion should include all supporting information, such as manufacturer data where no measurements are available**.**

Sufficient information needs to be provided to allow the EPA to audit and evaluate the emission rates used in modelling (Table 6.6). Emission rates should be provided in both g/s and kg/yr in the emissions inventory.

5) Further consideration and analysis of the SO_2 emissions and impact from the Tomago Aluminium Smelter through assessment of cumulative impacts.

This analysis should use SO_2 measurements from the Tomago Aluminium Smelter monitoring network and emission specifications based on the preferred and final power plant design. The Tomago Smelter data is likely to be more representative of background air quality in close proximity to the proposal.

The AQIA used Beresfield OEH air monitoring data for background air quality in the cumulative assessment (Section 7). For SO_2 a maximum background of 20 µg/m^3 was used to assess cumulative SO_2 impacts.

Data from the Tomago Aluminium Smelter ambient monitoring network (section 8) shows exceedances of the SO_2 Impact Assessment Criteria of 228 µg/m^3 in 2017 (maximum 24-hour concentration 237 µg/m^3) and 2018 (maximum 24-hour concentration 269 µg/m^3) (Table 8.4) as well as significant (>80 %) contributions of SO_2 to the 1-hour and 10-minute Impact Assessment Criteria.

6) A refined assessment for the most impacted receptors which includes the highest backgrounds and the highest increments for SO_2 concentrations.

This assessment is required to be in accordance with Table 11.3 of the Approved Methods which includes, as a minimum:

- Time/date
- Project (only) increment
- Appropriate adopted background considering TAS emissions and monitoring
- Cumulative (total) impact.

7) An assessment of exceedances of principal toxic air pollutants including acrolein

The assessment should:

a) Benchmark the preferred project option against best practice process design and emission control

b) Robustly demonstrate that principal toxic air pollutants will be minimised to the maximum extent achievable

c) Refine the modelling assessment to demonstrate compliance with the impact assessment criteria set out in the *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW*.

The proposed option of the reciprocating engine using natural gas exceeds the Impact Assessment Criteria (IAC) of 0.42 µg/m^3 for acrolein at the two nearest discrete receptors (0.68 µg/m^3) and beyond the boundary (1.25 µg/m^3). These exceedances occur with a 40 % control efficiency applied which has been estimated from the manufacturer. Robust justification for the assumed control efficiency has not been provided.

Acrolein is classified as a principal toxic air pollutant. The *Approved Methods for the Modelling and Assessment of Air Pollutants in NSW* requires that principal toxic air pollutants be minimised to the maximum extent achievable through the application of best-practice process design and/or emission controls.

Noise

1. **Detailed information to demonstrate that the attenuated sound power levels in Table 9-2 are feasible and reasonable to achieve.**

This information should include information such as manufacturer or supplier guaranteed sound power level data.

The EPA also requires detailed layouts (including heights) and construction details of the proposed items of plant and equipment at the premises, and any associated housings and other structures for both the 'no noise control' and 'required attenuation' scenarios.

Table 9-3 and Table 9-4 present predicted operational noise levels for the two engine options (gas turbine engine or reciprocating engine). Section 9.3 of the Noise and Vibration Assessment (NVA) states that for a scenario without any sound attenuation, significant exceedances of the project trigger noise levels (PNTLs) are predicted at surrounding sensitive receivers. It goes on to nominate the noise attenuation required for proposed plant components in order to achieve the PNTLs in Table 9-2. The required noise reductions are significant (between 5 dBA and 40 dBA). While the NVA generally discusses possible sound attenuation measures to achieve these reductions (and hence the PNTLs), it does not present any information to demonstrate that these reductions are feasible and reasonable to achieve. The NVA also does not provide any information on how the proposed plant has been laid out for the 'no noise control' scenario, and what structures or structural elements with their associated properties and materials, are included in this scenario.

2. **A comprehensive assessment of the applicability of any annoying noise characteristics including low-frequency and/or tonal modifying factors to the operation of the proposed project.**

This assessment is required in accordance with Fact Sheet C of the Noise Policy for Industry (NPfI).

The NVA has not provided any information on the potential for low-frequency and/or tonal noise impacts at surrounding receivers from the operation of the proposed project. There is potential for significant low frequency noise emissions, particularly from open-cycle gas turbine based power plants, such as has been proposed in Section 2.2.1 of the NVA.

3. **Additional data to confirm that the background noise monitoring results are still representative of the cooler autumn/winter months when insect noise is less likely.**

Unattended background noise monitoring was conducted in February 2019, during the summer period when there is likely to be increased insect noise, particularly during the more sensitive evening and night-time periods, such as shown at L02 (135 Oakfield Road, Woodberry). This is not discussed in conjunction with the unattended or the operator-attended monitoring results. The operator-attended noise monitoring results do not identify what noise sources characterise each of the monitoring locations, or their relative contributions.

4. **A review of how the amenity levels have been derived, particularly with respect to the conversion between LAeq(period) and LAeq(15minute) data.**

5. **Explanation of why the amenity levels in Table 5-3 have been increased by 5 dB at receiver R4 (Caravan Park).**

6. **Revision of evening intrusiveness levels so that they are not set higher than the daytime intrusiveness level.**

This is required by Section 2.3 of the NPfI.

7. **An analysis of meteorological conditions to support the adoption of any relevant prevailing winds in the noise modelling.**

Section 9.2 of the NVA defines meteorological scenarios for the noise modelling process, and nominates a prevailing 3m/s south-easterly wind without supporting analysis. Meteorological conditions should be analysed as per Section D2 of the NPfI.

Alternatively, the proponent could adopt default noise-enhancing meteorological conditions in the assessment as per Fact Sheet D of the NPfI.

Water

8. **Specific discharge quality concentration level details.**

The EIS and Appendix E only detail reduction/retention targets based on Port Stephens DCP criteria. Specific concentration limits need to be provided for each parameter including Total Suspended Solids, Total Nitrogen and Total Phosphorus.