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Mr Lander Robinson
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Dear Mr Robinson

Eraring Battery Energy Storage System (SSD 15920052)
Advice on Environmental Impact Statement (EIS)

I am writing to you in reply to your invitation to the Environment Protection Authority (EPA) to provide comment on the Environmental Impact Statement (EIS) for the above project.

The EPA understands that the project involves the construction and operation of a grid-scale battery energy storage system (BESS) with a discharge capacity of 700 megawatt (MW) and storage capacity of 2,800 megawatt hours (MWh) at the Eraring Power Station (EPS) site under EPL 1429 (the Project).

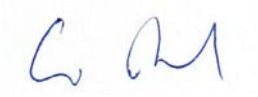
The EPA has reviewed relevant EIS documents including:

- *Eraring Battery Energy Storage System - Environmental Impact Statement (Jacobs, 22 October 2021)* (EIS main report)
- *Noise Impact Assessment – Proposed Eraring Battery Energy Storage System, Rocky Point Road, Eraring, NSW (Jacobs, 14 October 2021)*
- *Contamination Assessment - Proposed Eraring Battery Energy Storage System, Rocky Point Road, Eraring, NSW (AECOM, 12 July 2021)*
- *Water Impact Assessment – Proposed Eraring Battery Energy Storage System, Rocky Point Road, Eraring, NSW (Jacobs, 14 October 2021)*

The EPA provides comments and seeks additional clarification in relation to a number of issues at **Appendix A**. In particular, the EPA considers that the Noise Impact Assessment is inadequate for assessment purposes. Comments are also made regarding water quality and contamination.

Should you require clarification of any of the above please contact Tariful Islam on 9995 5726 or by electronic mail at info@epa.nsw.gov.au.

Yours sincerely



GEORGE OREL
A/ Unit Head - Regulatory Operations - Metropolitan North
Environment Protection Authority

Encl. Appendix A

APPENDIX A

1. Noise and Vibration

The EPA has undertaken a review of the Eraring Power Station Battery Energy Storage System – Noise Impact Assessment (IS365800_NIA | 02 14 October 2021) Origin Energy Eraring Pty Ltd – SSD-15950052 EIS Appendix J (hereafter referred to as "the NIA"). The EPA notes that NIA is based on a desk top study only. The NIA is considered inadequate for assessment purposes on account of:

Background noise monitoring and project noise trigger levels

- The Noise Policy for Industry (NPfI – EPA, 2017), Fact Sheet A1 indicates that: *"For the assessment of modifications to existing premises, the noise from the existing premises should be excluded from background noise measurements"*. The NIA clearly acknowledges that the background noise monitoring was impacted by noise from the Eraring Power Station (EPS) at Section 6.4.3. That said, the NPfI does allow noise from an existing activity to be included in background noise monitoring for a modification under certain circumstances as outlined further in Fact Sheet A1. These circumstances need to be considered and justified as applicable to the project by the proponent before the approach applied in the NIA can be further considered. If they cannot be justified, the background noise levels will need to be adjusted to remove the influence of the EPS.
- The RBLs noted in Table 3 do not correlate with the RBLs and operational project intrusive noise levels and construction noise management levels presented in Tables 4.2, 4.3, 4.5 and 4.9. The anomaly needs to be investigated, explained and corrected. A full assessment of the NIA cannot occur until the noise assessment criteria is confirmed.
- Background noise monitoring was not undertaken in NCA5 and the levels for NCA3 have been adopted for NCA5 in the assessment. NCA5 is further removed from what are described as significant regional noise sources such as Wangi Road, the Main Northern Railway and the Eraring Power Station. There is insufficient justification to accept the noise monitoring results for NCA3 as being representative of NCA5.
- Table 4.7 presents the project amenity noise levels (PANL). TANU notes that the noise amenity area derived from zoning considerations only been adjusted based on the background noise monitoring results. As alluded to above, there appears to be some confusion about the background noise monitoring results that needs to be resolved in the first instance before further consideration can be given to the adjusted noise amenity area. However, as an initial observation, the daytime and evening background noise levels as a group do not support allocation of the urban noise amenity area to NCAs 1,3 and 4. EPAs initial position is that a suburban category would apply unless further justification can be supplied.

Additional points and comments

- The assessment of proposed transformer noise against the NPfI low frequency noise and tonality requirements (NPfI – Facts Sheet C) has been largely based on anecdotal assumptions about the performance of the existing EPS transformers. If the assessment is to rely on the existing performance of the EPS transformers, quantitative data should be supplied.
- EPA supports the adoption of noise enhancing meteorological conditions for noise prediction modelling.
- Construction noise impacts are predicted to marginally exceed applicable noise management levels and will therefore need to be effectively managed. A draft Construction Noise Management Plan is appended to the NIA at Appendix E. EPA supports any planning approval (if issued) including a requirement for the preparation and implementation of a Construction Noise Management Plan.

- The NIA at Section 7.2.2 suggests that the modelling has not considered the potentially worst affected receivers in NCA3. The proponent should confirm that the worst affected receiver locations for each NCA have been considered and presented in the NIA i.e. *"Table 5.6: Receivers used to Predict Noise Impacts"*.

2. Water Quality

Contamination
The EIS indicates that there is a high potential for contamination of construction stormwater. The risks include potential acidic sulfate soils and a range of contaminants of concern including PFAS, hydrocarbons and heavy metals (arsenic, chromium, copper, lead, nickel and zinc).

The sampling results in Appendix H (Contamination Assessment) highlight elevated concentrations of the following pollutants:

- PFOS: maximum soil leachate concentration of 0.02µg/L is 87 times greater than the PFAS NEMP (2020) guideline value of 0.00023µg/L.
- PFOS: maximum surface water concentration of 0.02µg/L is 87 times greater than the PFAS NEMP (2020) guideline value of 0.00023µg/L.
- lead: maximum soil concentration of 53mg/kg is 1.1 times greater than the ANZG (2018) sediment guideline of 50mg/kg.
- zinc: maximum soil concentration of 421mg/kg is 2.1 times greater than the ANZG (2018) sediment guideline of 200mg/kg

Appendix H states that surface water sampling identified a pH of 3.01 which indicates the presence of potential acid sulphate soils with the project footprint. However, the EIS did not classify the potential acidity of the soils and it is unclear if acid sulphate soil treatment is required.

Recommendation
It is recommended that the following issues are addressed as part of the response to submissions. The applicant should:

- *characterise the potential acidity of acid sulphate soils within the project footprint*
- *subject to the characterisation of the potential acidity of acid sulphate soils, if neutralisation is required, provide details of the acid sulphate soil treatment system which should include at minimum:*
  - *location and size of the neutralisation area footprint*
  - *details of the lined treatment pad (composition, thickness (mm), in situ hydraulic conductivity) (mm/sec))*
  - *leachate management infrastructure (bunds, collection pits, drains, storage tanks)*
  - *water treatment measures*
  - *management measures to avoid and minimise discharges (e.g. offsite disposal at a licensed facility)*
    - If discharges are still required, a water pollution impact assessment is required to inform licensing considerations consistent with s45 POEO Act (see below under stormwater discharges).

Stormwater discharges
Appendix L (Water Impact Assessment) of the EIS proposes construction stage erosion and sediment controls and sediment basins consistent with *Managing Urban Stormwater, Soils and Construction Vol 1* (Landcom, 2004) with the sizing, number and location of the basins to be determined at detailed design.

It is noted that the management measures recommended by Landcom (2004) are designed to manage **uncontaminated** sediment and are not appropriate for managing water pollution risks associated with heavy metals, PFAS and acid sulphate soils.

The project footprint drains to a tributary of Muddy Lake 400 metres downstream, a coastal wetland protected under *Coastal Management SEPP* (2018).

Given the risks associated with contaminated stormwater and the sensitive receiving environment, further practical and reasonable measures to avoid and minimise discharges should be considered, including, but not limited to, at-source controls, enhanced erosion and sediment control measures, greater onsite water storage capacity (such as larger basins where practicable), reuse where safe and practical, and offsite disposal of captured contaminated stormwater where discharges have the potential to cause harm.

If discharges to surface waters are still required, a water pollution impact assessment commensurate with the potential risks and consistent with the National Water Quality Guidelines would be required to inform licensing considerations consistent with section 45 of the *Protection of the Environment Operations Act 1997*.

Recommendation
It is recommended that the following issues are addressed in the Response to Submissions.

The Applicant should provide details of mitigation measures to avoid and minimise discharges. The considerations may include but not be limited to:

- *at-source controls to prevent or reduce pollutants from entering stormwater runoff (e.g. removal of highly contaminated materials, clean water diversions, bunding)*
- *enhanced erosion and sediment controls*
- *options to avoid contaminated stormwater discharges (e.g. reuse where it is safe and practical to do so, divert contaminated stormwater to wastewater treatment plant, offsite disposal at a licensed facility)*
- *increased sizing of sediment basins where practicable.*

If construction stage stormwater discharges are unavoidable following further consideration of mitigation measures, a water pollution impact assessment commensurate with the potential risk and consistent with the national Water Quality Guidelines will be required to inform licensing considerations consistent with Section 45 of the Protection of Environment Operations Act 1997. The Assessment must at a minimum:

- *predict the expected frequency and volume of discharges*
- *characterise the quality of any discharges in terms of the concentrations of all pollutants present at non-trivial levels*
- *assess the potential impacts of the proposed discharges on the environmental values of the receiving waterways consistent with the Australian and New Zealand Guidelines for Fresh and Marine Water Quality (ANZG, 2018) for high conservation/ecological value ecosystems*
- *demonstrate that all practical and reasonable measures to avoid or minimise water pollution are considered and implemented*
- *propose appropriate discharge criteria based on the potential water quality impacts and the practical measures available to minimise pollution (e.g. treatment performance).*

Groundwater
The EPA considers that, in general, the proposed land-use is appropriate for previously contaminated land in terms of groundwater. The EPA notes that:

- No groundwater extraction is required
- Hardstand (impermeable) surfaces should limit infiltration and migration of exiting contaminants
- No infiltration swales are proposed (collected runoff should be treated).

3. Contamination

The current usage of the land is as an active power station and the area proposed for the battery energy storage system (BESS) was previously used as a fire training area (FTA), both of which could have resulted in contaminating activities. As part of the EIS for the application, the SEARs required Origin to provide:

"a site contamination assessment in accordance with the Managing Land Contamination Planning Guidelines: SEPP 55 – Remediation of Land (DUAP, 1998)"

The processes outlined in the State Environmental Planning Policy 55 - Remediation of Land (SEPP55) be followed in order to assess the suitability of the land and any remediation required in relation to the proposed use.

The investigation has identified contamination to the project area and based on the contamination present, the risks can be managed via an appropriate unexpected finds procedure for contamination

The contamination assessment provided a targeted investigation of the area proposed for the BESS development. The investigation included 49 primary soil samples analysed for PFAS (due to the areas previous use as a FTA) and 10 soil samples analysed for TRH, BTEXN, PAHs, Phenols, PCBs, OCPs and a suite of eight metals (As, Cd, Cr, Cu, Hg, Pb, Ni and Zn). Six primary samples were also analysed for asbestos. A single surface water sample was collected for PFAS.

Detectable concentrations of PFAS were reported in 15 soil samples, albeit at levels below the adopted assessment criteria. PFAS was only identified in the upper 0.5m layers of the soil. PFAS (in the form of PFOS) was also noted in the surface water sample above the adopted surface water criteria. This is not unexpected as PFAS is known to be present across the site due to historic use of PFAS foams at the site. The EPA PFAS team has investigated the site and placed monitoring conditions for PFAS on the Environment Protection Licence (EPL).

The site construction works would involve the cut and fill of the land to establish a hardstand pad and delivery, installation and electrical fit-out of battery modules, power conversion systems and transformers. There would also be the installation of tower structures including foundation piles, all of which would involve breaking ground and potentially disturbing contamination present.

Generally, the conceptual site model (CSM) produced for the site does not identify any exposure risks from the development with regard to the contamination present. The area proposed for the BESS was identified to have asbestos present in previous 2015 investigation, and due to the presence of borrow pits and previous activities at the site unknown, buried contamination might be present. An appropriate unexpected finds procedure for contamination should therefore be produced prior to construction beginning.

It is noted that the consultant has suggested that soils disturbed as part of the development could be re-used on site. Prior to this happening an appropriate assessment should be undertaken to identify whether the soils are appropriate for re-use. The consultant mentions a re-use decision tree within the PFAS National Environmental Management Plan (2020).

Recommendation

1. An **Unexpected Finds Procedure for Contamination** must be prepared and implemented before the commencement of Work and must be followed should unexpected/suspected contamination (including asbestos) be excavated or otherwise discovered. The procedure must include details of who will be responsible for implementing the unexpected finds procedure and the roles and responsibilities of all parties involved.

The **Procedure** must be prepared, or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The Procedure must also include provisions for the engagement of a NSW EPA-accredited site auditor where contamination is found and a Remedial Action Plan is required to be prepared.

The **Procedure** must be submitted to the Planning Secretary for information (if requested) before Work commences and must be implemented during all stages of work and construction.

2. If unexpected contamination is found and remediation is required to make the land suitable for the final intended land use, a **Remedial Action Plan** must be prepared or reviewed and approved, by consultants certified under either the Environment Institute of Australia and New Zealand's Certified Environmental Practitioner (Site Contamination) scheme (CEnvP(SC)) or the Soil Science Australia Certified Professional Soil Scientist Contaminated Site Assessment and Management (CPSS CSAM) scheme. The **Remedial Action Plan** must be prepared in accordance with relevant guidelines made or approved by the EPA under section 105 of the Contaminated Land Management Act 1997 and must include measures to remediate the contamination at the site to ensure the site will be suitable for the proposed use when the **Remedial Action Plan** is implemented.

   Prior to commencing with the remediation, the Proponent must submit to the Planning Secretary for information (if requested), the **Remedial Action Plan** and an **Interim Audit Advice** or a **Section B Site Audit Statement** prepared by a NSW EPA-accredited Site Auditor which certifies that the **Remedial Action Plan** is appropriate and that the site can be made suitable for the proposed use.

   The **Remedial Action Plan** must be implemented, and any changes must be approved in writing by the EPA-accredited Site Auditor.

   A **Section A1 Site Audit Statement** – or a **Section A2 Site Audit Statement** (SAS) accompanied by an Environmental Management Plan – and a **Site Audit Report** (SAR) must be prepared stating that the contaminated land disturbed by the work has been made suitable for the intended land use.

   The **SAS** and **SAR** must be submitted to the Planning Secretary following remediation, and no later than one (1) month prior to the commence of operation of the SSI.

   Contaminated land must not be used for the purpose approved under the terms of this approval until a Section A1 or Section A2 **Site Audit Statement** is obtained which states that the land is suitable for that purpose and any conditions on the Section A2 **Site Audit Statement** have been complied with.

3. Should soils containing concentrations of PFAS be considered for re-use at the site, the EPA should be contacted prior to re-use to ensure that this is acceptable. Any excess soils considered waste must first be classified under the NSW EPA Waste Classification guidelines (2014) and disposed of at a licensed landfill facility legally able to accept them.

4. The proponent must ensure the proposed development does not result in a change of risk in relation to any pre-existing contamination on the site so as to result in significant contamination [note that this would render the proponent the 'person responsible' for the contamination under section 6(2) of *Contaminated Land Management Act* (CLM Act)].

5. The EPA should be notified under section 60 of the CLM Act for any contamination identified which meets the triggers in the Guidelines for the Duty to Report Contamination www.epa.nsw.gov.au/resources/clm/150164-report-land-contamination-guidelines.pdf.