



Eraring Power Station - Ash Dam Expansion Modification 2

Ash Recycling Facilities

State Significant Development Modification Assessment (MP07_0084 MOD 2)

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Cover image: Existing Daracon facility within the Eraring Power Station site (Source: Modification Report, dated 20 August 2021)

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RECOMMENDED

Executive Summary

Origin Energy Eraring Pty Ltd (Origin) owns and operates the Eraring Power Station and associated Ash Dam Expansion Project (the project), located within the Eraring Power Station complex in the Lake Macquarie local government area in New South Wales (NSW).

The project approval allows Origin to operate an ash management system incorporating ash collection, storage, recycling and pumping facilities with a goal of 80% reuse or recycling of ash generated at Eraring Power Station. Coal ash is the material remaining after coal is burnt in the process of electricity generation. The *Circular Economy Policy Statement* (February 2019), *NSW Waste and Sustainable Materials Strategy 2041 - Stage 1: 2021-2027* and the NSW Parliamentary Coal Ash Inquiry by the Public Works Committee (March 2021) note the importance to reuse coal ash products where possible.

The proposed modification seeks to increase ash recycling capacity at the power station and involves construction of new ash recycling infrastructure and the incorporation of an existing ash recycling facility into the project approval, with increased ash haulage from the site.

The Department exhibited the modification application and received a total of 47 community submissions, advice from 5 government agencies, a submission from Lake Macquarie City Council (Council) and considered additional community representations received after the exhibition period.

The Department considers the key assessment issue as potential impacts on local traffic related to congestion, traffic safety and road condition, from the proposed increase in heavy vehicle movements.

Following consultation with Transport for NSW (TfNSW) and Council, the Department considers that there would be adequate capacity on the existing road network to manage the additional traffic, subject to recommended revisions to the traffic related conditions of approval. This includes preparation and implementation of an Operational Traffic Management Plan and Origin's road maintenance contributions to Council for impacts on the local road network.

The Department's assessment also considered other potential impacts of the modified project, including air, noise, Aboriginal cultural and historic heritage, biodiversity, soil and water, hazards and visual. The Department considers that incremental impacts of the proposal could be suitably managed and mitigated to an acceptable level, subject to the existing and recommended conditions.

The Department notes that the proposed modification would increase the ash recycling throughput of the project and allow continuation and promotion of the project's social, economic and environmental benefits through reducing the amount of ash required to be stored in the ash dam, and in turn minimising environmental impacts associated with the ash deposition and storage in the Eraring Ash Dam.

Furthermore, the proposed modification would facilitate the ongoing operation of Eraring Power Station and support national energy security, and contribute to the market demands for recycled products such as in the construction industry. The proposed modification would also result in the direct employment of 2 additional operational staff, up to 20 construction staff and indirect employment of transport contractors.

On balance, the Department considers that the benefits of the proposed modification outweigh its costs, and that it is in the public interest and approvable, subject to the revised conditions.

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1 Introduction

Origin Energy Eraring Pty Ltd (Origin) owns and operates the Eraring Power Station and the associated Ash Dam Expansion Project (the project) located approximately 40 kilometres (km) southwest of Newcastle and 1 km northeast of Dora Creek township in the Lake Macquarie local government area (see **Figure 1**). The power station was developed under the *Eraring Power Station Act 1981*.

Coal ash is the material remaining after coal is burnt in the process of electricity generation. Ash is defined as a waste material and must be stored or reused in accordance with relevant guidelines.

The project approval (MP07_0084) has been modified once and allows Origin to operate an ash management system incorporating ash collection, storage, recycling and pumping facilities with a goal of 80% reuse or recycling of ash generated at Eraring Power Station. The approval also allows for expansion of the existing ash dam to provide additional capacity, including construction of a western ash emplacement area.



Figure 1 | Local context map (Source: Modification 1 Report, dated August 2018)

1.1 Ash recycling infrastructure

The existing approved recycling infrastructure has a total maximum capacity of 1.05 million tonnes per annum (Mtpa) comprising 300,000 tonnes per annum (tpa) of fly ash from infrastructure under the project approval (Coal Combustion Product (EPS CCP) Plant – see **Figure 2**) and 750,000 tpa of fly ash and bottom ash from other third-party ash recycling operations.

There are two fly ash recycling facilities that are operated by third party contractors in accordance with planning consents issued by Lake Macquarie City Council (Council) (see **Figure 2**):

- development consent DA/1937/2014 (Daracon facility): fly ash recycling infrastructure with recycling capacity of around 100,000 tpa; and
- development consent DA/684/2009 (Fly Ash Australia facility): fly ash recycling infrastructure operated by Fly Ash Australia with recycling capacity of 500,000 tpa.

A bottom ash recovery facility is operated by Boral which recovers ash from the dam for recycling. The facility has an ash recycling capacity of 150,000 tpa and is part of the existing operations of the station covered under the *Eraring Power Station Act 1981*.

However, historic recycling rates from the Eraring Power Station site have only averaged around 560,000 tpa over the last 15 years, as driven by the market demand.



Figure 2 | Existing ash recycling facilities (Source: Modification 2 Report, dated August 2021)

2 Proposed modification

To facilitate reaching the goal of 80% ash recycling capacity under the project approval, Origin seeks to increase the project's total ash recycling throughput and haulage. The modification application has the following components:

- **Integration of, and upgrades to, the existing Daracon ash recycling facility** (Modification Area 1, refer to **Figure 3**) for the export of up to 300,000 tonnes per annum (tpa) of fly ash product (an increase of 200,000 tpa from the existing throughput).
- **Construction and use of new ash recycling infrastructure** for the export of up to 150,000 tpa of fly ash product (Modification Area 2, refer to **Figure 3**).
- **Increase in ash haulage from the site.**
- **Construction and use of supporting infrastructure**, including an internal road and weighbridge for delivery trucks at modification area 1 and 2, and crib room, amenities building and water tanks.

The existing Daracon ash recycling facility is proposed to be integrated into the project approval as part of the proposed modification (refer to **Section 3** for further information) and the existing consent surrendered.

The proposed new infrastructure would be located within already disturbed land and would increase the maximum amount of ash that can be recycled from the power station from around 1.05 million tonnes per annum (Mtpa) to around 1.4 Mtpa.

The key components of the proposed modification are shown in **Figure 3**. Full details of the proposal are available in the Modification Report (see **Appendix A1**), Submissions Report (**Appendix A3**) and additional information provided by Origin (**Appendix A5**).



Figure 2 | Overall site layout and proposed Modification Areas (Source: Submissions Report)

3 Strategic context

3.1 Site and surrounds

The Eraring Power Station covers about 1,200 hectares (ha) of land, including about 150 ha occupied by the power station, 250 ha by the ash dam, and the remainder being undeveloped land consisting of open grassland, canals and bushland.

The nearest residential areas are located over 1 km south and south east of the site and separated from the site by Wangi Road and Rocky Point Road, which carry high traffic volumes (approximately 7,000 vehicles per day). Land located to the north and west of the site consists of vegetated buffer lands and cleared agricultural land for grazing purposes. Lake Macquarie is located around 2 km east of the site (see **Figure 1**).

3.2 Energy context and ash production

Eraring Power Station is the largest power station in Australia with a generation capacity of 2,880 MW and has been operational since 1982. The ongoing operation of the power station requires suitable measures to manage and dispose of coal ash. The primary ash management mechanisms have been through storage of ash in the Eraring Ash Dam and through recycling and processing of ash into saleable products, subject to market demand.

The project approval has been modified once (Modification 1) to expand the ash dam, providing an additional 5 million m³ storage capacity and extending its operational life to March 2026 by using an alternate ash placement strategy and construction of a western ash emplacement area. This expansion has not yet commenced.

In February 2022, Origin announced the potential early retirement of Eraring Power Station in August 2025, bringing it forward from its anticipated retirement by 2032. Origin has also lodged an application for a 700 MW battery storage system at the power station site which was approved by the Director Energy Resources under delegation from the Minister for Planning on 10 May 2022.

3.3 Ash recycling

The consolidated project approval revised the requirements for a Long-Term Ash Management Strategy (condition 4A.1 of the existing approval), with a goal of 80% reuse or recycling of ash generated at Eraring Power Station. The approved strategy identified a range of ash recycling options, including in road pavements and quarry products, light weight aggregate manufacturing, pre-cast building materials, and mine void rehabilitation.

Origin estimated that future ash production would be consistent with the past three financial years, ranging between 1.42 Million tpa (Mtpa) and 1.73 Mtpa. The existing ash recycling initiatives have sustained an ash recycling rate averaging around 40% between 2005 and 2020 (corresponding to around 560,000 tpa).

To meet the 80% reuse target, Origin estimates that a total ash recycling capacity of up to around 1.4 Mtpa across the project and third-party ash recycling infrastructure would be required. An upgrade to the existing ash recycling infrastructure of an additional 350,000 tpa to add to the 1.05 Mtpa therefore would provide further flexibility to meet this reuse target.

The Department also notes that with the proposed early closure of the power station in 2025 there would be no further generation of ash. However, the ash recycling facilities would still be able to harvest

ash from the existing ash dam, subject to ash quality, as part of the closure and rehabilitation phase of the facility.

3.4 NSW Government policies and strategies

The following NSW Government policies and strategies are relevant to the proposal:

- *Circular Economy Policy Statement (February 2019)* - a framework for changing the way products are produced, assembled, sold and used to minimise waste, reduce environmental impact, maximise the use of resources, and contribute to innovation, growth and job creation; and
- *NSW Waste and Sustainable Materials Strategy 2041 - Stage 1: 2021-2027* – outlining the NSW Government policies and targets for waste reduction and landfill diversion.

In March 2021, the NSW Parliamentary Coal Ash Inquiry by the Public Works Committee on “*Costs for remediation of sites containing coal ash repositories*” was released, which examined the costs for remediation of sites containing coal ash across NSW, and provided key findings and recommendations informing the Government’s future mitigation strategies to protect the community and environment and increase coal ash reuse.

The third finding of the NSW Coal Ash Inquiry noted that “*coal ash is a valuable resource and that there is widespread support across the spectrum of stakeholders for the greater reuse of coal ash, as this will lead to industry development and job creation, a reduction in environmental harm and contribute to developing a circular economy*”.

The NSW Coal Ash Inquiry also included a discussion on potential impacts of coal ash dams, including the potential environmental impacts on Lake Macquarie and the closure of the Myuna Bay Sport and Recreation Centre due to risks associated with potential failure of the ash dam wall. Although these issues are not directly relevant to the proposed modification, it is noted that the proposal would facilitate more recycling and reuse of ash and consequently could reduce the amount of ash required to be stored in the dam.

The NSW Coal Ash Inquiry also made 16 recommendations, including for the NSW Government to promote circular economy principles when dealing with coal ash waste and reuse, including review of the procurement practices and the use of recycled coal ash in government-funded infrastructure projects. The NSW Government response in September 2021 described that it generally supported these recommendations.

4 Statutory context

4.1 Transition to State significant development

On 29 April 2008, the Minister for Planning approved the project under Part 3A of the *Environmental Planning and Assessment Act 1979* (EP&A Act). Under clause 6 of Schedule 2 of the *Environmental Planning and Assessment (Savings, Transitional and Other Provisions) Regulation 2017*, the project was transitioned to State significant development by order which took effect by publication in the NSW Government Gazette on 14 January 2020.

4.2 Scope of modifications

A modification application under section 4.55(2) of the EP&A Act was submitted to the Department of Planning and Environment (the Department) on 13 September 2021. The Department has reviewed the

modification and considers that the application is substantially the same development as last modified under section 75W of Part 3A of the EP&A Act (Modification 1, approved on 23 December 2019), would not involve a change to the design of the approved ash dam, would not significantly increase the environmental impacts of the project, and would not change the approved project's disturbance footprint.

Consequently, the Department considers that the proposed modification is within the scope of section 4.55(2) of the EP&A Act.

4.3 Consent authority

The Minister for Planning (the Minister) is the consent authority for the application under section 4.5(a) of the EP&A Act. However, under the Minister's delegation dated 9 March 2022, the Executive Director - Energy, Resources and Industry Assessments, may determine the application. This is because the Department received more than 15 but less than 50 public objections during the exhibition period, Council did not object to the modification and Origin has not made any reportable political donations.

4.4 Mandatory matters for consideration

The Department has considered the relevant considerations for the modification application under sections 4.15(1) and 4.55(2) of the EP&A Act, and summarised the findings in **sections 5, 6 and 7** of this report.

4.5 Objects of the EP&A Act

The Department has assessed the application against the objects found in section 1.3 of the EP&A Act, which are the underpinning principles for all decision making under the EP&A Act. This assessment is provided in **Appendix B**.

4.6 Impacts on biodiversity values

Under Clause 30A(2)(c) of the *Biodiversity Conservation (Savings and Transitional) Regulation 2017*, the Department and its Biodiversity, Conservation and Science Directorate consider that the proposed modifications would not result in an increase in impacts on biodiversity values, and are satisfied that a Biodiversity Development Assessment Report is not required to be submitted with the modification application.

5 Engagement

5.1 Department's engagement

The Department exhibited the modification application and accompanying documents for 14 days from 28 September 2021 until 11 October 2021, published an advertisement of the exhibition in the *Newcastle Herald* on 28 September 2021, notified previous submitters and Council of the exhibition and the submission process, made all the relevant information publicly available on the Department's website, and referred the proposal to relevant NSW Government agencies for advice.

5.2 Summary of submissions and agency advice

During the exhibition period, the Department received a total of 47 community submissions, including 17 unique submissions from the general public, 3 submissions from special interest groups, a submission by the Council, and advice from 5 government agencies (see **Table 1**). The Department's assessment has also considered a community representation received after the exhibition period.

The Department has made all the relevant documents publicly available on its website; namely, all the submissions and agency advice, Origin's Submissions Report, responding to matters during the exhibition, and any additional agency advice or information provided by Origin throughout the assessment process (see **Appendix A**).

Table 1 | Summary of submissions

Group	Submissions	Form letters	Unique submitters	Object	Support	Comment
General Public	43	26	17 ^{1,2}	15	0	2
Special interest groups	3	-	3	2	0	1
Council	1	-	1	0	0	1
Total	47	26	21	17	0	4

- 1 Three individuals submitted two identical submissions, which is considered to be one unique submission for each individual.
 2 Identical form letters are classified as one unique submission.

5.3 Key issues – Community

A summary of the key concerns raised in community submissions and representation is provided in **Table 2**.

Table 2 | Summary of community submissions

Group	Issues raised
General Public	<ul style="list-style-type: none"> • traffic impacts due to the additional ash haulage and associated noise, air quality, health impacts • consideration of alternative ash recycling and haulage options, including using private roads or rail • length of the exhibition period and consultation • broader concerns about the ash dam facility and potential contamination impacts to Lake Macquarie that were not specifically related to the proposed modification.
Coal Ash Community Alliance	<ul style="list-style-type: none"> • objection, despite general support for ash recycling • concern regarding traffic safety and movements including at particular intersections on Wangi Road, Donnelly Road and Buttaba Hills Road • consideration of alternative ash recycling and haulage options, including using private roads or rail.
Australian Labor Party – Wangi Wangi Branch	<ul style="list-style-type: none"> • objection, noting concerns regarding the haulage of ash and related potential congestion, noise and air quality impacts.
GEM projects	<ul style="list-style-type: none"> • comment providing general suggestions regarding other ash recycling technologies.

5.4 Summary of advice - Government agencies

Transport for NSW (TfNSW) raised concerns about the safety of trucks turning right from Wilton Road onto Wangi Road, and requested a safety assessment. TfNSW also recommended that the Department consider limiting inbound heavy traffic movements from the south into the site during the afternoon peak traffic times due to congestion being experienced through the town centre of Morisset. TfNSW reviewed

the additional safety assessment provided in the Submissions Report and raised no further concerns. The Department's consideration of these matters is provided in **Section 6.1**.

The Department's **Biodiversity Conservation and Science Division, Department of Regional NSW – Mining, Exploration and Geoscience, NSW Environment Protection Authority (EPA)** and **Subsidence Advisory NSW** did not raise any concerns regarding the proposed modification. Subsidence Advisory NSW requested Origin to consult with them prior to undertaking a detailed engineered design of the proposal. EPA noted Origin would be required to vary its Environmental Protection Licence under the *Protection of the Environment Operations Act 1997*. Origin has committed to these in its Submissions Report.

Council raised concerns regarding stormwater impacts of new infrastructure, the increased amount of haulage trucks on traffic routes, details on how internal manoeuvres are achieved, and compliance of the existing Daracon facility with relevant air quality guidelines. Council has reviewed Origin's responses in the Submissions Report and did not raise further concerns. Furthermore, Council raised that an annual haulage levy for the increased traffic would be required, following which, Origin and Council agreed on a haulage levy for the maintenance of local roads that would be used during ash haulage.

The Department's consideration of these matters is described in **Section 6**.

6 Assessment

Coal ash is the material remaining after coal is burnt in the process of electricity generation. Ash is defined as a waste material and must be stored or reused in accordance with relevant guidelines. The relevant NSW strategic policy context (refer **Section 3.4**) highlights the importance of opportunities to reuse coal ash products where possible, to promote a circular economy and avoid impacts associated with ash storage.

The proposal would increase the project's ash recycling capacity and ash haulage from the site using the local and State road network. The Department considers the key issue relates to the increased heavy vehicle movements and associated operational traffic impacts on local road network (congestion, traffic safety and road condition). The Department's assessment of these issues is provided in **Section 6.1**, and consideration of a range of other potential impacts associated with the proposed modification activities in **Section 6.2**.

6.1 Local Traffic

The key concern in community submissions, the additional representation and advice from TfNSW was congestion and traffic safety impacts on local traffic, particularly at the intersection of Wilton Road and Wangi Road, and use of the southern route through Morisset during peak afternoon hours.

Operation of the modified project would use two primary haulage routes to access the Pacific Motorway - a northern and a southern route, as shown in **Figure 4** and **Figure 5** below. In the case of the northern route, currently there is a bridge heavy vehicle weight restriction of 40 tonnes on the Wilton Road, which Council is proposing to upgrade. Subject to this upgrade, and easing restrictions on heavy vehicles, the northern route would be via Toronto (see **Figure 6**).

The road assessment assumed that about 50% of movements would use the northern route and 50% would use the southern route, consistent with current haulage patterns.



FIGURE 11 HEAVY VEHICLE ACCESS ROUTE FROM THE NORTH (POST BRIDGE CONSTRUCTION)

Figure 3 | Northern heavy vehicle access route via Wilton Road (Source: Modification Report)

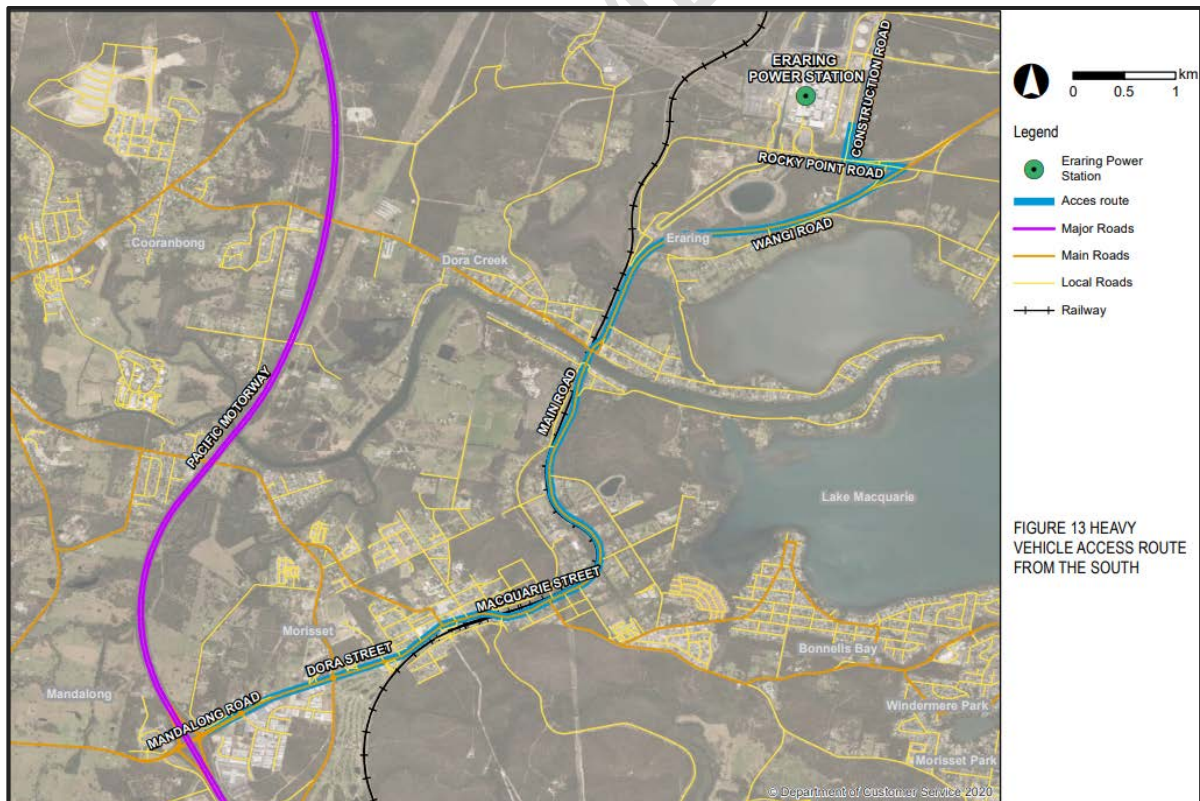


FIGURE 13 HEAVY VEHICLE ACCESS ROUTE FROM THE SOUTH

Figure 5 | Southern heavy vehicle access route (Source: Modification Report)



Figure 6 | Northern heavy vehicle access route via Toronto (Source: Modification Report)

Construction of the proposed modification would require approximately 10 heavy and 20 light vehicles accessing the site per day. The focus of the Department's assessment has been on the operational traffic impacts of the proposed modified project, as the proposed changes to the vehicle movements during construction were considered minor.

Methodology

SIDRA modelling was used in the traffic impact assessment to predict impacts on the local road network and the increased peak hourly traffic movements for the proposed modification. The modelling was based on traffic surveys and worst-case scenarios of intersection performance. The traffic assessment also considered cumulative impacts from relevant proposed and future projects, which would be subject to separate planning approvals.

Ash haulage

Not all infrastructure and traffic movements that contribute to the recycling of ash at Eraring Power Station are covered under the project approval (refer to **Section 1.1**). However, the traffic assessment has considered the cumulative traffic movements associated with all ash recycling operations.

The existing project approval does not limit traffic movements associated with ash recycling and the original environmental assessment for the project did not describe maximum traffic movements associated with recycling. Existing traffic movements under the approval are therefore currently only limited by the capacity of the existing ash recycling infrastructure, that is an approved capacity of 300,000 tpa of ash recycling and haulage. Similarly, for the 3rd party ash recycling operations there are no traffic movement or time restrictions in carrying out the ash recycling activities, with an approved capacity of 750,000 tpa ash recycling and haulage.

The baseline traffic movements considered in the traffic assessment were based on historic ash recycling rates of around 560,000 tpa, which corresponds to around 190 movements per day. However, given the existing infrastructure across all operations has a maximum approved capacity of around 1.05 Mtpa, these existing approvals would allow for around 350 daily movements, or around an 85% increase compared to existing traffic movements. The proposed traffic movements considered in the traffic assessment are the maximum movements associated with the proposed increased ash recycling capacity of 1.4 Mtpa, corresponding to around 410 daily movements. This represents an 18% incremental increase compared to daily traffic movements based on the existing 1.05 Mtpa production rate.

Based on historical performance, the traffic modelling also assumed 60% of movements occur between 5 am and 10 am, coinciding with the morning peak hours (7:30 am – 8:30 am) and the remaining 40% between 2 pm and 7 pm, coinciding with the afternoon peak hours (4:30 pm – 5:30 pm).

Road network performance

Modelling of the intersection performance of the increase in movements predicted that cumulative impacts on traffic congestion at the local intersections would be minor as each intersection would continue to perform at an acceptable Level of Service (LoS A; considered as good operation) in the morning peak, when the majority of the traffic movements would occur.

In response to TfNSW's request to limit traffic movements through the Morisset town centre, Origin noted that the proposed modification would result in up to an additional five heavy vehicle movements per hour in each direction and that the additional movements would not result in significant impacts to the operation of the local road network. TfNSW did not raise further concern regarding this potential impact.

The Department has recommended conditions requiring Origin to prepare and implement a stand-alone Operational Traffic Management Plan in consultation with TfNSW and Council, including measures to be employed to ensure traffic volume, acoustic and amenity impacts along the heavy vehicle routes are minimised.

The Department does not consider it necessary to place a limit on traffic movements through the Morisset town centre given the modification would result in negligible impacts to traffic movements along this route, however the Department has recommended conditions that Origin minimise traffic volumes in this location in the afternoon peak (between 4 pm and 6 pm) given the existing congestion in this location, and during the night time period (between 10 pm and 7 am).

Traffic safety

Safety issues relate to the use of the bridge on Wilton Road, and an additional 7 trucks turning right out of Wilton Road at Wilton Road and Wangi Road intersection per hour for inbound movements back to the power station. The safety assessment identified that the proposal would have an acceptable level of impact on the intersection's safe operation, as:

- the proposed haulage routes are suitable for and used by heavy vehicles and meet the required minimum available sight distance;
- use of the bridge on Wilton Road for ash haulage would be subject to completion of the Council's bridge upgrade works; and
- given that there are around 7,000 vehicle movements per day on Wangi Road, the incremental impacts of the proposal would be negligible (accident data identified only a single accident occurring at this location over the 5-year reporting timeframe).

The safety assessment recommended the existing Driver Code of Conduct be updated to encourage heavy vehicles to maintain an appropriate separation distance to minimise potential traffic safety impacts. Origin committed to this recommendation and proposed additional mitigation measures to manage traffic safety. The Department has recommended conditions to formalise these commitments.

Road maintenance contributions

Origin and Council have agreed on an annual haulage levy for contribution to the maintenance of local roads (subject to consumer price index adjustments) proposed for ash haulage from the power station. The levy would apply on the recorded tonnage per year of haulage and the Department has recommended a condition for this payment to take effect.

Alternative haulage

Community submissions raised use of rail infrastructure instead of the road network for ash haulage. The Department acknowledges that this option is not reasonable and feasible, due to the limitations of the available technology to load, unload and transport ash by rail, and accessibility issues with delivery of the large volumes of ash to the receiving markets/demand locations. Therefore, this is not considered further in this assessment.

Summary

The Department has consulted with TfNSW and Council and considers that the traffic assessment was conservative and potential congestion and traffic safety impacts would be acceptable. Nevertheless, the Department has revised the relevant traffic and transport conditions of the existing project approval to ensure any residual impacts would be managed and minimised.

6.2 Other issues

The Department’s detailed consideration of other issues is provided in **Table 4**

Table 3 | Assessment of other issues

Issue	Consideration	Recommendations
Noise	<ul style="list-style-type: none"> Consistent with the project approval, construction activities would occur within standard construction hours. The noise generated at the site would be dominated by the operation of the Eraring Power Station with the nearest residential receivers located over 1 km south and south east of the site. Night-time (11 pm - 7 am) haulage would be consistent with the approved project’s operation, which comprise around 25% of the approved project’s heavy vehicle movements, including for ash haulage (see Appendix A5). The EPA, Council and TfNSW did not raise any concerns about noise impacts and the EPA would continue its monitoring and regulation in accordance with the project’s environment protection licence. Nevertheless, the Department has recommended revisions to the existing conditions, including detailed measures to minimise acoustic and amenity impacts along the heavy vehicle routes. 	<ul style="list-style-type: none"> Revise the traffic related conditions to include operational traffic noise impacts. Comply with existing conditions, including review and revision of the approved Construction Environmental Management Plan and Construction Noise Management Plan.

Issue	Consideration	Recommendations
	<ul style="list-style-type: none"> The Department considers that noise impacts of the proposed construction and modified project's operation would remain substantially the same as for the approved project and any residual impacts can be managed to an acceptable level through the existing and revised conditions, including revision of the project's Construction Noise Management Plan to reflect the proposed modification. 	
Air	<ul style="list-style-type: none"> The community raised concerns about the project's potential to impact air quality during construction and from the handling of ash during operation. Ash would continue to be transported in sealed vehicles and the new infrastructure were designed as a closed system to minimise potential air quality impacts off-site. The Department and EPA consider the risk of air quality impacts to be minimal, subject to the existing condition, which requires Origin to minimise air quality impacts of the project and update the Air Quality Management Plan to reflect the proposed modification. 	<ul style="list-style-type: none"> Comply with existing conditions, including review and revision of the approved Air Quality Management Plan.
Aboriginal and non-Aboriginal heritage	<ul style="list-style-type: none"> A desktop assessment of potential Aboriginal and non-Aboriginal heritage impacts showed that there are no heritage items located within or adjacent to the modification areas. The proposed new infrastructure areas are on already disturbed hardstand areas. The Department considers impacts to known and unknown Aboriginal items can be appropriately managed through existing conditions. 	<ul style="list-style-type: none"> Comply with existing conditions, including review and revision of the approved Aboriginal Heritage Management Plan.
Biodiversity	<ul style="list-style-type: none"> The closest area of native vegetation is located around 40 m east of Modification Area 2 with the proposed infrastructure to be located within the approved and already disturbed land. BCD did not raise any concerns and the Department considers that the existing conditions can manage and minimise any potential residual impacts on biodiversity values, including through revision of a Flora and Fauna Management Plan prior to commencing any construction works. The Department considers that there would be no increase in impacts on biodiversity values compared to the approved project. 	<ul style="list-style-type: none"> Comply with existing conditions, including review and revision of the approved Construction Environmental Management Plan and Fauna Management Plan.
Soil and water	<ul style="list-style-type: none"> Construction/excavation works have the potential to result in erosion and sedimentation impacts. Given the historic use of the site, contaminated soils could be encountered during earthworks. Groundwater interception is not expected, as excavation depths associated with construction would be up to 0.5 m. The new infrastructure would be outside the flood planning area under <i>Lake Macquarie Local Environmental Plan 2014</i>. The proposal is not expected to cause a substantial increase in surface water flows from site, as it would not increase impervious surfaces within either of the modification areas. 	<ul style="list-style-type: none"> Comply with existing conditions, including review and revision of the approved Construction Environmental Management Plan, Erosion, Sedimentation Management Plan, Operation Environmental

Issue	Consideration	Recommendations
	<ul style="list-style-type: none"> The risk of water pollution from ash would be low, as ash handling would be a closed system and loads covered to minimise the risk of ash spills or suspension. The existing approval includes provisions to minimise and manage any likely soil and water impacts, including requirements to implement an Erosion and Sedimentation Management Plan prior to construction works commencing and a Coal Combustion Product Management Plan during operations. The Department considers that potential impacts to soil and water would be minor and can be managed appropriately with the implementation of the existing conditions. 	<p>Management Plan and Coal Combustion Product Management Plan.</p>
<p>Surrender of integration of the DA/1937/2014 (Daracon facility)</p>	<ul style="list-style-type: none"> The Department has carefully reviewed Origin's proposal to integrate the relevant conditions of the Daracon Facility's consent issued by Council into the project approval and its surrender should the proposed modification be approved. Origin provided evidence from Daracon (the owner of the Council consent) of the intention to surrender the Council consent if the modification is approved (refer Appendix A5). Council did not raise concern regarding the surrender of the consent. The Department has recommended adding Daracon Facility's consent condition relating to storing and handling of chemicals and greases within banded spillage areas to the project approval. The Department considers that the other conditions of approval in the Daracon Facility's consent would be covered by the modified project approval. As Origin is not the holder of the Daracon consent, the Department cannot include a condition requiring the consent to be surrendered. Notwithstanding, Daracon has advised that it would surrender the consent voluntarily. 	<ul style="list-style-type: none"> Incorporate Daracon Facility into the approval Comply with the banded spillage areas.
<p>Waste and Hazards</p>	<ul style="list-style-type: none"> The proposal would generate minor quantities of wastes including a minor increase in general putrescible wastes associated with the amenities and office building within the Modification Area 2. The additional waste stream can be effectively managed under existing project approval requirements including conditions requiring appropriately classified, beneficial reuse/ recycling and disposal at lawful waste facilities. 	<ul style="list-style-type: none"> Comply with existing conditions.
<p>Visual</p>	<ul style="list-style-type: none"> Visual impacts would be associated with the height of the proposed new infrastructure (new silos) and would be consistent with the visual appearance of existing structures at the site. The proposed new infrastructure would not be visible to residential receivers and the visual impacts are considered negligible. 	<ul style="list-style-type: none"> None required.
<p>Exhibition period</p>	<ul style="list-style-type: none"> The Department's exhibition has been in accordance with the requirements of the EP&A Act as outlined in Section 5. 	<ul style="list-style-type: none"> Not relevant.
<p>Socio-economic</p>	<ul style="list-style-type: none"> The proposal would: 	<ul style="list-style-type: none"> Comply with existing conditions.

Issue	Consideration	Recommendations
	<ul style="list-style-type: none"> ○ provide for direct employment of 2 additional operational staff and indirect employment of contractors (truck drivers); ○ reduce the amount of ash required to be stored in the ash dam and associated environmental impacts; ○ facilitate ongoing operation of Eraring Power Station and supporting the National Energy Market; and ○ increase recycled products available for use in market, including the high demand construction industry. <ul style="list-style-type: none"> • The Department considers that there would be no significant increase in social impacts from the modification application, and that the infrastructure upgrades would facilitate achieving the higher ash reuse required under the project approval. 	

7 Evaluation

The Department has undertaken a comprehensive assessment of the merits of the modification application and supporting information in accordance with the relevant requirements of the EP&A Act, including the relevant 'matters for consideration'.

The relevant NSW strategic policy context (refer **Section 3.4**) highlights the importance of opportunities to reuse coal ash products where possible. The NSW Parliamentary Coal Ash Inquiry by the Public Works Committee on "*Costs for remediation of sites containing coal ash repositories*" found that "*coal ash is a valuable resource and that there is widespread support across the spectrum of stakeholders for the greater reuse of coal ash, as this will lead to industry development and job creation, a reduction in environmental harm and contribute to developing a circular economy*".

The Department notes that new ash recycling infrastructure for the proposed modification has been located within the existing footprint of the power station and nearby existing infrastructure. This has minimised potential impacts to biodiversity, amenity and Aboriginal and non-Aboriginal heritage. The Department also considers that the proposed haulage routes provide a direct route to the Pacific Motorway from the site that avoid residential areas where possible.

The Department considers that the key issues concerning the proposed modification relate to the increased ash haulage from the site using the local road network for recycling and reuse and consequent impacts on traffic performance, safety and road condition.

The Department acknowledges that operation of the modified project would result in additional impacts on the local road network due to the additional heavy vehicle movements required for the proposed ash haulage.

Following consultation with TfNSW and Council, the Department considers that the traffic assessment represented a conservative assessment of the traffic impacts and there would be adequate capacity on the existing road network and has recommended revisions to the traffic related conditions of approval, including the requirement for Origin to prepare an Operational Traffic Management Plan. Origin and Council have also agreed on local road maintenance contributions based on a levy per tonne of ash hauled from the power station site. The Department has included this requirement in its recommended conditions.

The proposed new infrastructure would be constructed and operated on existing hardstand areas within the Eraring Power Station site without significant changes to visual appearance of the site's structures. The handling and transport of ash would occur in a closed system and the project's haul trucks would continue using suitable roads for heavy vehicles. Therefore, the modified project's impacts on amenity (air, noise, visual), biodiversity, Aboriginal and historic cultural heritage would be largely consistent with the existing project.

Under the existing conditions of approval, Origin is required to review and revise any monitoring and management plans, within 3 months of approval of a modification application to the satisfaction of the Planning Secretary and in consultation with the relevant agencies, including the Construction Environmental Management Plan and Operation Environmental Management Plan (including any relevant sub-plans).

The Department acknowledges that the proposed modification would significantly increase the ash recycling throughput of the project, which is in line with the requirements of the project's Long-Term Ash Management Strategy to investigate ash management measures over time, with an ash target of 80% recycling of ash production.

The proposal would allow continuation or promotion of the project's social, economic and environmental benefits through reducing the amount of ash required to be stored in the ash dam and in turn minimising environmental impacts associated with ash deposition and storage, and minimise the need for further upgrades, particularly with the proposed early closure of the power station by 2025.

The proposed modification would facilitate the ongoing operation of Eraring Power Station and support national energy security and contribute to the market demands for recycled products such as in the construction industry. The proposed modification would also result in the direct employment of 2 additional operational staff, up to 20 construction staff and indirect employment of transport contractors.

The Department considers that the proposal would result in benefits to the environment and community, can be undertaken with minimal incremental or cumulative impacts on the environment or surrounding residences compared to the approved project, and any residual impacts can be adequately managed and mitigated through implementation of the revised conditions of approval.

On balance the Department considers that the benefits of the proposed modification outweigh its costs, is in the public interest and approvable, subject to the revised conditions.

8 Recommendation

The Department has drafted an Instrument of Modification (see **Appendix C**) for the proposed modification, as well as a consolidated version of the project approval as modified (see **Appendix D**).

It is recommended that the Executive Director, Energy, Resources and Industry Assessments, as delegate of the Minister for Planning:

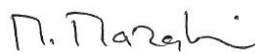
- **considers** the findings and recommendations of this report;
- **determines** that the application (MP07_0084 MOD 2) falls within the scope of section 4.55(2) of the EP&A Act;
- **accepts and adopts** all of the findings and recommendations in this report as the reasons for making the decision to approve the modification;
- **modifies** the approval (MP07_0084); and
- **signs** the attached Instrument of Modification (**Appendix C**).

Prepared by:

Jack Turner

Senior Environmental Assessment Officer
Resource Assessments

Recommended by:



9/6/022

Mandana Mazaheri

Team Leader
Resource Assessments

Recommended by:



9/6/022

Steve O'Donoghue

Director
Resource Assessments

9 Determination

The recommendation is **Adopted / Not adopted** by:

Clay Preshaw

Executive Director
Energy, Resources and Industry Assessments
as delegate of the Minister for Planning

Appendices

Appendix A – List of referenced documents

A1 - Modification Report: Refer to the “Modification Application” folder under the “Assessment” tab on the Department’s website at

<https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>

A2 – Submissions: Refer to the “Submissions” tab on the Department’s website at

<https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>

A3 - Submissions Report: Refer to the “Response to Submissions” folder under the “Assessment” tab on the Department’s website at

<https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>

A4 – Agency Advice: Refer to the “Agency Advice” folder under the “Assessment” tab on the Department’s website at

<https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>

A5 – Additional Information: Refer to the “Additional Information” folder under the “Assessment” tab on the Department’s website at

<https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>

Appendix B – Objects of the EP&A Act

Table B1 summarises how the Department considers that the project can be undertaken in a manner that is consistent with these objectives, including Ecologically Sustainable Development.

Table B1 | Consideration of the proposed modification against the relevant objects of the section 1.3 of the EP&A Act

Objects of the EP&A Act	Consideration
(a) <i>to promote the social and economic welfare of the community and a better environment by the proper management, development and conservation of the State’s natural and other resources;</i>	The modification is consistent with this object because it would facilitate the increased beneficial reuse of a waste product and reduce environmental impacts associated with ash disposal in the ash dam.
(b) <i>to facilitate ecologically sustainable development by integrating relevant economic, environmental and social considerations in decision-making about environmental planning and assessment;</i>	The Department’s assessment has sought to integrate all significant environmental, social and economic considerations. The Department considers that the modification can be carried out in a manner that is consistent with the principles of ecologically sustainable development.
(c) <i>to promote the orderly and economic use and development of land;</i>	The proposed modification involves a permissible land use and would be carried out within existing project boundaries. The Department considers this represents an orderly and economic use of the land.
(e) <i>to protect the environment, including the conservation of threatened and other species of native animals and</i>	The proposed modification would not require the disturbance of native vegetation.

Objects of the EP&A Act	Consideration
<i>plants, ecological communities and their habitats;</i>	
(f) <i>to promote the sustainable management of built and cultural heritage (including Aboriginal cultural heritage);</i>	<p>The Department considers that the modification would be unlikely to result in impacts to Eraring Power Station, which is listed as a non-Aboriginal heritage item.</p> <p>The modification would be carried out in existing hardstand areas and impacts to Aboriginal heritage are considered to be unlikely.</p>
(i) <i>to promote the sharing of the responsibility for environmental planning and assessment between the different levels of government in the State; and</i>	The Department has assessed the modification application in consultation with Lake Macquarie City Council and other relevant NSW government authorities and given consideration to the issues raised by these agencies in its assessment.
(j) <i>to provide increased opportunity for community participation in environmental planning and assessment.</i>	The Department publicly exhibited the modification application and considered all submissions in its assessment.

Appendix C – Recommended Instrument of Modification

Refer to the “Recommendation” folder under the “Assessment” tab on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>

Appendix D – Recommended Consolidated Consent

Refer to the “Recommendation” folder under the “Assessment” tab on the Department’s website at <https://www.planningportal.nsw.gov.au/major-projects/projects/mod-2-ash-recycling-facilities>