Eraring Battery Energy Storage System

Response to Submissions
3 March 2022

Origin
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Contents

Glossary of terms and abbreviations

Term	Definition
ASS	Acid sulfate soil
BAL	Bushfire Attack Level
BCD	Biodiversity Conservation Division of DPE
BDAR	Biodiversity Development Assessment Report
BESS	Battery Energy Storage System
CLM Act	Contaminated Land Management Act 1997
DPE	Department of Planning and Environment (current)
DPIE	Department of Planning, Industry and Environment (former)
EIS	Environmental Impact Statement
EP&A Act	Environmental Planning and Assessment Act 1979
EPS	Eraring Power Station
ERP	Emergency Response Plan
FRNSW	Fire and Rescue NSW
FSS	Fire Safety Study
LGA	Local Government Area
MEG-GSNSW	Mining, Exploration and Geoscience – Geological Survey NSW
MW	Megawatt
Mwh	Megawatt hours
NCA	Noise Catchment Area
NEM	National Electricity Market
NIA	Noise Impact Assessment
NRAR	Natural Resources Access Regulator
NSW EPA	NSW Environment Protection Authority
NSW RFS	NSW Rural Fire Service
Origin	Origin Eraring Energy Pty Limited
PASS	Potential acid sulfate soil
PBP	Planning for Bushfire Protection 2019
PHA	Preliminary Hazard Assessment
RtS	Response to Submissions Report (this report)
SRD SEPP	State Environmental Planning Policy (State and Regional Development) 2011
SSD	State Significant Development
TfNSW	Transport for NSW
WAL	Water Access Licence

Executive Summary

Origin Energy Eraring Pty Limited (Origin) is seeking regulatory and environmental planning approval for the construction and operation of a grid-scale Battery Energy Storage System (BESS) with a discharge capacity of 700 MW and storage capacity of 2,800 megawatt hours (MWh) within the Origin landholding associated with the Eraring Power Station.

The Project is a State Significant Development (SSD) under the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP) and is subject to Part 4, Division 4.7 of the Environmental Planning and Assessment Act 1979 (EP&A Act) which requires the preparation of an Environmental Impact Statement (EIS) in accordance with Secretary's Environmental Assessment Requirements (SEARs).

The EIS was placed on public exhibition for a period of 28 days, between 18 November 2021 to 15 December 2021. During the exhibition period, the general public, organisations and government agencies were invited to make submissions. No submissions were received from members of the public or organisations. 16 NSW Government agencies provided advice on the EIS while TransGrid confirmed that the process of seeking landowner approval and network connection was progressing separately.

This Response to Submissions Report (RtS) addresses the requirement to consider and respond to all submissions received and has been prepared having regard to the SSD Guidelines prepared by the Planning Secretary and in particular State significant development guidelines – preparing a submissions report: Appendix C to the state significant development guidelines (NSW Government, November 2021).

No changes are proposed to the Project for which approval is being sought since the exhibition of the EIS. Some mitigation and management commitments have been updated in response to agency advice.

In response to agency advice, the Noise Impact Assessment (NIA) and Biodiversity Development Assessment Report (BDAR) have been updated. In both cases, updates relate to additional justification or improved application of applicable assessment guidelines. No changes to the impact assessment findings have resulted from these updates.

The process of selecting a technology provider is ongoing and detailed design is yet to be finalised. The detailed design process will respond to the agency advice, identified site constraints and revised mitigation and management commitments to achieve the performance outcomes documented in the EIS including revised specialist assessments forming attachments to this RtS. Origin is also committed to continued consultation with agencies in finalising detailed design and development of necessary management plans that are expected to require the acceptance of DPE.

1. Introduction

1.1 Background

Origin Energy Eraring Pty Limited (Origin) is seeking regulatory and environmental planning approval for the construction and operation of a grid-scale Battery Energy Storage System (BESS) with a discharge capacity of 700 MW and storage capacity of 2,800 megawatt hours (MWh) within the Origin landholding associated with the Eraring Power Station (EPS) (The Project). The Project is located in Eraring, within the Lake Macquarie Local Government Area (LGA) (refer to **Figure 1-1**).

The Project and future retirement of the EPS will support Origin's carbon emission reduction goals and will align with the strategic transition away from coal in NSW. The Project will provide energy storage and key market services that would facilitate long term emissions reduction in the National Electricity Market (NEM) while supporting the delivery of secure and reliable electricity for consumers and businesses.

As the Project is a State Significant Development (SSD) under the State Environmental Planning Policy (State and Regional Development) 2011 (SRD SEPP), the Project is subject to Part 4, Division 4.7 of the *Environmental Planning and Assessment Act 1979* (EP&A Act), which requires the preparation and public exhibition of an Environmental Impact Statement (EIS) in accordance with relevant statutory guidelines.

In support of the Project SSD development application, an environmental impact statement (EIS) was prepared by Jacobs to assess environmental and social impacts associated with the Project. The assessment covered key issues including biodiversity, Aboriginal and non-Aboriginal heritage, land use and soils, visual impacts, noise and vibration, transport, groundwater and flooding, hazards and socio-economic impacts. The EIS was submitted to the Department of Planning and Environment (DPE; formerly Department of Planning, Industry and Environment) in accordance with the EP&A Act and the Environmental Planning and Assessment Regulation 2000, and was placed on public exhibition between 18 November 2021 and 15 December 2021.

The Project was separately referred under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999* (EPBC Act) and deemed not to be a controlled action requiring Commonwealth approval if undertaken in a particular manner. Origin remains committed to the Project being undertaken in compliance with the requirements of this decision.

During the EIS exhibition period, members of the public, organisations and public authorities including government agencies had the opportunity to comment and provide feedback to DPE. No submissions were received from the public or organisations, while agencies provided advice on specific topics. The purpose of this Response to Submissions (RtS) report is to respond to the agency advice and relies on additional assessment, justification, clarification and commitments to be addressed in subsequent stages of Project design.

1.2 Project key elements

The Project remains as described in the EIS and would include the construction, operation and decommissioning of a grid-scale BESS with a discharge capacity of 700 MW and storage capacity of 2,800 MWh including:

- BESS compounds comprising of rows of enclosures housing lithium-ion type batteries connected to associated power conversion systems (PCS) and high voltage (HV) electrical reticulation equipment;
- A BESS substation housing high voltage transformers and associated infrastructure;
- Approximately 400 metres (m) of overhead 330 kilovolt (kV) transmission line connecting the BESS substation to the existing 330 kV Transgrid switchyard; and
- Ancillary infrastructure and facilities including safety protection systems and site ancillary facilities such as laydown areas and site offices.

The general Project layout is illustrated in Figure 1-2. Detailed design for the Project is yet to be completed and the EIS is based on a current design status for each Project component which may be amended through the detailed design process.

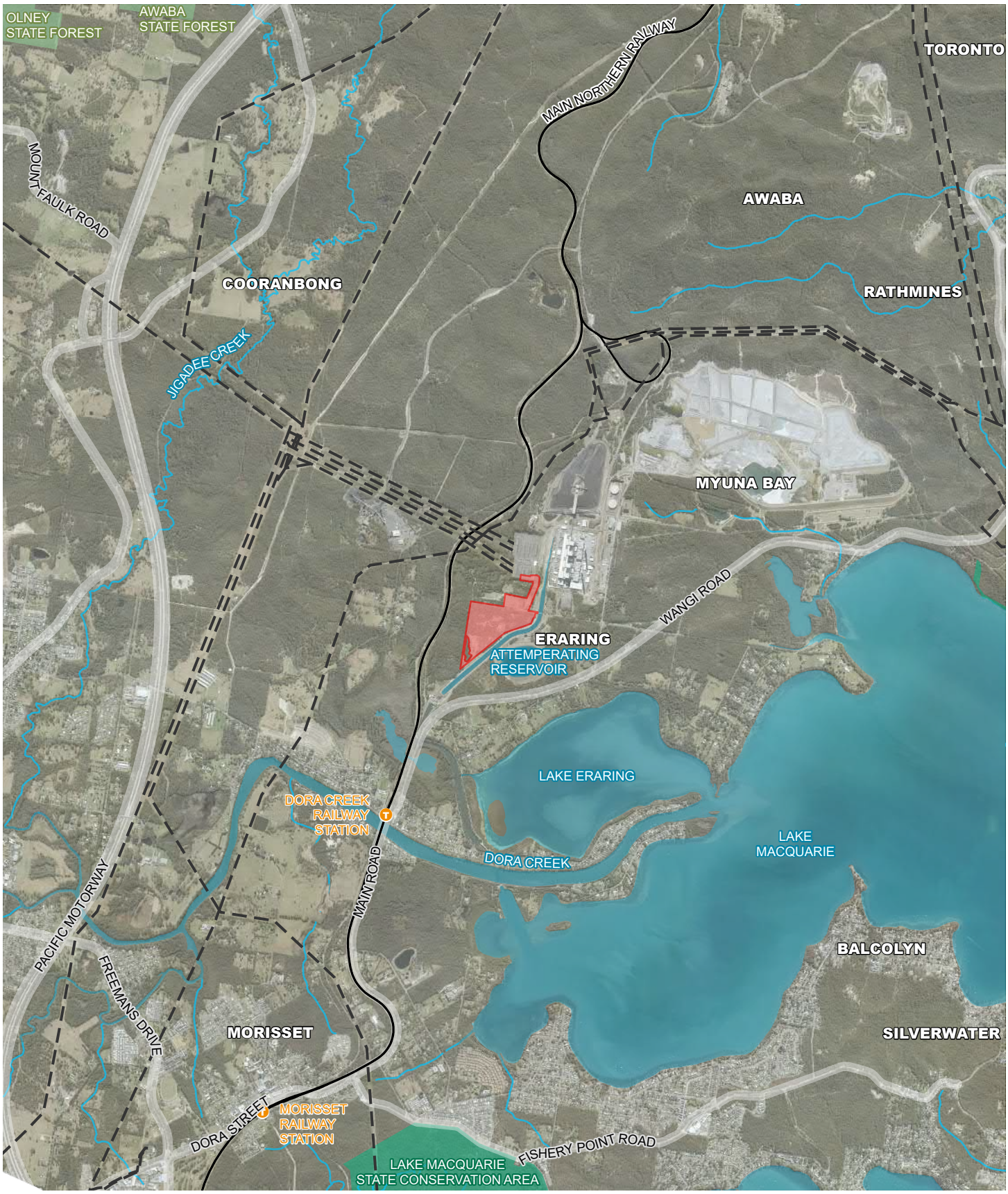

Figure 1-1 Project location

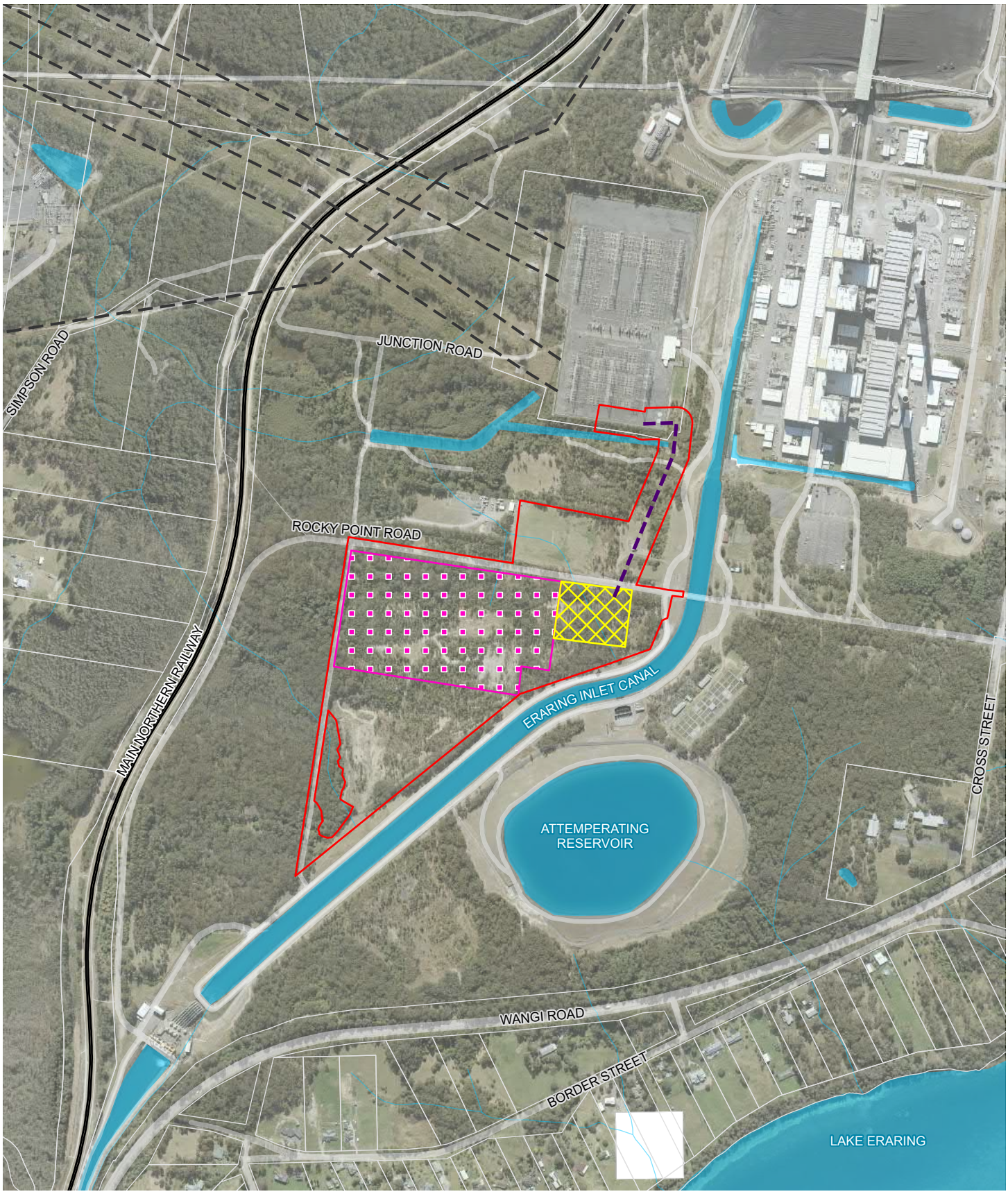

Figure 1-2 Project overview

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Construction works associated with the Project would involve:

- Installation and maintenance of environmental controls including drainage and sediment controls;
- Upgrade of construction access track from existing internal access road to battery location;
- Vegetation clearing including for transmission easement and asset protection zones;
- Cut and fill to level areas and establish a hardstand pad;
- Structural works including numerous individual slabs to support battery modules, power conversion systems and transformer structures;
- Establishment of noise control solution if required by the stage under construction;
- Delivery, installation and electrical fit-out of battery modules, power conversion systems and transformers;
- Installation of tower structures including foundation piles;
- Installation of 330 kV overhead cabling from the substation transformers to the TransGrid switchyard;
- Minor works to connect the battery to vacant bay in the existing switchyard or more extensive works for bench extension and installation of new bay if required;
- Testing and commissioning activities; and
- Removal of construction equipment and rehabilitation of construction areas.

Construction methods may also vary subject to design refinements and the selection of the construction contractor.

The assessment of the Project within the EIS is based on consideration of reasonable worse case environmental impacts to allow flexibility in design and construction methodology. The ongoing design of Project would deliver the identified performance outcomes as identified in the EIS through the and implement the proposed mitigation measures in Appendix B.

Following the engagement of a contractor for each Project component, a risk assessment would be completed on the actual methods to be implemented and an environmental management plan prepared that incorporates the Project commitments and conditions of approval. Further consultation with relevant agencies would be undertaken and necessary approvals of final designs and methods sought. Origin would comply with any pre-construction compliance obligations prior to the commencement of all Project components. The risk assessments, final design plans and management plans would be used to confirm that no greater impact than that assessed in this EIS would occur.

1.3 Proponent details

Origin is a wholly owned subsidiary of Origin Energy Limited and the proponent for the Project. Origin owns and operates the EPS in Lake Macquarie LGA. Origin Energy Limited was established in 2000 and acquired the EPS in 2013. The EPS is Australia's largest power station with a combined capacity of 2,880 MW. Apart from the EPS, Origin Energy Limited also operates natural gas-fired power stations, cogeneration plants and pumped storage hydropower stations across Australia, with 6,010 MW in electricity generation capacity that can meet 13% of consumption needs in the NEM.

The details of the proponent are provided in **Table 1-1**.

Table 1-1 Proponent details

Name	Origin Energy Eraring Pty Limited
Postal address	Eraring Power Station, Rocky Point Rd, Dora Creek, Lake Macquarie local government area.
ABN	33 071 052 287

1.5 Purpose and structure of this report

DPE's assessment of the development application is required to take into consideration any submissions made in accordance with the EP&A Act or regulations. The purpose of the RtS as identified within the SSD Guidelines is to:

- Give the applicant a right of reply to the issues raised in submissions;
- Ensure the community gets feedback from the applicant on the issues raised in submissions; and
- Help the consent authority to evaluate the merits of the project.

This RtS analyses and provides responses to issues raised in submissions, explains what actions Origin has taken since the EIS exhibition and includes updated justification and evaluation of the Project. This report also provides a finalised set of mitigation measures which incorporates any clarifications and issues raised in submissions where feasible.

The report is structured as follows:

- Chapter 1 provides overview of the Project and introduction to the RtS;
- Chapter 2 provides overview and analysis of submissions received;
- Chapter 3 describes actions and consultation activities carried out during and following the EIS exhibition;
- Chapter 4 provides responses to issues raised;
- Chapter 5 provides updated evaluation of the Project
- Appendix A provides a submissions register identifying where each submission is addressed in the RtS;
- Appendix B provides the updated mitigation measures;
- Appendix C provides a detailed response to EPA advice on the noise impact assessment;
- Appendix D provides the revised Noise Impact Assessment;
- Appendix E provides a detailed response to Biodiversity Conservation Division advice; and
- Appendix F provides the revised Biodiversity Development Assessment Report.

Following the lodgement of the RtS, DPE will proceed to complete their assessment of the application and may, where necessary require additional information to clarify or expand on the issues addressed in the RtS.

2. Analysis of submissions

This chapter provides a summary of the exhibition process and the submissions received during exhibition, including a breakdown of the types and numbers of submissions received and the key issues raised. The analysis of submissions is carried out in accordance with *State significant development guidelines – preparing a submissions report* (DPIE, 2021). And in accordance with clause 82(2) of the Environmental Planning and Assessment Regulation 2000.

2.1 Submissions received

Submissions made during the EIS exhibition is outlined in **Table 2-1** and also summarised in **Appendix A**. The receipt of submissions was coordinated and managed by DPE and were forwarded to Origin for consideration and response. Copies of the full submissions can be viewed or downloaded from the NSW Major Projects website https://www.planningportal.nsw.gov.au/major-projects/projects/eraring-battery-energy-storage-system.

The DPE received 17 submissions in total and all of which are from public authorities as follows:

- NSW Environment Protection Authority (NSW EPA);
- DPIE – Crown Lands;
- NSW Rural Fire Service (NSW RFS);
- Hunter Water;
- Lake Macquarie City Council;
- WaterNSW;
- Transport for NSW;
- Subsidence Advisory NSW;
- DPIE – Water and the Natural Resources Access Regulator (NRAR);
- DPIE – Biodiversity and Conservation Division (BCD);
- NSW Department of Regional NSW – Mining, Exploration and Geoscience – Geological Survey NSW (MEG-GSNSW);
- Heritage NSW – Aboriginal Cultural Heritage (ACH);
- Heritage Council of NSW;
- Fire and Rescue NSW (FRNSW);
- Sydney Trains;
- Department of Primary Industries – Fisheries; and
- Transgrid.

In addition, comments were also received from the DPIE – Hazards Branch. These comments are not technically a submission as the comments are received from DPE, nonetheless they have been addressed in in **Section 4.18** below.

Table 2-1 Overview of submissions received

Position	Number of submissions from members of public	Number of submissions from organisations	Number of submissions from public authorities
Support	0	0	0
Comment	0	0	17
Object	0	0	0
Total	0	0	17

No community or organisation submissions were received, and no petitions or form letters were received. The submissions all provided comments and/or requests for the proposal, with no specific objections. The only local submissions (those within the Lake Macquarie City LGA) were received from the Lake Macquarie City Council. The other submissions were made by public authorities located in non-local regions within NSW.

3. Actions taken since exhibition

This chapter summarises the actions undertaken to address the issues raised in the submissions received since the public exhibition period closed including:

- Undertaking further engagement with the community and key stakeholders;
- Clarifying Project design details; and
- Undertaking further assessment of the impacts of the Project.

3.1 Consultation during EIS exhibition

The EIS for the Project was on public exhibition from 18 November 2021 to 15 December 2021. Copies of the EIS were made available at https://www.planningportal.nsw.gov.au/major-projects/projects/eraring-battery-energy-storage-system. Additionally, DPE conducted statutory notification procedures to relevant government agencies and publicised EIS exhibition via advertisements run in the Newcastle Herald newspaper on 18 November 2021 and via letters to neighbours dated 12 November 2021.

Origin also publicised the exhibition of the EIS via their Eraring Power Station Community Newsletter in December 2021.

3.2 Consultation post EIS exhibition

Community and stakeholder engagement will be maintained throughout the construction and operation of the Project. Currently, enquiries can be made via the existing Origin Eraring website and enquiries portal. Following the public exhibition period, Origin has maintained ongoing consultation with government agencies where necessary to clarify the advice and expectations of the submitters. The consultation activities carried out are outlined in **Table 3-1**.

Table 3-1 Consultation since EIS exhibition

Stakeholder	Method and date	Response
DPE Hazards Branch	Meeting – 20 January 2022 Meeting 24 February 2022	Origin met with DPE Hazard Branch to agree response method regarding separation distances and available site area. Meeting to confirm DPE Hazard Branch concerns have been adequately addressed.
BCD	Meeting – 24 January 2022	Origin met with the Biodiversity Conservation Division (BCD) of DPE to discuss biodiversity concerns with a focus on Swift Parrot habitat avoidance and proof of deliberate vegetation planting efforts. Follow-up information on both topics was provided directly to BCD to facilitate their continued assessment. The nature of the response and proposed amendments to the BDAR are provided in Appendix E and an updated BDAR adopting these amendments is provided in Appendix F.
TfNSW	Email correspondence – 22 December 2021	Traffic model data was provided to facilitate Transport for NSW's (TfNSW) continued assessment. Following review of the traffic model data, TfNSW requested confirmation that intersection queue lengths would not lead to impacts to intersection function particularly safety risks to Wangi Road. This confirmation has been provided as outlined in Section 4.7.
NSW EPA	Call – 8 February 2022 Email correspondence	Jacobs provided a detailed response to the EPA's identified concerns with the adequacy of the noise impact assessment as reproduced in Appendix C (Amended to also consider tonal and low frequency impacts of the full development in place of Transformers only as originally undertaken). EPA has responded acknowledging that the responses are satisfactory and should be incorporated into the updated Noise Impact Assessment for the proposal which is provided in Appendix D.

Stakeholder	Method and date	Response
NSW RFS	Call – 9 February 2022 Email correspondence	Origin and Jacobs have communicated with RFS to clarify the Project status; specifically that the Project is currently in an active tender with multiple suppliers, differing equipment designs and site layouts. It is therefore acknowledged that the level of supplier-specific design and detailed site layout currently available to share in the public domain are insufficient to facilitate RFS approval. Origin and Jacobs have further communicated that until final supplier selection and detailed design are complete (and thus a final layout and rating of supplier-specific components to withstand bushfire risks is known), Origin will not be in a position to detail a performance-based solution. It is also noted that a number of agency submissions have potential impacts to site layout, and it must therefore remain open to be optimised by detailed design to incorporate any required conditions for any supplier. Origin is committed to demonstrate that objectives of planning for bushfire protection guidelines 2019 will be achieved. Origin has sought guidance from RFS on an agreeable process to resolve outstanding issues, to provide confidence to RFS and DPE that bushfire risks will be managed within the design, prior to commencement of construction. RFS has advised that in the absence of further detail they are not in a position to advise further at this time, and have deferred to DPE as the approval authority. Origin is committed to achieving the objectives planning for bushfire protection 2019 and have proposed commitments to undertaking further detailed bushfire risk management in consultation with RFS and using a recognised bush fire consultant as outlined in Section 4.3. Through a detailed selection and evaluation process, Origin have established site footprint and concept layouts shown in the EIS and Bushfire studies. Origin is confident a robust performance solution exists for all equipment and layouts currently under consideration.
DPE Water Group and Natural Resources Access Regulator	Call – 9 and 10 February 2022	Origin and Jacobs spoke with DPE Water Group and NRAR to clarify that mapped first order watercourses within the Project area have been previously impacted, that downstream impacts would be avoided and agree expectations for response. It was verbally acknowledged that demonstration of the level of prior disturbance and commitments to avoidance of increase in peak discharge should address NRAR concerns (Refer to section 4.9).

The outcomes of the meetings and correspondence have informed the responses provided in **Chapter 4**.

3.3 Changes since EIS exhibition/clarifications

No changes are proposed to the Project for which approval is being sought since the exhibition of the EIS. Some mitigation and management commitments have been updated in response to agency advice.

The process of selecting a technology provider is ongoing and detailed design is yet to be finalised. The detailed design process will respond to the agency advice, identified site constraints and revised mitigation and management commitments to achieve the performance outcomes documented in the EIS including revised specialist assessments forming attachments to this RtS. Origin is also committed to continued consultation with agencies in finalising detailed design and development of necessary management plans that are expected to require the endorsement of DPE.

4. Response to submissions

This chapter provides a summary of the issues raised in public authorities' submissions, and a response to the issues raised. As submissions are limited to agency advice on particular areas of regulatory interest, Origin have chosen to respond to each submission individually. Responses take the form of a brief summary of agency advice followed by a summary of Origin response. Where detailed responses have been required these are provided within Appendices along with corresponding revisions to technical assessments.

Full details of each submission received is available at https://www.planningportal.nsw.gov.au/major-projects/projects/eraring-battery-energy-storage-system.

4.1 NSW EPA

The EPA advice identified inadequacies in the noise impact assessment and provided comment regarding water quality and contamination risks. A summary response to EPA comments on Noise is provided in **Section 4.1.1** with a detailed response to each concern provided in **Appendix C.** The revised NIA is provided in **Appendix D**. Consideration of EPA advice on water quality including Stormwater Discharges, Groundwater and Contamination are provided in **Section 4.1.2**.

4.1.1 Noise

The EPA considered that the NIA is based on a desk top study only and considered inadequate for assessment purposes on account of:

- Failure to exclude noise from the existing premises (Eraring Power Station) from background noise;
- Inconsistent documentation of background noise levels in tables in the NIA;
- Unsuitable assumed background noise levels in Noise Catchment Area 5; and
- The justification for use of Urban amenity criteria in NCA 1, NCA 3 and NCA 4.

The EPA also provided additional advice and comments where the NIA could be improved including assessment of low frequency and tonal properties of transformers and confirmation of worst affected receivers being assessed. The EPA also supported adoption of assessment of noise enhancing conditions, and conditioning of a construction noise management plan.

The assessment was undertaken in accordance with applicable guidelines, involving collection and processing of background noise data to calculate existing background conditions and modelling of available inputs for Project components, or typically adopted standard assumptions where these were not available. While the precise sound power levels and noise data for each Project component is not known and the final layout is subject to detailed design, the assessment sought to identify attainable noise performance outcomes and Origin committed to achieving these outcomes through the detailed design process and through adoption of reasonable and feasible mitigation measures.

Jacobs and Origin have considered each EPA comment, consulted with EPA and responded to each point raised in **Appendix C**. In response to EPA comments and the additional consideration and justification provided in **Appendix C**, Jacobs has revised the NIA which is provided in **Appendix D**.

4.1.2 Water quality – Stormwater discharges, groundwater and contamination

The EPA provided a number of comments and recommendations regarding stormwater discharges, groundwater and contamination, which are summarised and addressed in **Table 4-1**. No updates to reports supporting the EIS have been made and the EPA's recommended conditions are consistent with existing proposed mitigation measures as provided in **Appendix B**.

Table 4-1. Summary of response to EPA advice

Comments or issues raised	Response
Water quality - contamination	
NSW EPA recommended that the following issues are addressed as part of the RtS: ▪ characterise the potential acidity of acid sulfate soils within the project footprint	Work is ongoing as part of the detailed design process to understand the likely layout and cut and fill plan of the Project. Limited geotechnical investigations have been undertaken throughout the Project area including soil aggressivity tests suite of pH, electrical conductivity (EC), chloride (Cl) and sulfate (SO_4) analyses leading to a general understanding of potential acidity within the soil profiles present.
▪ subject to the characterisation of the potential acidity of acid sulfate soils, if neutralisation is required, provide details of the acid sulfate 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).	The detailed design of the Project will determine cut and fill requirements and material balance in addition to the layout of permanent infrastructure and space required for construction activities, including any need for soil treatment for re-use. The EIS commits to the development and implementation of an acid sulfate soils (ASS) management plan in accordance with the Acid Sulfate Soil Manual (NSW ASSMAC, 1998) in the event that potential acid sulfate soil (PASS) is encountered (mitigation measure L2). The EIS also commits to including measures to manage any PASS found in excavated fill material (mitigation measures SW1). While the detailed plans are yet to be developed, Origin commits to discharges from the Project area being non-polluting, and would meet the following performance criteria: ▪ Total Suspended Solids: less than 50 mg/L (using appropriate real-time turbidity levels); ▪ pH: Between 6.5 and 8.5; and ▪ No hydrocarbon or any other chemical contaminants exceeding the relevant triggering levels set out in the ANZG (2018) 95% species protection in marine waters and Heads of EPAs Australia and New Zealand (HEPA) (2018) guidelines.
Water quality – stormwater discharges	
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.	The Project would not rely solely on implementation of sediment basins sized in accordance with Managing Urban Stormwater, Soils and Construction Vol 1 (Landcom, 2004). In the absence of detailed design the EIS commits to achieving performance outcomes discharges from the Project area being non-polluting and meeting the following performance criteria: ▪ Total Suspended Solids: less than 50 mg/L (using appropriate real-time turbidity levels); ▪ pH: Between 6.5 and 8.5 and; ▪ No hydrocarbon or any other chemical contaminants exceeding the relevant triggering levels set out in the ANZG (2018) 95% species

Comments or issues raised	Response
	protection in marine waters and Heads of EPAs Australia and New Zealand (HEPA) (2018) guidelines.
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*.	While discharges are likely to occur, they would be managed to achieve specified performance criteria such that the risk of pollution impact is removed. No additional water pollution impact assessment is proposed on this basis.
NSW EPA recommends the following issues are addressed in the Response to Submissions: ▪ 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.	A range of mitigation measures were provided in the EIS in relation to at-source contamination controls and surface water management. Mitigation measures L2, L3, SW1, SW2, SW5 and SW6 combined would address the EPA recommendations as part of the detailed design (refer to **Appendix B**).
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	While discharges are likely to occur they would be managed to achieve specified performance criteria such that the risk of pollution impact is removed. No additional water pollution impact assessment is proposed on this basis.

Comments or issues raised	Response
▪ 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).	
Water quality – 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).	While no groundwater extraction is proposed for the construction or operation of the Project, the Project could potentially involve some dewatering of excavations. Volumes of water from excavated materials are expected to be negligible and would be pumped-out for off-site lawful disposal.
Contamination	
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.	Noted and accepted. Origin will prepare and implement an Unexpected Finds Procedure for Contamination as per mitigation measure L2 and will incorporate the EPA recommendations.

Comments or issues raised	Response
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.	Noted and accepted. A mitigation measure has been added to the preparation and implementation of a RAP in Appendix B.
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	Noted and accepted.

Comments or issues raised	Response
acceptable. Any excess soils considered waste must first be classified under the NSW EPA Waste Classification guidelines (NSW EPA, 2014) and disposed of at a licensed landfill facility legally able to accept them.	
The proponent must ensure the Project 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 1997* (CLM Act)].	Noted.
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	Noted.

4.2 DPIE – Crown Lands

DPIE Crown Lands identified that as no Crown land, roads or waterways are in the vicinity of the Project/are affected by the Project, Crown Lands has no further issues.

4.3 NSW RFS

The NSW Rural Fire Service (RFS) required further details on the Project layout and components and recommended updates to assumptions in the Bushfire Impact Assessment to comply with requirements of Planning for Bushfire Protection 2019 (NSW RFS, 2019). Origin and Jacobs acknowledge that the level of detail currently available is insufficient to facilitate RFS endorsement of the Project under Planning for Bushfire Protection 2019 at this time, and appreciate all RFS inputs to date.

As described in the EIS, the environmental assessment and approval process is occurring in parallel with the design process. This is typical for projects of this nature and necessary to facilitate the proponent achieving a level of confidence to make the significant investment to complete detailed design. As described in the EIS, a final decision on the BESS equipment supplier has not been made and this, and commencement of detailed design, needs to occur considering conditions of approval. On this basis, Origin is not in a position currently to document in the level of detail requested by RFS how the objectives of Planning for Bushfire Protection 2019 will be achieved.

The ability of Project components to withstand a specific bushfire attack level (BAL) will only be determined post approval. At this stage the specific BESS equipment remaining under consideration have been technically evaluated in considerable detail, including ability to withstand heat flux from adjacent equipment and elevated bushfire attack level (BAL). The Fire Safety Study required by DPE Hazards Branch will also determine separation distances between Project components to manage risk of thermal run-away events propagating both within and outside the Project area. While not currently possible, Origin will be in a position prior to commencement of construction to demonstrate to RFS how the objectives of Planning for Bushfire Protection 2019 will be achieved for the selected supplier.

Noting RFS requires a detailed site plan illustrating the location of the proposed infrastructure as a requirement for further RFS assessment, and that this plan cannot be completed until detailed design is approaching completion, Origin has committed to the following:

- Revising the bushfire risk assessment using a NSW RFS recognised assessor and adopting field-validated slopes and fuel loads as a key input to detailed design process;
- Consideration of proposed layouts and fire vulnerability of selected BESS equipment;
- Provision of inputs to the Fire Safety Study and adoption of risks identified in the Fire Safety Study to identify necessary performance-based solutions to achieve objectives of Planning for Bushfire Protection 2019 and their adoption in the final detailed design; and
- Preparation and implementation of a Bushfire Management Plan in consultation with RFS and to the satisfaction of DPE prior to the commencement of construction.

Specific response to RFS advice is provided Table 4-2.

Table 4-2 Response to RFS advice

Comments or issues raised	Response
The description of the proposed works within the Environmental Impact Assessment states that ancillary infrastructure and site facilities such as site offices are proposed on site. However, a site plan which shows the location of the proposed works is not provided with the referral. Therefore, a detailed site plan showing the location of the proposed infrastructure and drawn to appropriate scale must be provided for further assessment of the Project.	For the reasons outlined above, the BESS equipment supplier and detailed design layout are yet to be finalised and are unable to be finalised prior to a financial investment decision being made. As such, no detailed site plan is available at this time. Origin has committed to providing final site layout plans during the detailed design stage of the Project prior to commencement of construction. The final layout plans will form the basis of the Fire Safety Study, which Origin will prepare in consultation with NSW RFS, FRNSW and DPE Hazards Branch as part of the detailed design.
An updated bush fire report prepared by suitably qualified bush fire consultant as recognised by the NSW RFS must be provided addressing the relevant requirement of Planning for Bush Fire Protection (PBP) (NSW RFS, 2019) and following concerns raised: ▪ Provision of the bush fire management plan relied which is upon for classifying the hazard formation type and further devising the bush fire attack level plan. ▪ Where a mix of hazard is identified, combination of vegetation and slope that yields the worst-case scenario shall be used in accordance with section of A1.2 of PBP (NSW RFS, 2019) in determining the bush fire attack level. ▪ The hazard to the north is within 20 metres of the project boundary & vegetation category 1 and has connectivity to the broader hazard to the west and therefore, does not qualify as low threat exclusion in accordance with section A1.10 of PBP (NSW RFS, 2019). ▪ The proposal is categorised as hazardous industry and must address section 8.3.9 of PBP (NSW RFS, 2019).	The adoption of revised assumptions to calculate Bushfire Attack Levels (BALs) in the absence of implementation of existing fuel load management and inclusion of previously excluded vegetation to the north results in a larger portion of the site being identified as potentially exposed to higher BALs. These calculations remain based on desktop consideration only (at this time) and a commitment has been made to do so using a recognised bush fire risk assessor, adopting field validated assumptions and considering proposed layouts of BESS equipment supplier once selected and as part of detailed design. Origin is also proposing to progress with the development of a detailed Fire Safety Study that will consider and influence the detailed design process. The Fire Safety Study will involve consultation with NSW RFS leading to development of a performance-based solution and Project specific bushfire management plan. Section 8.3.9 of the Planning for Bushfire Protection 2019 (NSW RFS, 2019) identifies that a performance-based solution should consider the Fire Safety Study which, as discussed below in response to DPE Hazard Branch and FRNSW advice, will be progressed by Origin as part of detailed design. A revised mitigation measure has been included in Appendix B to progress a performance-based solution adopting revised BAL calculations and inputs from the Fire Safety Study as part of the detailed design stage, and in consultation with NSW RFS.

Comments or issues raised	Response
If additional information is not received within 14 days the application will be refused on the basis of Requested Information not provided. A formal request for re-assessment would be required after this time.	Further consultation will be undertaken with RFS, DPE Hazard Branch and Fire and Rescue NSW to achieve a bushfire risk management solution to the satisfaction of DPE.

4.4 Hunter Water

Hunter Water commented that as the Project does impact on Hunter Water assets, Hunter Water requests that Origin discuss any changes to the Project that may impact Hunter Water assets and/or flows in the water and sewer networks.

Origin remains committed to consulting with relevant stakeholders through the detailed design process.

4.5 Lake Macquarie City Council

Lake Macquarie City Council expressed support for the type of development being proposed and views the Project as an important step for the continuity of EPS. Council advised that it supports the Project subject to compliance with the documentation provided in the following areas:

- Aboriginal cultural heritage;
- European heritage;
- Geotechnical;
- Acid sulfate soils;
- Stormwater management;
- Acoustics; and
- Contamination.

Council requested further consideration of specific topics as summarised and responded to in **Table 4-3**.

Table 4-3 Lake Macquarie Council comment and response

Comments or issues raised	Response
Traffic	
▪ It is noted traffic routes shown generally utilise main roads. Due to the geometry of the traffic signals at the intersection of Carey Street and The Boulevarde, Toronto it is advisable that all materials will need to travel through Morisset via Dora Creek to the facility.	Noted. The traffic model has assumed that haulage routes will come from the south through Morriset.
▪ No large articulated vehicles will be permitted to use Newport Road from Cooranbong to Dora Creek due to height restrictions imposed by the Dora Creek road and rail bridges.	No use of Newport Road is proposed.
▪ In addition, an aged timber bridge is requiring replacement on Wilton Road, Awaba and Council has been required to place a load limit on this structure. No heavy vehicles will be permitted to cross this structure until the bridge is replaced over the next two years. ▪ Any changes to vehicle routes need to consider the above information.	Construction oversized over mass (OSOM) vehicles will avoid the use of Wilton Road, Awaba prior to the repairs/replacement of the aged timber bridge. OSOM routes will be agreed to/authorised by TfNSW with consideration of Council advice.
Haulage levy	

Comments or issues raised	Response
The Project will include a number of heavy vehicle movements to the site. A haulage levy should be applied for all additional heavy vehicle movements on local roads, as with similar development within the Lake Macquarie Local Government Area. Should the department opt to include a haulage levy additional information would be required to assist in calculating the applicable annual haulage levy.	Noted. Heavy vehicle use for the Project will be limited to the construction phase, and only minor vehicle movements will occur during operation. Origin is negotiating a haulage levy through the EPS Ash Recycling project and the adoption of similar arrangement for the Project is accepted on the basis that pre- and post-construction road dilapidation survey and repair requirements are avoided.
Alternate site locations	
The EIS document should provide further rationale as to why alternate site locations which have a lower ecological impact (such as the Ash Dam) are not feasible.	Origin has provided an assessment of alternative site locations in Section 2.2.2 of the EIS. It is noted that the Ash Dam continues to be an operational part of the EPS which cannot accommodate the BESS. The ecological constraints assessment carried out by Origin for the siting of the BESS also identified the Project area as the least constrained option from an ecological impact perspective, once the EPS operation areas and unsuitable areas are removed. Refer to BCD response in Section 4.10.
Ecology	
While effort has been made to locate the Project in an area that was previously disturbed there are areas of significant habitat that will be impacted including threatened species habitat and "important habitat" for the swift parrot that is protected under SAII provisions of the BC Act. It is recommended that the application be referred to the BCD for comment in this regard.	Consultation with DPE and BCD has been undertaken in relation to swift parrot important habitat mapping. Refer to the response to BCD submission in Appendix E.
SEPP Koala habitat protection	
The EIS refers to a Koala assessment in Appendix E of the BDAR, however Appendix E of the BDAR refers to a credit report. While survey for Koalas appears to have been completed it is unclear if the SEPP considerations have been adequately addressed. It is recommended that clarification be provided that SEPP Koala Habitat Protection has been appropriately addressed.	Correction The EIS incorrectly referred to the inclusion of a Koala assessment within the Biodiversity Development Assessment Report (BDAR). Confirmation that a Koala assessment has been carried out to appropriately address SEPP Koala Habitat is provided in the revised BDAR, provided in **Appendix F**.
Council is supportive of the type of development being proposed and views the Project as an important step for the continuity of EPS.	Origin appreciates Council's support.

4.7 WaterNSW

WaterNSW identified that as the Project is not located in close proximity to any WaterNSW land or assets, and the risk to water quality is considered to be low, WaterNSW has no further issues.

4.8 Transport for NSW

Transport for NSW provided two submissions, the first requesting Sidra Models to facilitate further assessment (provided 22 December 2021) and the second in relation to risk of queueing on access from Wangi Road. Specifically, TfNSW sought clarification as follows:

"Table 5-5 does not indicate anticipated queue lengths in comparison to the northbound and southbound exit ramps. As the queue lengths under the 'with Project' scenario have not been provided, potential impacts to Wangi Road have not been adequately addressed. Assessment of the ongoing safe operation of the Eraring interchange is required, including consideration of potential queuing on approaches in peak times and end of queue management".

Jacobs has reviewed the Traffic Impact Assessment for the Project and confirmed that, while not presented in Table 5-5, the predicted queue length for the intersections of concern were documented in Table 5-4 and the risk of queueing affecting Wangi Road is low. Specifically, **Table 4-4** below provides an update to Table 5-5 of the Traffic Impact Assessment and the requested comparison between predicted 'with Project' queue length and slip lane length.

Table 4-4. Wangi Road to Rocky Point Road exit ramp queue lengths

Exit ramp	Length (m)	95th percentile queue length (m)
Northbound exit ramp to Rocky Point Road	320	AM Peak - 0.1 PM Peak - 0.4
Southbound exit ramp to Rocky Point Road	450	AM Peak - 5.7 PM Peak - 0.7

As stated in the Traffic Impact Assessment, under the 'with Project' scenario (with vehicles associated with construction of the Project and nearby concurrent projects), all intersections in the Project traffic study area are expected to continue to perform at Level of Service A. The maximum increase in average delay as a result of the Project is anticipated to be approximately eight seconds and would occur at the Rocky Point Road / Construction Road / Cross Street intersection during the morning period of peak traffic generation. The results indicate that the 95th percentile queue is not expected to exceed 5.7 metres in length at any intersection. As such, the Project and nearby developments are expected to have a minor impact on the performance of local intersections. The queue lengths under the 'with Project' scenario are expected to be very low and are not expected to extend into nor impact Wangi Road.

No update has been made to the Traffic Impact Assessment.

4.9 Subsidence Advisory NSW

Subsidence Advisory NSW identified that:

- The land is located within a declared mine subsidence district, development within a district requires approval from Subsidence Advisory NSW; and
- Mining under the Project area is unlikely, and the Project area is not undermined or within the zone of influence of any historical workings and as such Subsidence Advisory NSW does not object to the Project and has no further issues.

Approval from Subsidence Advisory NSW would be obtained prior to commencement of construction.

4.10 DPIE – Water and NRAR

DPE Water and the NSW Natural Resources Access Regulator (NRAR) sought more detail on characteristics of the riparian corridor in the two first order watercourses that will be removed and an impact assessment to the downstream environment. This is to ensure compliance with the *Guidelines for Controlled Activities on Waterfront Land* (NRAR, 2018) and to determine if any mitigation measures should be put in place.

The mapped first order watercourse in the southern portion of the Project area would not be removed or disturbed as part of the Project and would be protected. The mapped first order watercourses in the Project area have previously been modified or removed as part of the Attemperation Dam project and original construction of the EPS as illustrated in **Figure 4-1** and **Figure 4-2**. As shown in Figure 4-1, the downstream second order watercourse was diverted at the time of construction of the EPS. At the same time, the first order watercourses within the Project area also experienced significant disturbance within their catchment with subsequent modifications occurring due to the construction of the high level Eraring Inlet Canal (not yet constructed in 1979 aerial image). Figure 4-2 further illustrates prior disturbance of mapped first order watercourses within the Project area associated with borrow-pit and stockpiling of materials as part of the approved Attemperation Dam project.

No changes are proposed to the downstream environment on the basis that no increase in peak discharge velocity is expected, and the Project would achieve the water quality performance outcomes and mitigation measures (SW1, SW2, SW3, SW4, SW5, SW6 and SW7) provided in Appendix B.

DPE Water and NRAR also advised that:

- Should groundwater be intercepted a Water Access Licence (WAL) under the Water Management Act 2000 must be obtained unless the take is less than or equal to 3ML of water per year for any aquifer interference activities listed in Clause 7 of Schedule 4 of the Water Management (General) Regulation 2018; and
- Stormwater management within the Project site should be designed to ensure no increase in peak discharge velocity to mitigate potential erosion impacts downstream.

These requirements are consistent with existing commitments within Appendix B.

Data sources
Jacobs 2022
Origin 2021
Aerometrex 2020,
© Department Finance, Services and Innovation Dec 2020
© Department of Customer Service 2020

Figure 4-1 Aerial 1979

Figure 4-2 Aerial 2010

4.11 BCD

BCD provided nine recommendations in relation to the biodiversity development assessment report and confirmed no further flooding assessment was required. Recommendations related to:

- Further justification of assignment of some vegetation within the site as planted vegetation and further assessment requirements under Part D2 of Appendix D of the Biodiversity Assessment Method 2020 on the basis of its functional status;
- Further demonstration of efforts to undertaken to avoid the direct and indirect impact on swift parrot important habitat mapping and redesign of layout;
- Additional actions being included in a tree clearing protocol;
- A more detailed appraisal of relocation impacts on adjoining habitat and what measures will be employed to minimise any detrimental effects on existing faunal populations that utilise such areas; and
- Various updates to the content of the BDAR to better align with BAM 2020 including measures proposed to address the offset obligations.

Umwelt has responded to BCD recommendations directly in Appendix E and a revised BDAR addressing BCD recommendations is provided in Appendix F.

The key concern of BCD (and Council) was to avoid impacts to the Swift Parrot. BCD also asked for further consideration and evidence that the Project area represents the best available location within the Origin landholding for the Project in terms of avoiding important habitat. In particular it is noted that:

- The Project occurs in an area where the NSW Swift Parrot important habitat mapping does not correlate with important foraging habitat described in the National Recovery Plan for the Swift Parrot Lathamus discolor (Saunders and Tzaros, 2011);
- The Swift Parrot is migratory, breeding in spring and summer in Tasmania and migrating to the mainland for foraging purposes during winter, and the use of habitats for foraging in NSW is dependent on food availability;
- The mapped habitat within the Project area does not contain key tree species identified in the National Recovery Plan for the Swift Parrot *Lathamus discolor* (Saunders and Tzaros, 2011), (typically winter flowering species);
- Site selection has avoided impacts to at least 14.1 ha of swamp sclerophyll forest EEC within proximity of the Project area and EPS landholding which typically includes the winter-flowering feed tree swamp mahogany (*Eucalyptus robusta*), known to provide resources for the Swift Parrot;
- The only important feed tree present in the vicinity of the Project Area is the swamp mahogany (*Eucalyptus robusta*), but this species has been excluded from the Development Footprint as part of the Swamp Sclerophyll Forest EEC on the east boundary.

Swift Parrot SAII Assessment under section 9.1 of BAM 2020 is provided Appendix E and updated BDAR in Appendix F.

4.12 NSW Department of Regional NSW – MEG – GSNSW

MEG – GSNSW requested to be consulted in relation to the proposed location of any biodiversity offset areas (should they be required) or any supplementary biodiversity measures to ensure there is no consequent reduction in access to prospective land for mineral exploration, or potential for sterilisation of mineral or extractive resources.

Origin will consult with MEG as the biodiversity offsetting strategy develops.

4.13 Heritage NSW – Aboriginal Cultural Heritage

Heritage NSW supports all the recommended mitigation measures of the proposal in relation to Aboriginal cultural heritage and has no further issues.

The commitments in relation to Aboriginal heritage remain and are documented in Appendix B.

4.14 Heritage Council of NSW

Heritage Council of NSW recommended that as the site contains a local heritage item, and other local items are in the vicinity, advice should be sought from the relevant local council. As the Project area is not listed on the State Heritage Register and not in the vicinity of any State Heritage Register items, Heritage Council of NSW has no further issues.

The EIS was referred to Lake Macquarie City Council which supported the Project subject to compliance with the mitigation measures contained in the Project Aboriginal Cultural Heritage Impact Assessment and Statement of Heritage Impact.

The commitments made in the EIS in relation to Aboriginal Cultural Heritage and European heritage would be implemented as documented in Appendix B.

4.15 Fire and Rescue NSW

The FRNSW provided a number of comments and recommendations which are summarised and addressed in **Table 4-5**. No updates to reports supporting the EIS have been made and recommended conditions are consistent with existing proposed mitigation measures as provided in Appendix B.

Table 4-5 Summary of response to FRNSW advice

Comments or issues raised	Response
To ensure that the fire prevention, detection, protection and firefighting measures are appropriate to the specific fire hazards and adequate to meet the extent of potential fires, a comprehensive Fire Safety Study (FSS) is recommended to be undertaken. The FSS: ▪ Should be developed in accordance with the requirements of Hazardous Industry Planning Advisory Paper No.2 (HIPAP No.2). ▪ Is required to be developed in consultation with FRNSW and to the satisfaction of the operational requirements of FRNSW. FRNSW recommends that the development of a FSS be a condition of consent. ▪ Should consider the operational capability of local fire agencies and the need for the facility to achieve an adequate level of on-site fire and life safety independence.	Noted and consistent with commitments in Appendix B.
FRNSW preference is to review the Preliminary Hazards Analysis (PHA) report as this will determine the approach and design of the recommended fire safety study.	Noted. The PHA provided as part of the EIS will be progressed to a detailed Fire Safety Study in consultation with FRNSW, RFS and DPE Hazards Branch as per the commitments in Appendix B.
Should a fire or hazardous material incident occur, it is important that first responders have ready access to information which enables effective hazard control measures to be quickly implemented. Without limiting the scope of the Emergency Response Plan (ERP), the following matters are recommended to be addressed: ▪ That a comprehensive ERP is developed for the site. ▪ That the ERP specifically addresses foreseeable on-site and off-site fire events and other emergency incidents, (e.g. fires involving solar panel arrays, bushfires in the immediate vicinity or potential hazardous material incidents). ▪ That the ERP detail the appropriate risk control measures that would need to be implemented in order to safely mitigate potential risks to	Noted and consistent with commitments in Appendix B recognising that the Project relates to a BESS and is not a photovoltaic system. The Fire Safety Study would be undertaken and determine appropriate risk control measures and these would be documented in the ERP committed to in mitigation measure H7 to be stored on site.

Comments or issues raised	Response
the health and safety of firefighters and other first responders (including electrical hazards). Such measures would include the level of personal protective clothing required to be worn, the minimum level of respiratory protection required, decontamination procedures, minimum evacuation zone distances and a safe method of shutting down and isolating the photovoltaic system (either in its entirety or partially, as determined by risk assessment). ▪ Other risk control measures that may need to be implemented in a fire emergency due to any unique hazards specific to the site should also be included in the ERP. ▪ That two copies of the ERP (detailed in recommendation 6 (a) above) are stored in a prominent 'Emergency Information Cabinet' which is located in a position directly adjacent to the site's main entry point/s.	

4.16 Sydney Trains

Sydney Trains advised they had no issues with the Project.

4.17 DPI Fisheries

DPI Fisheries advised that as there are no Key Fish Habitat in the Project area, DPI Fisheries had no further issues.

4.18 Transgrid

Transgrid provided advice confirming all necessary steps to obtain landowner consent for works in the existing switchyard had been taken, and no further comments are required from a property perspective as the facility will connect into the Transgrid's Eraring 500 kV Substation site only.

Origin will continue to progress the connection agreement process separately in consultation with Transgrid.

4.19 DPIE – Hazards Branch

DPE – Hazards Branch considered that the Preliminary Hazard Analysis (PHA) for the Project identified reasonable credible scenarios and assessed the associated risk in a qualitatively manner but requested:

- Verification that the BESS would be accommodated within the area designated for the BESS, accounting for separation between BESS sub-units (containers, modules etc) to prevent fire propagation; and
- Demonstrate that the fire risks from BESS can comply with the Department's Hazardous Industry Advisory Paper No. 4, 'Risk Criteria for Land Use Safety Planning'.

As described in the EIS, the layout of the Project is subject to detailed design. Nevertheless, Origin has commenced the detailed Fire Safety Study for the Project considering current technology and associated likely layout from BESS component suppliers. Detailed analysis of options remaining under consideration has confirmed that:

- The footprint of the BESS occupied by the battery enclosures and PCS applying a high level of conservatism is less than half the approximately 25 ha Project area;
- The BESS and associated infrastructure will fit comfortably within the Project area; and
- The fire preventative and protective measures are such that a fire in an enclosure is highly unlikely to propagate to involve other enclosures and as such, the fire risks from BESS can comply with the Department's Hazardous Industry Advisory Paper No. 4, Risk Criteria for Land Use Safety Planning.

Due to the commercially sensitive nature of the details underpinning the requested assessments, Origin has separately responded to DPE Hazards Branch regarding their advice.

5. Updated project justification

The Project remains justified as described in the EIS on the basis that no changes are proposed as a result of submissions and agency advice received. The absence of community objections combined with Council support indicates that the Project is in the public interest and remains aligned with State and Commonwealth energy and environmental policies while avoiding environmental and social impacts, to the extent possible.

The Project area is largely developed as a power station and the Project represents a continuation of the electricity generation uses currently carried out on the site and does not conflict with the ongoing operations or any other currently proposed land uses.

Clause 7(1)(f) of Schedule 2 of the EP&A Regulation require an EIS to provide 'the reasons justifying the carrying out of the development, activity or infrastructure in the manner proposed, having regard to biophysical, economic and social considerations, including the principles of ecologically sustainable development set out in subclause (4)'.

The biophysical, economic and social considerations remain as described in the EIS and are reproduced as follows:

- Biophysical costs and benefits: The Project would result in the direct removal of up to 21.1 ha of previously disturbed vegetation, of which about 15.1 ha is native vegetation. The removal of this vegetation may impact on the two threatened species (the Swift Parrot and the Squirrel glider). About 0.2 ha of threatened Small-flower grevillea and one individual of black-eyed Susan would also be directly impacted as a result of the Project. Where impacts on biodiversity cannot be avoided or minimised, appropriate offsets would be provided;
- Economic and social considerations: Most social impacts are localised and would be temporary during construction. Economic benefits are anticipated for local businesses during construction due to increased demand for goods and services and direct employment opportunities for up to 128 people. During operation, the Project would deliver safe and reliable energy storage and facilitate potentially increased uptake of renewable energy in the NEM as well as across the region including the legislated NSW REZ. The Project would support the continuation of electricity generation and existing land uses on the EPS land and benefit communities, businesses and industries by increasing the reliability of electricity and supporting the NSW Electricity Infrastructure Investment Act 2020 objectives;
- The Project is considered to be in the public interest. The Project represents a significant and cost-efficient private investment in electricity infrastructure. Overall it would results in strong net public benefits by delivering essential energy storage and firming capacity as part of the energy transition; and
- In addition, the Project is consistent with the ISP 2020 (AEMO, 2020), COP21 agreements and the NSW Climate Change Policy Framework targets (OEH, 2016).

The Project remains aligned with the the principles of Ecologically Sustainable Development as described in Section 8.1.1 of the EIS and summarised as follows:

- The Precautionary Principal: the EIS assessed the environmental impacts associated with the Project adopting a conservative approach and no management measures would be postponed as a result of lack of scientific certainty regarding impacts;
- Intergenerational equity: the Project may have very minor impacts on inter-generational equity through the consumption of resources during construction and operation, but facilitates the transition to a low carbon energy generation future necessary to achieve NSW and Australia's GHG reduction targets recognised at a global level as essential for avoiding or reducing climate change implications for future generations;
- Conservation of biological diversity and ecological integrity: biodiversity values were considered in site selection which targeted areas of prior disturbance and avoided areas of higher biodiversity value contained within E2 zoned land and the assessment and ongoing design of the Project. Environmental management measures were identified to reduce the severity of direct and indirect impacts of the Project on biodiversity while residual impacts would be offset. Offsets would be delivered in accordance with the Biodiversity Offset Scheme under the BC Act such that long-term improvements and conservation outcomes would be achieved; and

- Improved valuation, pricing and incentive mechanisms: the Project design and environmental management measures outlined in the EIS respond to identified environmental constraints and the cost of achieving environmental performance outcomes will be incorporated into the Project cost.

5.1 Conclusion

As concluded in the EIS, the Project is necessary to provide flexible dispatchable electricity supply to firm up the variable output from renewable sources such as wind, solar and hydro and provide storage of surplus generation to meet times of peak demand. The essential nature of the Project is considered to outweigh the identified adverse impacts. While some environmental impacts cannot be avoided, in all cases they would be minimised to the extent reasonable and feasible through the design process and implementation of environmental management measures. The Project as described in Chapter 3 of the EIS is considered to best meet the Project objectives when compared to all other alternatives and options as was documented in Section 2.2 of the EIS.

This RtS report addresses the requirement to consider and respond to all submissions received. The RtS provides additional information to address the agency advice received.

Updated mitigation and management measures are included to provide greater confidence that the Project's detailed design would consider applicable guidelines, meet performance outcomes assessed in the EIS and avoid, minimise and offset residual impacts to the extent reasonable and feasible. The revised mitigation measures would be implemented to minimise potential negative impacts of the Project. Where supporting technical assessments have been updated post exhibition in response to agency advice and consultation these are identified and attached.

The Project has been developed to avoid and minimise impacts on the local and regional environment, and on the local community and businesses, as far as practicable. Measures to minimise the identified potential impacts would be implemented throughout the detailed design and construction planning phases.

Context changes occurring since exhibition of the EIS include the announcement and expression of interest for a Hunter and Central Coast Renewable Energy Zone and earlier retirement of the Eraring Power Station. Both changes only serve to reinforce the need and justification for the Project.

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