HCC REZ network infrastructure upgrades

Appendix L – Submissions Report

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Document control

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Approved by

James Hart

Manager, Environmental Services
29 August 2025

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Contents

1. Consultation overview

Community and stakeholder feedback is an essential part of the development process to make sure we deliver the best outcomes for communities, energy consumers and the REZ. Community feedback has been critical in informing the locations for new REZ subtransmission infrastructure. Ausgrid is committed to working closely with the community as we plan and deliver the Project.

Ausgrid will continue to work closely with our directly affected landowners, communities, industry, regional stakeholders, government partners and generators to coordinate the delivery of the network infrastructure upgrades and maintain strong relationships within local communities.

2. Display of the draft Review of Environmental Factors (REF)

Ausgrid prepared a draft REF for the Hunter-Central Coast Renewable Energy Zone (HCC REZ) network infrastructure upgrades. The REF was publicly displayed between 29 April and 9 June 2025 via the Ausgrid website and at community drop-in sessions, with the public invited to provide feedback on the proposed works.

3. Community consultation during the REF exhibition

A summary of the engagement activities and tools used by Ausgrid during the exhibition of the REF is provided in the table below.

Activity	Detail
Website updates	Information on the REF process and the REF documents were made available on the Ausgrid website and at yoursay.ausgrid.com.au/HCCREZ.
Print advertisements	Print advertisements were carried out ahead of and during the REF exhibition to give notice about the REF exhibition and publicise the community information sessions, as follows: Hunter River Times publication dates: 2 and 16 May 2025.
Radio advertisements	Radio advertising with community radio stations was undertaken on the following local radio stations: Power FM and 2NM: 30 second live reads, during Breakfast (am) and Drive (pm) programs.
Media release	Ausgrid media release 9 May 2025 ‘Ausgrid wants your input on the Hunter Central Coast Renewable Energy Zone’ was shared with ABC, Newcastle Herald and other Newcastle/Hunter media outlets.
Social media advertising	Targeted Facebook advertising appeared from 27 April until 28 June, with over 180,000 impressions served to users in the HCC REZ region.
Email notifications	An email was sent with a link to the draft REF to 65 community stakeholders we have email addresses for.

Activity	Detail
	A further 61 email invitations/notifications were sent to those who had previously attended online webinars, inviting them to the REF webinar.
Letterbox distribution	A project newsletter was distributed to 9,354 recipients in towns in the HCC REZ subtransmission project area to notify the community of where to find information on the REF and upcoming community drop-in sessions.
Project contact and information points	All published project-related materials included the contact details for the Project, including: • The Project information line - 1800 955 635 • Community email address – hccrez@ausgrid.com.au • Postal address – GPO Box 4009, Sydney NSW 2001
Community drop-in sessions	Held at Singleton, Branxton and Muswellbrook during May 2025
Events	2-5 May 2025 - Tocal Show 25 May 2025 – Singleton Valley Markets
Landowner consultation	Consultation and engagement has been undertaken from November 2024, with a team dedicated to ensuring Landowners are consulted and kept informed about the Project, and any potential impacts to their existing easements. Commencement letters were sent from June 2025, advising next steps for amendments to easements to accommodate the proposed new infrastructure.
Community webinars	Ausgrid advertised two webinars however these were cancelled due to having no-one register to attend.

4. Consultation with government departments and agencies

NSW Government departments and agencies were briefed on the REF via emails, phone calls, meetings and presentations to ensure they received the relevant information to make a submission.

Notification letters advising of the REF exhibition dates, where/how to access documentation, and how to make a submission, were sent to:

- Cessnock Council
- Muswellbrook Shire Council
- Singleton Council
- Transport for NSW
- Registered Aboriginal Parties.

5. Landowner consultation

Ausgrid's Land and Property Officers act as a point of contact for community members and landowners for the HCC REZ. They also work closely with our team of Land Acquisition Managers to manage landowner relationships in the project area.

Community members, businesses, adjoining projects and community groups received an emailed letter to inform them of the REF exhibition. Land and Property Officers and the Community Engagement Team maintained regular contact with the community throughout the exhibition period to answer questions and to encourage them to make a submission. They responded to questions, provided assistance in locating relevant information in the REF, and provided sections of the REF on request.

Land and Property Officers will continue to play an important role in maintaining close and ongoing contact with local communities and stakeholders during the design and delivery of the project.

Land and Property Officers can be contacted via our community information line 1800 955 635 or project email (hccrez@ausgrid.com.au)

6. Landowner-specific engagement

Ongoing direct engagement has been carried out with landowners to inform the development of the Project, including relevant mining companies.

Ausgrid has been in discussions with landowners along the alignment since late 2024. This has included technical and planning specialists attending properties to discuss landowner concerns, and work to develop and assess mitigation options where feasible.

Ausgrid has made every effort to minimise impacts to private landowners by locating subtransmission lines in existing subtransmission line easements and on Government or Ausgrid owned land.

In some cases, especially with smaller landowners, there is a need to increase the width of the existing easement to accommodate the proposed new infrastructure. The process for Ausgrid to acquire additional and/or wider easements with existing landowners began with formal commencement letters issued from June 2025.

Landowners have been provided with an acquisition support team to help them understand their rights and obligations together with any other aspect of the acquisition process. Ausgrid has recommended affected landowners seek independent legal advice and property valuation, with reasonable associated costs to be agreed and paid for by Ausgrid.

7. Ongoing engagement

Ongoing consultation with the community, landowners, government agencies and key stakeholders will continue throughout the development of the Project, up to and during construction. The aims of ongoing consultation are to provide:

- opportunity for feedback
- awareness of activities and processes being undertaken for construction of the project
- updates on the construction program as they become available
- information and responses to issues and concerns raised through ongoing consultation.

Any feedback provided by the community will be managed with respect and be responded to efficiently and in a timely manner, with each stakeholder interaction being treated as an opportunity for a positive experience. Ausgrid captures all interactions with landowners and the wider community through the Consultation Manager engagement tool.

HCC REZ network infrastructure upgrades

Ausgrid will continue to work closely with our directly affected landowners, communities, industry, regional stakeholders, government partners and energy generators to coordinate the delivery of the REZ. We know that managing cumulative impacts from renewable energy projects is a key priority for REZ communities

8. Communication of the draft REF with the wider community

In line with Ausgrid's commitment to open, transparent and meaningful engagement with the community potentially impacted by the proposed HCC REZ network infrastructure upgrades, it was important for us to publicise the REF as widely as possible.

We undertook a comprehensive advertising and promotional campaign to promote awareness of the REF and encourage feedback and engagement with the Project team via drop-in sessions and community events. A detailed overview of the promotion

Drop-in sessions

Three drop-in sessions were held to provide an opportunity for the wider community to view the draft REF, meet with the Project team, and ask questions. These sessions were promoted by traditional and digital means including social media, radio and print advertising. The sessions held were:

Singleton drop-in	Muswellbrook drop-in	Branxton drop-in
Thursday 15 May 2025 4-6pm Singleton Library	Wednesday 21 May 2025 4-6pm Muswellbrook Library	Thursday 22 May 2025 4-6pm Branxton Library
Eight attendees	*No attendees*	*Four attendees*

Across the drop-in sessions we spoke with 12 people – eight people at Singleton and four people at Branxton. There were no attendees at the Muswellbrook drop-in, which may be attributed to inclement weather on the night of the event. Of those who attended the Singleton and Branxton sessions, their enquiries related to requests for general project information.

One landowner who is opposed to the Project attended the session at Branxton. Ausgrid has been in communication with this landowner and is continuing to work with them towards a finding a mutually agreeable solution.

Summary of comments from May 2025 drop-in sessions

Enquiries and feedback received during the drop-in sessions included requests for general project information, information about potential renewable energy projects in the area, contact details for procurement, and to continue discussion/check progress of a previous complaint.

Radio advertising

A targeted radio campaign to promote the REF exhibition and the drop-in sessions was conducted across key local radio stations, 2NM and Power FM.

From late April, throughout May and into early June, a total of 90 thirty-second live reads were made on alternate days on the breakfast and drive programs.

Having the presenters make live reads (from a supplied script) rather than recording and replaying an advertisement was a strategic decision to create a more relaxed and inviting tone designed to encourage the most visitors for the sessions.

Facebook advertising

Dates in market: Tuesday 29 April – Tuesday 27 May 2025 inclusive

Reach (main objective): 65,111

Impressions: 180,328

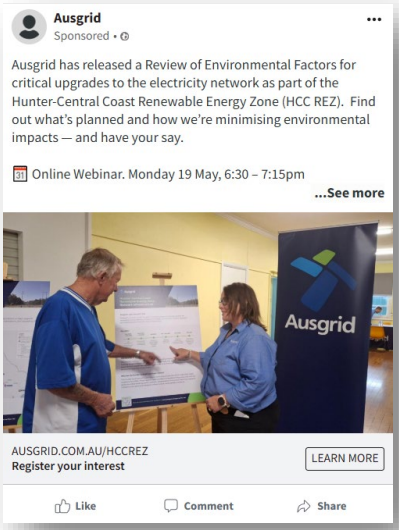
Click-through rate (CTR): 0.10%

Audience demographic:

Age: 18-65

Gender: Male/female equal split

Areas: Belmont, Berowra, Branxton, Budgewoi, Cooranbong, East Gosford, Erina, Morisset, Muswellbrook, Newcastle, Singleton, Terrigal, Woy Woy, Wyong, Bateau Bay, Avoca, Caves Beach, Murrays Beach, North Gosford, West Gosford.



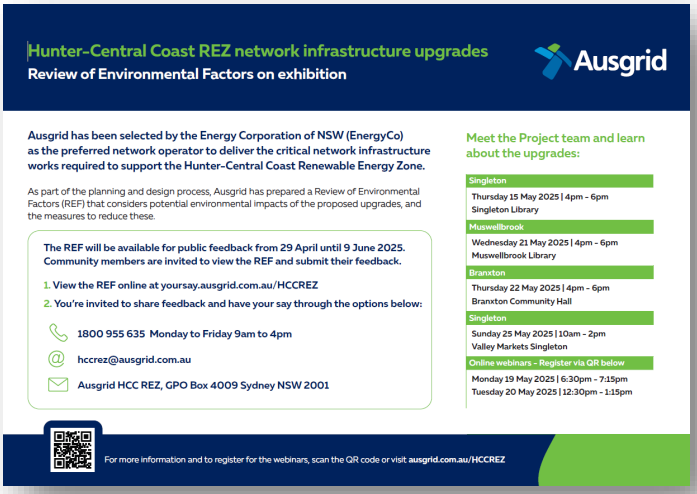
Print advertising: Hunter River Times

Hunter River Times is a well-regarded local Hunter newspaper with a print circulation of 14,000 and an estimated readership of 33,600.

The Times is the only remaining Upper Hunter-focused print newspaper, with strongest readership in Muswellbrook, Cessnock, Singleton and Upper Hunter Local Government areas.

With fortnightly publication, the REF drop-in promotion advertisement appeared twice during the exhibition period:

- Friday 2 May - Page 5 – Half page
- Friday 16 May - Page 3 – Half page



9. Summary of submissions received:

A total of eight submissions were received on the exhibited REF for the HCC REZ network infrastructure upgrade project.

A time extension was requested from (and granted to) a Council to make their submission.

Submissions were received from:

1. Hunter Jobs Alliance
2. Local community member
3. Singleton Council
4. Xatech (business)
5. McCloy Group/Loxford Project Management Pty Ltd (business)
6. Muswellbrook Council
7. Transport for NSW
8. Huntlee

Below is a summary of the submissions received, Ausgrid's response, and the corresponding section in the REF which addresses the sub:

Respondent	Summary of submission	Ausgrid response	REF section
1. Hunter Jobs Alliance	1.1 Supports the HCC REZ as a low-impact solution to delivering the clean energy NSW needs.	The Hunter-Central Coast REZ is part of NSW's Electricity Infrastructure Roadmap, which sets out how we are upgrading the electricity grid to keep the lights on and put downward pressure on energy bills for years to come. With the majority of power stations in NSW expected to have been retired by 2035, the NSW Government is delivering Renewable Energy Zones and coordinating investment in renewable energy generation and long duration energy storage projects across the state, including the Hunter-Central Coast. Upgrades to the electricity network are required to support connection of these new renewable energy projects to the electricity grid.	3

Respondent	Summary of submission		Ausgrid response	REF section
	1.2 Stakeholder and community consultation	Poor stakeholder and community consultation has been a common shortcoming in renewable energy projects to date. As one of the first projects in the Hunter Central Coast REZ, this initiative presents an opportunity, and a responsibility to set a higher standard. Genuine community engagement is critical to earning social license, particularly in the face of public concerns and the growing spread of misinformation. Ausgrid must make a concerted effort to ensure this project is transparent, inclusive, and delivers meaningful, long-term benefits to local communities. HJA supports the principles outlined in this section, including broad public engagement and targeted stakeholder briefings.	Together with EnergyCo, we remain committed to genuine, empathetic and respectful engagement with communities and landowners, when planning and delivering REZ projects. We know that the support of landowners and communities is critical to the success of our projects. We listen to what locals need and use this feedback to inform planning. This information helps us balance project costs with social, environmental, cultural heritage and economic impacts and to design meaningful benefits. Working with landowners to locate project infrastructure helps to minimise impacts on their properties and livelihoods and to determine fair compensation for any required acquisition. EnergyCo have also established the Hunter-Central Coast Regional Reference Group as a forum for strategic discussions between EnergyCo and the Hunter and Central Coast community representatives. We will always work to improve our approach to landowner engagement, welcoming feedback from reference group members and their communities.	3
	1.3 Aboriginal community consultation	We support strong engagement with First Nations communities. Ausgrid must demonstrate a clear commitment to respectful and ongoing collaboration through continued engagement with Local Aboriginal Land Councils and community groups, and ensure that First Nations voices and cultural	Ausgrid and EnergyCo and are committed to meaningful and genuine consultation and engagement with First Nations people and communities. We will listen and respond to feedback and work closely with First Nations people, including their concerns regarding cultural heritage issues. We'll work with Local Aboriginal Land Councils and other First Nations stakeholders and communities to identify and help	3.6 / 6.16.2.2.

Respondent	Summary of submission	Ausgrid response	REF section
	values are meaningfully embedded throughout the project.	secure economic, community and environmental opportunities for them. EnergyCo coordinates and administers the Hunter-Central Coast First Nations Working Group, which represent local Aboriginal communities from the Hunter-Central Coast REZ. EnergyCo has established a First Nations Coordination and Outcomes team to ensure local Aboriginal communities benefit from the renewable energy transition. The First Nations Guidelines set out the expectations for respectful engagement with local Aboriginal communities for the purpose of increasing employment and income opportunities for Aboriginal people in the construction and operation of new electricity infrastructure projects, delivered under the Roadmap. The First Nations Guidelines: Hunter-Central Coast were developed by the Hunter-Central Coast First Nations Working Group and were published in May 2024. Ausgrid is committed to creating real, measurable outcomes for Aboriginal businesses through procurement spend and ensures the Aboriginal Procurement Policy (APP) which helps Aboriginal businesses get government contracts – directly and as sub-contractors, is upheld. Under the APP, Aboriginal businesses must be recognised as an Aboriginal business by a suitable organisation, such as Supply Nation or the NSW Indigenous Chamber of Commerce.	

Respondent	Summary of submission		Ausgrid response	REF section
	1.4 Landholder consultation	Continued media reports of compulsory land acquisition and alleged bullying by EnergyCo in the Hunter Transmission Project highlight the critical need for genuine, respectful consultation with landholders. Ausgrid must actively build trust through transparent and fair engagement to ensure this project is positively received and landholders are treated with respect and not adversely impacted.	Noted.	
	Employment HJA supports the development and implementation of an industry and Aboriginal participation plan including:	Investigating opportunities for the delivery of training and upskilling programs for local labour force strategies for maximising local training and employment opportunities for residents, especially for First Nations people initiatives to promote local employment, such as early engagement with local employment agencies and councils, communication of employment opportunity via relevant local mediums of information, contract workers through existing local businesses, etc.	Ausgrid will develop and implement an industry and Aboriginal participation plan. Including investigating opportunities for the delivery of training and upskilling programs for local labour force, and strategies for maximising training and employment opportunities for First Nations people.	

Respondent	Summary of submission		Ausgrid response	REF section
	Employment Recommendations for a Workforce Impact Mitigation Strategy HJA recommends that Ausgrid implement a comprehensive Workforce Impact Mitigation Strategy to address potential negative effects on the local and regional labour market and safeguard the health and resilience of the regional economy. This strategy should focus on managing risks related to labour shortages and increased costs for local employers resulting from the project's workforce demands. The following actions are recommended:	Local Workforce Planning and Coordination: Collaborate with local councils, regional development authorities, TAFEs, and employment service providers to align workforce planning with regional capacity and economic priorities. Investment in Training and Upskilling - Establish or support targeted training, certification, and apprenticeship programs to upskill local unskilled workers, expanding the available labour pool without drawing workers away from existing local businesses. Local Hiring Targets with Industry Safeguards - Set ambitious local employment targets, ensuring recruitment practices do not undermine the viability of existing local employers particularly SMEs and essential Services. Labour Market Monitoring Framework - Implement ongoing monitoring of workforce availability, wage trends, and employer feedback to proactively identify and address labour market pressures. Support for Local SMEs and Employers - Provide assistance to small and medium enterprises (SMEs) affected by labour shortages through initiatives such as shared labour pools, wage subsidies, or transitional support programs. Transparent Communication and Engagement - Maintain open, consistent communication with local employers, chambers of commerce, and communities regarding workforce planning,	The NSW Department of Primary Industries and Regional Development, in partnership with EnergyCo, is currently delivering Procurement Capability and Uplift Program (PCUP) workshops across NSW to support small to medium businesses. Ausgrid has participated and supported delivery of these workshops. Construction of the Hunter-Central Coast REZ is expected to generate approximately 175 jobs, including roles for engineers, electricians and labourers.	

Respondent	Summary of submission	Ausgrid response	REF section
	scheduling, and opportunities to build trust and ensure alignment throughout the project lifecycle.		

Respondent	Summary of submission		Ausgrid response	REF section
	Local businesses - Ausgrid, along with its contractors and subcontractors, can implement additional strategies to actively maximise local procurement opportunities and ensure regional businesses benefit from both direct project investment and associated economic activity.	Recommendations to Strengthen Local Business Participation 1. Set Clear Local Procurement Targets - Establish specific targets or minimum benchmarks for the engagement of local businesses in procurement processes, particularly for subcontracting and supply of materials and services. 2. Create a Local Business Directory or Registry - Develop a publicly available directory of local and regional businesses to ensure contractors are aware of and can easily engage with suppliers in Singleton, Muswellbrook, and surrounding areas. 3. Simplify Procurement Processes for SMEs - Tailor procurement procedures to make them more accessible for small and medium enterprises (SMEs), such as by reducing administrative burdens, offering smaller contract packages, or simplifying tender documentation. 4. Pre-Tender Briefings and Industry Forums - Hold information sessions and pre-tender briefings specifically targeted at local businesses to ensure they are informed about upcoming opportunities and understand the application process 5. Mandate Local Supply Chain Reporting: Require major contractors to report on their use of local businesses and suppliers, creating accountability and transparency throughout the project. 6. Leverage the NSW Aboriginal Procurement Policy: Go beyond the minimum 1.5% contribution requirement by actively identifying and promoting	Communities in renewable energy zones will benefit from jobs, training, investment and funding for local projects. Ausgrid seeks to establish a Community Benefit Fund to coordinate community benefits to the Hunter-Central Coast REZ. The design of the Program will be informed by community consultation.	

Respondent	Summary of submission		Ausgrid response	REF section
		procurement and training opportunities for First Nations businesses and workers in the region. 7. Establish a Local Business Liaison Officer or Unit: Appoint a dedicated liaison to coordinate between project contractors and local businesses, ensuring clear communication and responsiveness to local capacity and opportunities. 8. Monitor and Evaluate Local Economic Impact: Conduct regular assessments of the economic impact on local businesses, including changes in revenue, employment, and procurement participation, to inform continuous improvement.		
	6.16.2.3 Social infrastructure - Experience from previous renewable energy projects has shown that some towns feel they have not benefited due to the short-term nature of construction, particularly where temporary workforce demands have placed pressure on local accommodation without delivering lasting local value. To ensure communities are not only protected from these impacts but also share in the benefits, clear and proactive mitigation	Recommendations to Manage Short-Term Workforce Accommodation Impacts 1. Engage with Local Tourism and Hospitality Stakeholders - Consult with local tourism operators, accommodation providers, and councils early and throughout the project to develop coordinated solutions and identify potential accommodation conflicts. 2. Prioritise Use of Underutilised or Non-Tourist Accommodation - Direct construction workers to use accommodation options that are not in high demand by tourists (e.g. motels in low-tourism zones, or longer-term rental units), particularly during peak visitor seasons. 3. Seasonal Workforce Accommodation Planning - Coordinate workforce accommodation needs with local councils and tourism bodies to avoid peak	We recognise any workforce accommodation options needed for REZ projects must minimise impacts and provide long-term benefits for communities in or near renewable energy zones. These impacts include potential pressures on the local rental market and possible traffic congestion associated with construction. Several options are available to support local communities and safeguard permanent housing for essential workers and residents. These include temporary accommodation to meet short term construction needs; and working with local councils to explore any opportunities for long-term legacy housing benefits.	

Respondent	Summary of submission	Ausgrid response	REF section
	strategies must be implemented.	tourism periods (e.g. school holidays or local festivals), ensuring minimal disruption to the tourism economy. 4. Temporary Accommodation Facilities - Explore the feasibility of setting up temporary worker accommodation (e.g. modular housing or temporary cabins) where appropriate, especially for larger workforce cohorts, to ease pressure on existing tourist-focused accommodation. 5. Accommodation Impact Monitoring - Monitor occupancy rates and availability of local short-term accommodation regularly throughout the project to identify any emerging shortages and adapt accordingly. 6. Engage with Local Tourism and Hospitality Stakeholders - Consult with local tourism operators, accommodation providers, and councils early and throughout the project to develop coordinated solutions and identify potential accommodation conflicts. 7. Promote Off-Peak Tourism Support - Encourage workers to book accommodation during off-peak periods and provide incentives for weekday or shoulder-season bookings, helping to balance usage and economic benefit. 8. Transparent Communication with Communities - Clearly communicate workforce accommodation plans to local residents and tourism operators to manage expectations and ensure transparency.	

Respondent	Summary of submission		Ausgrid response	REF section
	1.3 Aboriginal community consultation	We support strong engagement with First Nations communities. Ausgrid must demonstrate a clear commitment to respectful and ongoing collaboration through continued engagement with Local Aboriginal Land Councils and community groups, and ensure that First Nations voices and cultural values are meaningfully embedded throughout the project.	1.3.1 Ausgrid's commitment to meaningful consultation and collaboration with the Aboriginal community is outlined in section 3.6 of the REF. 1.3.2 Local and First Nations businesses were identified and engaged through a targeted campaign across social media. Businesses were invited to attend 'meet and greet' sessions with Ausgrid's procurement team and our contractors, with the aim of creating connections and to be able to take advantage of supply opportunities as they arise.	
	1.4 Recommends a comprehensive local employment and participation plan, with specific actions to:	1.4.1 Promote training and upskilling for local workers, especially First Nations people.		3
		1.4.2 Set local hiring targets that do not negatively impact existing employers or essential services.	Local employment and procurement is addressed with an industry and Aboriginal participation plan.	Table 6-32
		1.4.3 Develop a Workforce Impact Mitigation Strategy to manage labour market risks and cost pressures.	Local employment and procurement is addressed with an industry and Aboriginal participation plan which includes initiatives to promote local employment, such as early engagement with local employment agencies and council, communication of employment opportunity via relevant local mediums of information, contract workers through existing local businesses, etc.	Table 6-32

Respondent	Summary of submission		Ausgrid response	REF section
	1.5 Calls for stronger local procurement through:	1.5.1 Clear procurement targets for regional businesses.	Ausgrid implemented a targeted external advertising campaign to identify local businesses, which were then invited to 'meet and greet' events hosted by Ausgrid. These events created a platform for local and First Nations businesses to make contacts with Ausgrid's procurement teams, and those of our contractors, in order to take advantage of supply opportunities as they arise.	6.16.2.2
		1.5.2 A public business directory to help contractors connect with local suppliers.	Ausgrid hosted 'meet and greet' events for local businesses and created a database of local businesses from these events.	NA
	Recommends strategies to manage short-term accommodation pressures from temporary workforces, including:	1.6.1 Early engagement with local tourism and hospitality providers.	Although it is not expected there will be strong pressure on short-term or temporary accommodation from workers associated with this project, Ausgrid and its contractors will seek to engage early with local tourism and hospitality providers and to minimise disruption to the community.	6.16.2.3
		1.6.2 Prioritising non-tourist or underutilised accommodation options to minimise disruption.	Although it is not expected there will be strong pressure on short-term or temporary accommodation, Ausgrid and its contractors will work with local providers and seek to use accommodation options to minimise disruption.	6.16.2.3
2. Community member	2.1 Wishes to see Muswellbrook become an energy hub once coal mining leases expire.		Construction of the HCC REZ project will facilitate renewable energy connection to the grid in the Muswellbrook area.	NA

Respondent	Summary of submission	Ausgrid response	REF section
	2.2 Supports local job creation for HCC REZ and other renewable projects.	Ausgrid is committed to delivering social and economic opportunities in the HCC REZ area and engaging with local business on supply/procurement opportunities. These are detailed in the Project's IAPP Strategy.	Table 6-32
	2.3 Anticipates more stable local power supply.	Noted	NA
3. Loxford Project Management Pty Ltd.	3.1 In reliance upon the advice received from Ausgrid (no easement extension required), LPM advises it has no objection to the REF for the HCCREZ.	Noted	NA
4. Xatech	4.1 Submits that their Epsilon Cable is an advanced technology high voltage conductor and believes this would significantly contribute to the efficiency of the proposed works. Wishes to be considered as a supplier.	Ausgrid has added Xatech to the database to be contacted for potential procurement opportunities as they arise.	NA
5. Singleton Council	5.1 Council requests that all construction traffic movements through Singleton be carefully planned and coordinated with Transport for NSW and local emergency services to	Ausgrid contractors will prepare traffic management plans for all worksites. There will be ongoing consultation with TfNSW and Singelton Council throughout the project.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
	ensure minimal disruption to local traffic and resident safety.			
	5.2 Supports investment and job creation potential but urges prioritisation of local procurement, employment, measurable local content targets, and inclusion of Singleton LGA in community benefit programs.		Ausgrid is committed to delivering social and economic opportunities in the HCC REZ area and engaging with local business on supply/procurement opportunities. Ausgrid implemented a targeted external advertising campaign to identify local businesses, which were then invited to 'meet and greet' events hosted by Ausgrid. These events created a platform for local and First Nations businesses to make contacts with Ausgrid's procurement teams, and those of our contractors, in order to take advantage of supply opportunities as they arise. When the approach and community benefit fund is determined, Singleton Council will be included.	6.16
	5.3 Given the presence of other strategic developments in the Singleton LGA it is essential that Ausgrid maintain close coordination with Council on project staging, traffic management, and stakeholder engagement.		Ausgrid has a dedicated community engagement team who has been working within the community from the outset of the project. Ausgrid is committed to ongoing engagement with community and stakeholders throughout the construction of the project by way of drop-in sessions, newsletter mailers, website updates, social media, letters, emails, phonecalls and other communication methods. Council is on Ausgrid's list as a key stakeholder.	3
	5.4 Construction Support Facilities and Workforce Impacts - The REF references Singleton as a potential location for a construction storage yard	5.4.1 Further detail on the exact location and proposed operations of the storage site.	Ausgrid no longer plans a construction storage yard and laydown area in Singleton Council Aea.	2.1.9

Respondent	Summary of submission		Ausgrid response	REF section
	and laydown area. Council requests:			
		5.4.2 Consultation with Council's infrastructure and planning teams to assess suitability and impacts.	See above	N/A
		5.4.3 Consideration of potential social and economic effects on the local community, including workforce accommodation, parking, and service demand.	See above	N/A
	5.5 Communication and Stakeholder Engagement	5.5.1 Singleton Council requests that it be included as a formal stakeholder in the ongoing engagement process, including traffic management planning, environmental monitoring, and community notification.	See response to 5.3.	3
	5.6 Landscape Character and Visual Impact Council recognises the report's conclusion that the visual impacts during construction will be temporary and that the long-term impacts are anticipated to be of moderate-low significance, due to a combination of screening, existing	5.6.1 To that end, we request that consultation be undertaken with any residents, landowners, or community groups who may be directly or indirectly impacted by the proposed works, particularly within the identified landscape character zones. This should include those located near key construction sites, transmission corridors, and visually sensitive areas such as the Lake Liddell Recreation Area and areas adjacent to residential or tourism focused land uses.	Ausgrid has undertaken a detailed consultation program including customers that may be affected by a visual impact.	3

Respondent	Summary of submission		Ausgrid response	REF section
	infrastructure, and topography. However, Council remains committed to ensuring that the character and amenity of our local communities are protected and that all stakeholders have the opportunity to be adequately informed and consulted.			
		5.6.2 Council also asks that any concerns raised during this process be considered in the development of final designs and construction management plans, including mitigation strategies such as visual screening, vegetation buffers, and reinstatement commitments	Consultation is ongoing with customers that have raised concerns and mitigation measures will be incorporated where reasonable and feasible.	3
	5.7 Economic Opportunities and Local Benefits Council supports the investment and job creation potential outlined in the REF however, Council strongly encourages EnergyCo and Ausgrid to:	5.7.1 Prioritise local procurement and employment during both construction and operations phases.	See 5.2 above	6.16
		5.7.2 Establish measurable local content targets and report on progress.	Local employment and procurement is addressed with an industry and Aboriginal participation plan.	Table 6-32
HCC REZ network infrastructure upgrades				

Respondent	Summary of submission		Ausgrid response	REF section
		5.7.3 Include Singleton LGA in any Community and Employment Benefit Program linked to the REZ.	See 5.2 above.	Noted
		5.7.4 Council is also interested in exploring partnerships that facilitate local training and upskilling initiatives in renewables and energy-related sectors.	Ausgrid will continue to engage with Council and investigate opportunities for upskilling initiatives.	Noted
		5.7.5 Council encourages Ausgrid to establish a presence within the Singleton CBD to facilitate direct community contact with the project and its impacts.	Ausgrid will consider establishing a presence in Singleton CBD as per this request.	NA
	5.8 Environmental Considerations Council acknowledges the REF's commitment to avoiding significant environmental impacts by using existing corridors and previously disturbed lands. Council seeks assurances that:	5.8.1 Comprehensive biodiversity offsets and revegetation will be implemented where clearing is unavoidable.	Ecology assessment has concluded that the works would not result in a significant impact. There is no intention to acquire biodiversity offsets to offset vegetation removal required for the project.	6.10
		5.8.2 Ongoing monitoring of cumulative environmental impacts across multiple REZ related projects will be undertaken in coordination with local environmental data.	Ausgrid is only responsible for one REZ project. This would be an issue for EnergyCo.	NA
		5.8.3 Singleton is uniquely positioned with both sensitive natural areas and legacy mining land; REZ projects must respect these dual contexts.	Noted	NA
HCC REZ network infrastructure upgrades				

Respondent	Summary of submission		Ausgrid response	REF section
	5.9 Land Use and Planning Interface Council notes the REF's use of existing easements and efforts to avoid prime agricultural land.	5.9.1 REZ-related infrastructure must respect existing land uses, including active mining, agriculture, and residential zoning.	Noted	NA
		5.9.2 Council reiterates the need for transmission access protocols on public land to be clearly defined, including mechanisms for local benefit-sharing.	Ausgrid seeks to establish a Community Benefit Fund to coordinate community benefits to the Hunter-Central Coast REZ. The design of the Program will be informed by community consultation. Funding is still to be determined through the AER regulatory approval mechanism.	
		5.9.3 Council encourages early engagement where State Significant Infrastructure proposals intersect with local planning controls, to ensure alignment and mitigate land use conflicts.	HCC REZ is not State Significant Infrastructure. Ausgrid is committed to engaging with Council.	NA
	5.11 While Council supports renewable energy infrastructure investment and the broader goals of the REZ, it is essential that the impacts on Singleton's local infrastructure and community are appropriately acknowledged, assessed, and mitigated. We look forward to continuing to work with Ausgrid and		Noted	NA

HCC REZ network infrastructure upgrades

Respondent	Summary of submission		Ausgrid response	REF section
	EnergyCo to ensure this project delivers shared value across the region.			
6. Muswellbrook Council	6.1 Hebden Road / New England Highway Intersection	6.1.1 Results of the Roads Safety Audit (RSA) should be integrated with any Traffic Management Plan (TMP) and Drivers Code of Conduct (where required).and prepared in consultation with Council.	Ausgrid and its contractors will submit S138 and ROL applications as required. TMPs will be prepared in support of the ROLs and therefore, Council will have an opportunity to review and provide feedback.	6.15.3
	6.2 Condition of Hebden Road	6.2.1 Results of the RSA should be integrated into any TMP and Drivers Code of Conduct (where required). The TMP should be prepared in consultation with Council.	The traffic management plans will address in detail the areas of particular concern due to anticipated cumulative traffic including Sandy Creek and Hebden Roads, and New England Highway. See 6.1.1 above.	6.15.3
	6.3 Additional issues related to the use of Public Roads	6.3.1 The dilapidation surveys (REF S2.2.10) should record the condition of the road pavement, drainage structures, and other road related infrastructure and the Proponent must repair and/or make good any Project related damage. Where the project construction period overlaps with the construction period for another project (e.g. the Hunter Transmission Project or scheduled ARTC works), the Proponent is required to liaise with the relevant parties to determine a clear and equitable approach to dilapidation responsibilities, and report back to Council for review and agreement. Council will rely on the results of the initial and final dilapidation surveys to seek repairs to road infrastructure and has no mechanism to apportion damage across multiple projects.	Requirement added to REF.	6.15.3

Respondent	Summary of submission	Ausgrid response	REF section
	6.3.2 Sandy Creek Road will be utilised by the Project for the construction of the Sandy Creek STSS, however this road has not been included in the Traffic Impact Assessment. The following needs to be considered: i) The use of 19-m B-doubles is approved along a 2-kilometre length of Sandy Creek Road, directly east of New England Highway, provided movements occur outside of the hours of 7.30am to 8.30am and 3.45pm to 4.45pm on school days as school buses use the road during this time; ii) The Muswellbrook Solar Farm approval includes limits on the total movements per hour on Sandy Creek Road required by TfNSW due to issues with the intersection with the New England Highway; iii) Based on the assessment report and recommended conditions of consent of the Muswellbrook Solar Farm, the Sandy Creek Road – New England Highway intersection is constrained under existing conditions, and queuing at the rail-level crossing is a safety concern that needs to be carefully considered.	Mitigation measure added	6.15.3

Respondent	Summary of submission	Ausgrid response	REF section
	6.3.3 On 14 May 2024, Council resolved: As there will be heavy vehicles along Sandy Creek Road for simultaneous multiple projects (Muswellbrook Battery Energy Storage System, Muswellbrook Pumped Hydro, Muswellbrook Bypass, and Muswellbrook Solar Farm, New England REZ 500KV transmission line), the pavement damage for any specific project will need to be accurately calculated. As such, a proper methodology for contribution will need to be developed by Council and part funded by the Proponent through the Planning Agreement. Staff are progressing the Sandy Creek Road Maintenance Contributions Plan and recommend that the Plan apply to this Project if multiple projects are under construction at the same time.	Noted	NA
	6.3.4 Staff note Section 3.7 of the Traffic Impact Assessment that states 'warrant assessment suggests a BA right turn treatment is an appropriate turn treatment on Hebden Road into the construction site access. Therefore, channelised turn treatments are not required'.	Noted.	Appendix K
	6.3.5 Staff note Section 3.12 of the Traffic Impact Assessment that states 'A construction traffic management plan (CTMP) and associated traffic guidance schemes will be prepared for the Project as part of the construction environmental management plan. The CTMP will be prepared in consultation with the Muswellbrook Shire Council and emergency services'. Staff look forward to providing input to the CTMP.	Noted	6.15.3

Respondent	Summary of submission		Ausgrid response	REF section
		6.3.6 It is disappointing that the REF does not identify all proposed access points from public roads. Regardless, any access from a Council local road must be designed in accordance with Council's Rural Property Access Drawing.	More detailed assessment of access points has been provided in the final REF.	6.15
		6.3.7 Where a Section 138 Permit is required for works on a public road, Staff prefer that the principal entity submit the application, as this approach has proven to be more effective than relying on contractors.	Ausgrid will consider submitting the S138 applications.	6.15
		6.3.8 For Over Size Over mass movements on the railway overbridges, proponents should direct their enquiries via email to: heavyvehicle@uglregionallinx.com.au	Added.	6.15.3
	6.4 Temporary Workers' Camp - Whilst these 280 workers are not expected to require accommodation, Council Staff have observed that there is currently no capacity in Muswellbrook for any temporary workers. It is unclear where the workers associated with this project will stay and how the Proponent will manager worker fatigue – travel from the Central Coast is more than an hour to the site.	6.4.1 An Employment and Accommodation Strategy is required for this project and has also been requested by Singleton Council. Ausgrid's position that contractors will secure their own accommodation does not align with feedback from either Council, which have advised Ausgrid of existing accommodation shortages within their respective Local Government Areas.	While it is not anticipated there will be pressure on short-term or temporary accommodation from workers associated with this project, Ausgrid and its contractors will work with local providers and seek to minimise disruption to the community.	NA

Respondent	Summary of submission		Ausgrid response	REF section
		6.4.2 The decision to source most construction workers from the Central Coast, Sydney, or Newcastle is disappointing for local government areas outside those regions, as it limits local job opportunities, reduces economic benefits for local businesses, undermines community support, and places strain on local infrastructure without delivering lasting regional or social value.	Ausgrid is committed to delivering social and economic opportunities in the HCC REZ area and engaging with local business on supply/procurement opportunities. These are detailed in the Project's IAPP Strategy.	Table 6-32
	6.5. Removal of vegetation at Liddell Recreation Area	6.5.1 Staff would welcome any opportunity to work with Ausgrid, the Lake Lidell Recreation Area and local Landcare group to identify mitigation and appropriate species for replanting.	Added	6.10.3
		6.5.2 Staff are pleased to see that areas containing threatened species such as Durius tricolour and Grevillea parviflora within the easement will be avoided.	Noted	6.10.3
		6.5.3 Staff request that when planning additional plantings across any of the project area, Staff recommend that consultation occur with the Planning, Offsets and Threatened Species and Ecosystems Division of Department of Climate Change, Energy, the Environment and Water who are developing a strategic approach to identifying biodiversity stewardship sites.	Ausgrid will engage its Ecologist to recommend appropriate species for replanting.	6.10.3
	6.6 Visual Impact	6.6.1 Staff are pleased to see that vegetative screening will occur at Antiene STSS to present a visually appealing landscape	Noted	6.10.3

Respondent	Summary of submission		Ausgrid response	REF section
	6.7 Proposed New Sandy Creek Substation	6.7.1The location of the proposed new Sandy Creek STSS is situated in an area that may hold potential for future residential expansion. Staff request that this comment is considered during detailed design so that impacts to residential expansion is minimised as far as reasonably practicable.	Alternative options were considered for the location of the Sandy Creek STSS however there is a grid scale battery proposed for the northern side of the existing Muswellbrook STS, the Muswellbrook Bypass project will be located to the east of the Substation and the west of the substation would place the STSS much closer to residential customers. In any case the feeder connections would have to run through the same area to the south of the existing STS.	NA
		6.7.2 During construction, Staff would also like to see plans for controls for erosion and sediment runoff during high rainfall events.	Erosion and sediment control plans would be prepared by the contractor. These plans would not ordinarily required Council review.	6.6.3
		c) Staff are pleased to see a commitment to exploring options for vegetation screening once works are complete.	Noted	NA
		d) It is disappointing that the Sandy Creek STSS has not been sited on less vegetated areas on Ausgrid owned land.	See response in section 6.7.1 above.	NA
	6.8 Additional Staff comments on the REF	6.8.1 Section 6.16.2.9 of the REF states that 'other financial benefits may be provided to the community to offset some of the impacts. Further clarification on the intent of this statement is required.	Community benefit fund will be created for the project. The extent of the fund is dependent on EnergyCo and AER funding approval.	6.16.2.9
		6.8.2 Section 2.1.10 of the REF states that 'As existing powerlines are dismantled and recovered, waste materials will be stockpiled for collection and disposal at appropriately licenced facilities'. Ausgrid should consult with the Hunter Joint Organisation in relation to its Circular Economy	Where possible, cost effective and no impact on engineering properties, recycled materials will be considered in design and construction stages. Where possible, existing conductors, poles, cross-arms, insulators and other hardware will be reused or recycled for future use.	2.1.11

Respondent	Summary of submission	Ausgrid response	REF section
	Program for potential re-use and recycling of discarded materials.		
	6.8.3 Staff note the commitment in Section 6.9 of the REF which states 'Prior to construction, prepare a Waste Management Plan (WMP) which contains a list of expected wastes, their volume and their planned reuse, disposal or recycling'. Any WMP should be prepared in consultation with Council.	Consultation will be undertaken with Council where necessary.	6.9.3
	6.8.4 Staff note that there are two heritage items in the vicinity of the project: Fairview and Hillcrest and note the commitments to 'highlight the location of heritage items to construction personnel' and 'all workers to be made aware of sensitive areas and the need to avoid impacts'.	Noted	6.13.3
	6.8.5 Section 2.2.2 of the REF states that 'Water infrastructure is available at the existing Muswellbrook STS near the site and will be extended to service the STSS'. Further information is required as to whether this will directly impact Council infrastructure. Council engineers have raised concerns regarding the capacity of the Council managed water treatment facilities, that generate potable water, to support the cumulative demands of the temporary construction workforce and multiple renewable energy projects under construction at the same time.	Water use during operation will be negligible.	NA

Respondent	Summary of submission		Ausgrid response	REF section
		6.8.6 Staff are developing a strategy to enable project proponents to use recycled water for construction activities where potable water is not required. Consultation should be undertaken with Council to determine the availability, capacity, and suitability of recycled water sources.	Noted requirement to consult with Council has been added.	6.6.3
7. Transport for NSW	7.1 S138 Roads Act clarification	7.1.1 To clarify, the s138 Roads Act Approvals are required to be approved by the relevant road authority. TfNSW is a road asset manager for the state's classified road network, except freeways. TfNSW provides concurrence to s138 Roads Act approvals under s138(2) of the Roads Act 1993. Therefore, all locations where transmission line work will be undertaken within or over the road reserve will require Roads Act approvals to be issued by the relevant road authority, with concurrence from TfNSW. However, based on this project, there is one exception in which TfNSW is the roads authority and does provide approval, and that is for the Hunter Expressway (Road No. 6011).	Noted	6.15
	7.2 TfNSW acknowledges that a traffic assessment has been prepared for one intersection with the state road network that will be used for the project. However, it is unclear how access will be obtained to the transmission line infrastructure for work within, adjoining or crossing		A meeting was held with TfNSW to clarify the scale of the proposed works and discuss the level of detail and assessment required. Further detail has been provided in Section 6.15 Traffic and access of this REF.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
	the state classified road network. TfNSW requires a further Traffic Impact Assessment to be prepared to address the requirements:			
	7.3 Provide an assessment of the following traffic impacts during the construction of the project, in the form of a traffic assessment:	7.3.1 Hours, days and periods of construction	Timing and work hours are provided in section 2.1.3 of the REF. Further details will be provided with	6.15
		7.3.2 Schedule for phasing/staging of the project (including pre-construction, accommodation and ancillary infrastructure works) and identifying the traffic volumes for each stage.	Refer to section 2.9.1 Table 2.7 for updated timing and staging.	6.15
		7.3.3 Identify each transmission line access point with the state road network (including GPS coordinates), each state/local road intersection that will be required to be used for the project and any locations that will be used for compounds, crossings of the state road network etc (including identifying use of TfNSW stockpiles or rest areas).	This detail will be provided as S138 applications are submitted to RMS/Council.	6.15
		7.3.4 Provide a vehicle movement plan of the intended project routes.	Vehicle movement plans will be generated by the contractor as part of their CEMPs.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
	7.4 Traffic volumes:	7.4.1 Surveyed existing background traffic at key intersections per Part 3 of the Austroads Guide to Traffic Management, with survey raw data included.	Ausgrid met with TfNSW and agreed this is not necessary for this project.	6.15
		7.4.2. Project-related traffic volumes (measured as vehicle trips per hour and day) for each stage, including pre-construction, construction, operation, and decommissioning and identifying peak period(s) for traffic volumes.	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15
	7.5 Traffic volumes are to include a description of:	7.5.1 Ratio of light vehicles to heavy vehicles during the AM/PM peak hours and the turning direction.	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15
		7.5.2. Differentiation of the low risk Over Size/Over Mass (OSOM) (i.e OSOM that require a pilot or escort but do not require an NHVR permit).	NA. No OSOM trips require a pilot or escort.	6.15
		7.5.3. Project-related traffic interaction with existing and projected background traffic, with annual growth rate applied linearly.	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15
		7.5.4. Peak times for existing background and proposed project-related peak hours	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15
	7.6 The origin, destination and routes for:	7.6.1 Employee and contractor traffic	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
		7.6.2 Heavy vehicle traffic.	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15
		7.6.3 OSOM vehicle traffic (for OSOMs that require a pilot or escort but do not require an NHVR permit)	No OSOM trips are expected to require a pilot or escort.	6.15
	7.7. A description of all non-high-risk OSOM vehicles and materials to be transported. The shortest and least trafficked route is to be given priority for the movement of materials and machinery to minimise risk and impact to other motorists, so far as is reasonably practicable.		Up to 26 non-high-risk OSOM trips are expected for the delivery of the switchrooms and heavy machinery at Sandy Creek and Antiene. No OSOM trips are expected for the powerline works. Ausgrid will comply with NHVR requirements where applicable.	6.15
	7.8 A turn warrant assessment is conducted for the project on the accesses and intersections along the routes that connect to the state road network. This is required to understand the suitability of the intersections and access with the state road network for safely accommodating the project's traffic, particularly at key intersections and site accesses (for transmission	7.8.1 The turn warrant assessment is to include the following within the assessment: a. The light and heavy vehicles at the AM/PM project peak hour during the peak of construction activities, b. The growth rate for the state road network applied to the peak of construction, c. Cumulative traffic volumes for projects at REF, EIS or approved that will be present in the background and turning traffic volumes at the same time as the construction of the HCC,	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15

HCC REZ network infrastructure upgrades

Respondent	Summary of submission		Ausgrid response	REF section
	line construction and maintenance) that connect with the state road network.	d. All this information is to be applied to the existing network peak hour, and e. Be plotted on a turn warrants assessment graph (refer to Figure 3.25 of Austroads Guide to Traffic Management Part 6),		
		7.8.2 Based on the outcome of the turn warrant assessment for the intersections and access points the following options will be required to be undertaken: • Strategic concept designs are to be prepared for intersections and access points (both new and existing locations) based on the outcome of the turn warrant assessment and must be captured within the scope of the REF. The strategic concept designs are to be accompanied by swept path analyses prepared in accordance with Austroads Design Vehicles and Turning Path Templates. • Avoid use of intersections or existing access points with insufficient intersection treatments, • Propose alternative traffic mitigation measures (which will be assessed based on traffic volumes, speed environment and duration of use).	See Section 7.2.1 above.	6.15
	7.9 Review and assess other relevant sections of Austroads for each existing or proposed intersection or access point, in particular Safe Intersection Sight Distance, refer to Part 4 of	7.9.1 Note: Any road works or intersection upgrades required based on the outcome of the above assessment need to be reviewed, accepted by TfNSW, included within the scope of the REF and will require a Works Authorisation Deeds (per s64 of the Roads Act 1993). TfNSW will not prepare and	No intersection upgrades are required for the project.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
	Austroads Guide to Traffic Management.	determine REFs for third-party works on the state road network.		
	7.10 Transmission line crossing of the state road network and works within the road reserve requirements. TfNSW requires the following matters to be assessed and addressed as part of the REF for the Hunter Central Coast Transmission line:	7.10.1 New poles for the transmission line infrastructure are to be located outside clear zones, as per Table 4.1 of the 2010 Austroads Guide to Road Design, Part 6 (see separate attachment). The alignment designs are to be updated to identify compliance with this requirement.	There are some areas where this requirement cannot be achieved. In those instances, traffic barriers will be installed in accordance with Austroad requirements.	6.15
		7.10.2 Provide the forward construction program for the crossings across the state road network and any work within the road reserve. The forward schedule should provide: • Monthly, • Quarterly, • Weekly, • Timeframes for the setup, construction and removal of any temporary infrastructure within the road reserve,	This information will be provided with the S138 applications and ROLs.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
		• Include the time of day at which the works will occur, daylight or nighttime works.		
		7.10.3 Consider the timing and coordination with other projects on the state road network (refer to the TfNSW website for planned or under-construction projects) and other transmission line works (e.g., the Hunter Transmission Project).	Ausgrid is in regular discussion with the HTP and the Muswellbrook BESS project. Ausgrid will coordinate with other infrastructure projects using the state road network, and ensure the community is advised of any potential traffic and freight movement impacts in a timely and transparent way.	6.15
		7.10.4 Provide Traffic Guidance Schemes (TGS) prepared following AS1742.3 and Austroads Guide to Temporary Traffic Management, the plans must detail the specific methodology for construction and include the following details” • Number of intermittent closures per day, • The type of closures (i.e fast lane etc), • The queue lengths that will be generated, • The timeframes for stopping and clearing traffic (max 10 minutes for delays), • Signage to enforce the temporary traffic control, • After care, • Speed zone reductions, • Any potential impacts to larger freight or other road users along the network during closures,	This information will be submitted as required with S138 and ROL applications.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
		• Traffic data collected via traffic count surveys to inform the traffic modelling for queue lengths.		
		7.10.5 Provide structural details and strategic concept designs for scaffolding or temporary infrastructure that will be located within the road reserves for the duration of the construction of the transmission line crossings. Any temporary scaffolding or hurdle structures within the road reserve must comply with Austroads and TfNSW supplements, particularly in providing heights to accommodate OSOM vehicles, creating clear zones, and installing safety barriers to prevent any potential risk to road users.	This information will be submitted as required with S138 and ROL applications.	6.15
		7.10.6 Prepare a communications strategy that factors in the impacts on road users, the state road network, the freight industry, vulnerable road users, TfNSW, and road authorities. The communications strategy should include accountable and enforceable measures.	The project communications strategy will be updated to include road related issues and impacts.	6.15
		7.10.7 Location of infrastructure and impacts (excavation or fill) relative to the road reserve, including demarcation of local and state-classified road reserves.	This level of detail will only be available after detailed design is completed. It can be provided with S138 applications and/or ROLs.	6.15
		7.10.8 Identify and assess new and existing access points, tracks, and routes (including existing intersections) within the state road network that are required for the construction and maintenance of the infrastructure. Access points or access tracks as are necessary for the works will need the same	Further detail has been provided in Section 6.15 Traffic and access of this REF. More specific detail will be provided with S138 applications.	6.15

Respondent	Summary of submission		Ausgrid response	REF section
		level of assessment as the primary project access point.		
		7.10.9 Any trenchless excavation for the transmission line near or crossing the State Road network must comply with TfNSW Technical Direction-Geotechnical (GTD 2018 002) for Trenchless Excavation with the Road and Maritime Infrastructure.	No trenchless excavation is proposed to cross a state road.	6.15
		7.10.10 Strategic concept designs for each crossing of the state road network	This information will be submitted as required with S138 and ROL applications on completion of detailed design.	6.15
	7.11 Concept Level Route Analysis required for High Risk OSOM. The route assessment is required for high-risk OSOM (as defined on the TfNSW website), which will likely be the delivery of transformer components for this project. The concept-level route analysis must include:	7.11.1 Port or point of origin for the entire route to the site access and intersections required to Facilitate high-risk OSOM movements required for the project.	Here are no high risk OSOM trips required for the project.	NA
		7.11.2 The high-risk OSOM laden loads, class and vehicle configuration must include the following information regarding the dimensions, weight and length:	See above	NA

Respondent	Summary of submission	Ausgrid response	REF section
	• NHVR route ID, • Overall dimensions (width, height and length) of the laden load (laden load is the vehicle combination and the load to be transported), • Total weight of laden load, • GSM, • Payload, • deck height, • axle configuration, • axle spacing, including from the prime mover, and • axle masses (including split axle and group axle masses).		
	7.11.3. The location of pull-over bays/rest areas along high-risk OSOM routes (including GPS coordinates) and the demonstration through swept paths that high-risk OSOMs can be physically accommodated for the project (in terms of size, width, and accessibility).	See above	NA
	7.11.4 Bridge and culvert assessments for any at-risk bridges on classified roads due to the dimensions and weight of OSOM vehicles on the State road network. Bridge and culvert assessments of TfNSW assets can be requested by TfNSW Road Access team by lodging a request to spu@transport.nsw.gov.au. The routes, NHVR	See above	NA

Respondent	Summary of submission		Ausgrid response	REF section
		Route ID, and the information detailed in point (b) above are to be included in this request.		
		7.11.5 Highlighting each at-risk road structure that the haulage route crosses, including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.	See above	NA
		7.11.6 Identifying the traffic mitigation measures, road works, modifications, or upgrades to facilitate the movement of the high-risk OSOM(s) associated with the project.	See above	NA
		7.11.7 Potential high-level mitigation measures or commitments to mitigate known traffic, safety and impacts to road users along the high-risk OSOM route (i.e school bus routes, mining shift changes, TSRs, harvest periods and events).	See above	NA
		7.11.8 Identify and assess implications of any road and rail projects under construction during the indicative schedule for project-related OSOM movements.	See above	NA
		7.11.9 Swept paths are required for all pinch points along the State Road network identified in the route assessment.	See above	NA
		7.11.10 Strategic concept designs for all pinch points on the State Road network that require modifications or widening to accommodate the high-risk OSOM loads.	See above	NA

Respondent	Summary of submission		Ausgrid response	REF section
		7.11.11 Provide a consistency check with the Port to REZ EnergyCo scope of works if the Newcastle route is proposed to be used for the project.	See above	NA
8. Huntlee	8.1 The Ausgrid REF documentation has been assessed in detail and comments have been provided on the following pages, however Huntlee's key reasons for the objection to the project proposal and REF submission are summarised below;	8.1.1 The REF documentation lacks detail and has not adequately assessed the impacts of the proposal nor properly investigated alternative options to reduce the significant impacts to land zoned for residential development.	Ausgrid proposes to replace the existing powerline with a new powerline within the same easement. The powerline will not restrict the future development of the surrounding land. A diversion to completely avoid the Huntlee lands would require two additional crossings of the Great Northen Rail line and one new crossing of Black Creek. Ausgrid would need to negotiate/acquire up to 40,000m^2 of additional easements including clearing removal of up to 20,000m^2 of Endangered Ecological Community. The additional costs associated with this diversion are prohibitive to the project.	NA
		8.1.2 The REF appears to largely ignore the fact that the Huntlee land is zoned for residential development and will be home to many thousands of residents in the coming years.	Ausgrid proposes to rebuild an existing powerline in an existing easement.	2.1.2
		8.1.3 The social and economic impacts of the proposal are significant as they relate to the Huntlee R1/MU1 zoned land and the Ausgrid REF has not considered these impacts appropriately. a. The proposed overhead power line project places at risk the delivery of 600 residential home sites during a housing crisis and when housing affordability is a major issue for the Community and State/Federal Governments.	Ausgrid contacted Huntlee early in the project development to discuss relocation of the powerline route. Huntlee declined to meet.	2.1.2

Respondent	Summary of submission		Ausgrid response	REF section
		b. In addition to the direct risk to housing supply provision in the Hunter Region, the potential loss of investment to the NSW Economy from 600 homes would be over $300m.		
	8.2 The proposed powerlines through the Huntlee zoned land represents only 1km out of the 80km plus length of the HCC REZ powerline project. The significant potential impacts from the loss of housing sites and investment in the NSW economy warrant a serious assessment of alternative routes for the 1km route proposed through Huntlee land and it would be expected that this would be undertaken as part of the initial design and REF process.		See response to 8.1.1 above.	NA
	8.3 The HCC REZ Project has a clear delivery target and need to commence as soon as possible to complete these works. However, with a construction timeline noted of 3 years within the REF, this provides significant opportunity to spend	Our Project team looks forward to the opportunity to further discuss the impacts to the Huntlee project and options on how best to mitigate them.	Ausgrid acknowledges Huntlee's request for further consultation. Note: Any changes to the approved route may require further assessment.	NA

Respondent	Summary of submission		Ausgrid response	REF section
	additional time refining the design of the route in key areas of significant impact without delaying the overall completion date.			
	8.4 In addition to this submission on the REF process, Huntlee and its owners will be making various submissions to Local and State Government Departments to ensure the Social and Economic impacts of this project are known at the highest levels.		Noted.	NA
	8.5 REF Section 2.1.1 Summary of Proposed Works	Figure 2-1 shows the proposed new assets located within the existing easement widths but does not indicate how the new assets can be located within the existing 20m easement whilst existing infrastructure is present. The summary of proposed works should outline the general configuration of easements including existing pole infrastructure and the proposed offset to new overhead poles to confirm that the existing easement widths are sufficient.	The existing poles will be removed and replaced on the Huntlee Land. The easement has been confirmed to be wide enough for the new powerlines.	2.1.1
	8.6 REF Section 2.1.2 Easements	8.6.1 It is noted in this report section that Ausgrid may need to acquire additional easements over the proposed power lines in some cases, however it is not noted where or in how many instances this might be required. If this information is not currently	Ausgrid will need to acquire new easements where the existing easement is insufficiently wide or there is no easement at all. The entire proposed new easement has been assessed however the areas where new easements are required were not identified in the REF.	2.1.2 Easements and electricity legislation

Respondent	Summary of submission		Ausgrid response	REF section
		known, the REF will not have assessed the full potential Environmental Impacts of the proposal. Additional easement widths would create additional impacts on vegetation clearing and soil disturbance. The REF should clearly indicate if and where these are required to ensure these impacts are considered.	Landowners will be contacted by Ausgrid's property team where new easements are required.	
	8.7 REF Section 2.1.3 Clearing	8.7.1A clearing corridor of 20m is noted, however it is not confirmed if this is confined to within the existing easement. The REF provides general comment about additional clearing however information on where this additional clearing is required is not provided.	Minimal additional clearing will be required on the Huntlee property as the existing easement is generally cleared to required width.	2.1.3
	8.8 REF Section 2.1.4 Access Points	8.8.1 No detail on the location and extent of access points has been provided. The comments in this section are general in nature only and given the noted number of access points being over 100, the potential environmental impacts could be significant but given no locations presented, these impacts have not been assessed.	Access to the easement will be obtained vie existing access tracks. Minor upgrades to access points and repairs and maintenance to tracks are covered under the REF. If more than minor works are required including vegetation trimming or removal beyond existing maintained envelopes would require further assessment.	2.1.4
	8.9 REF Section 2.1.5 Access Tracks	8.9.1 No detail has been provided to confirm the extent of existing access tracks or whether these are located within the existing easements. Significant works are noted as being required to construct the access tracks, including vegetation clearing, however without locations being presented within the REF, these environmental impacts have not been addressed. It is noted that Huntlee/Misthold P/L or its agents have not been contacted in regard to the creation or	Access tracks are generally located within easements however in some instances access tracks are located outside easements due to various factors such as waterway crossings, topography, access to public roads etc. If any new access requirements are identified for construction Ausgrid will contact the landowner to obtain permission.	2.1.5

Respondent	Summary of submission		Ausgrid response	REF section
		requirement for any access tracks to the area of works that may be required outside of the current easement		
	8.10 REF Section 2.1.7 Worksites, Construction Benches and Pads	8.10.1 Worksites and construction pads of 20x20m, 25x25m or potentially larger have been noted as being required adjacent to new poles. Given these sizes are at least the same width or larger than the easement widths and appear to be offset from one side of the new poles, it appears that these areas will be outside of the existing easements.	The worksites and pads are indicative and will generally be contained to the existing easement.	2.1.7
		8.10.2 Additionally, brake and winch sites are noted as requiring up to 50x70m which will be well outside the existing easement.	As above.	2.1.7
		8.10.3 As outlined in Section 2.1.3 and the Ecological Assessment report, impacts of clearing have only been noted as due to the clearing within easements.	If and where these sites are required to extend outside the easement the work scope will be reviewed and if required further assessment will be undertaken. Ausgrid will contact the landowner to obtain required permission.	2.1.3
		8.10.4 No details are provided about how the existing power poles will be dismantled and whether these works will be able to be undertaken from within the easement or require additional space outside it.	Existing poles will be dismantled from within the existing easements	2.1
		8.10.5 These construction worksite areas have not been nominated on the plans and given not located	The exact location of these sites cannot be confirmed until detailed design is completed.	2.1

Respondent	Summary of submission		Ausgrid response	REF section
		within the easements, impacts of these works have not been assessed.		
	8.11 REF Section 2.1.10 Construction laydowns	8.11.1 These laydowns are noted as being 'typically' located within easements and potentially containing petrol generators and site fencing. No locations or diagrams of these are provided within the documentation and as such it is unclear if these can fit within the existing easements whilst maintaining access for construction.	No additional clearing is proposed outside of the new easement widths. If the need for additional clearing is identified during construction further assessment may be required.	2.1
		8.11.2 Additionally, the noted use of petrol generators for unstated uses suggests either site sheds or potentially hot work. It is unclear if additional clearing is required for bushfire risk mitigation given the uncertain nature of the works and unknown locations.	See above.	2.1
	8.12 REF Section 2.1.11 & 6.9.2 Waste	8.12.1 The existing powerlines are noted as needing to be dismantled, stockpiles and taken for disposal. The REF does not contain a Waste Management plan which should be considered a standard inclusion to outline what waste materials will be generated, approximate quantities and how they will be handled and disposed of.	Ausgrid's contractors will prepare Waste Management Plans as part of their CEMPs.	6.9.2
	8.13 REF Section 2.1.13 Construction Methodology	8.13.1 This section notes the requirement for the Contractors prepare a CEMP. A CEMP Framework should be provided as part of the REF to ensure the ultimate contractors undertaking the work sufficiently address all measures required under the REF. Table 2-2 notes that existing pole locations	Noted. Ausgrid's CEMP review checklist will be made available on request.	2.1.13

Respondent	Summary of submission	Ausgrid response	REF section
	are to be backfilled to natural levels, the methodology and fill used to complete this work is not noted in the documentation, level of compaction and material used for example.		
	8.13.2 Table 2-2 refers to the potential need for anchors and ground stays. These do not appear to be noted elsewhere in the documents, and it is unclear if these will be contained within the easements. The impacts of these anchors/stays do not appear to be assessed.	The exact location of anchors and ground stays will not be known until detailed design is completed. Wherever possible they will be located within the existing cleared easement. The detailed design will be reviewed to confirm if the works are consistent with the approved REF. Where this is not the case further assessment may be required.	2.1
	8.13.3 Table 2-2 notes clean spoil to be spread on site but provides no quantum or detail around how this would be undertaken or how the area would be revegetated. Given this is potentially within private land holdings it is suggested that removal of all waste spoil is required to avoid impacting site levels and creating a future issue for landowners.	Spreading of soil will only be allowed where agreement with landowner has been made and levels would not be affected materially.	2.1
	8.13.4 Table 2-2 notes some access tracks and pads will be left in a stable condition, however no specification is provided in regard to what this consists of or how they would be stabilised. Additionally, there is no mention about how disturbed areas created for construction but not required long term would be restored, this should require removal of material/regrading and topsoiling/ revegetating with suitable hydroseed or similar.	Generally, pads would be left in situ to facilitate future maintenance works unless removal has been specifically requested and agreed.	2.1
	8.13.5 There is no discussion in the REF as to how construction works will be confined to an assessed impact area. Construction machinery and vehicle movements should be controlled during construction	Clearing will be undertaken initially at each work location. The area for clearing is required to be clearly marked to prevent inadvertent clearing. Once the new easement is established the work zone will be the width	2.1

Respondent	Summary of submission		Ausgrid response	REF section
		with fencing and/or flagging to prevent assessed impact areas expanding during the actual works.	of the easement. Where here is a specific risk identified the works area will be marked with bunting or fencing.	
	8.14 REF Section 2.3.1 & 6.4 Timing and Working Hours / Noise & Vibration	8.14.1 The REF notes that construction will take three years and generally standard construction hours will be adhered to, however there are instances noted where works can occur outside of these hours. The reasons noted for being able to work outside the standard hours are general and appear quite flexible and open to interpretation by Ausgrid personnel.		Appendix F
		8.14.2 Given this it would be expected that a Noise and Vibration Management Plan would have been prepared as part of the REF which is standard practice for large scale projects.	A Noise and Vibration Management Plan has been prepared for the Powerline works and is included in Appendix F.	Appendix F
		8.14.3 No actual assessment of noise and vibration in relation to the overhead power line construction works has been included within the Noise and Vibration Assessment report in Appendix F. This is unsatisfactory given the 3-year construction period and potential for construction in rock and use of helicopters in stringing power lines between poles. No assessment of noise and vibration impacts to nearby sensitive receivers has been provided for the overhead powerline works.	Due to the linear and progressive nature of the proposed powerline reconstruction works impacts to individual residents will be temporary and short term. A Noise Management Plan has been prepared for the powerline works outlining measures to minimise impacts to nearby residents.	Appendix F
	8.15 REF Section 2.3.2	8.15.1 Further to above comments on noise and vibration, Section 2.3.2 indicates where works are located away from sensitive receivers works would	No works such as rock breaking within 500m. Less noisy works can be undertaken where CEMP	2.3.2

Respondent	Summary of submission		Ausgrid response	REF section
	Extended Working Hours for Remote Powerline works	be undertaken outside of normal construction hours including 7-6pm on weekends and public holidays. No details regarding the definition of 'located away from sensitive receivers' has been provided and as such this explanation to allow works outside normal work hours is insufficient to allow any assessment of the potential impacts or to inform the Contractor when this is acceptable / allow for compliance checks during construction. An assessment in the Noise and Vibration Assessment Report should be included to confirm this proposed distance to sensitive receivers which is considered far enough away to allow extended construction hours.	demonstrates how management measures will prevent impacts to residents.	
	8.16 REF Section 3.7 / 3.8 Landowner Consultation Summary of Community & Stakeholder Issues Raised	8.16.1 It is noted in Table 3-4 that "some concerns from developers around potential impact to their development yield". This would be a result of Huntlee's discussion with the Ausgrid team during the consultation process. Despite the concerns being noted, the REF and design process has not followed up or considered the impacts to future residential development at Huntlee which are expected to be significant and puts at the risk the delivery of 600 home sites and $300m of investment into the NSW Economy. These significant impacts should have been further investigated and alternative route options considered within the REF to mitigate or avoid these impacts. It is clear that this issue was not further considered by the Ausgrid team given the noted concerns in Table 3-4 did not make it into the summary of	Ausgrid does not agree with the contention that 600 home sites and $300m of investment into the NSW economy is being put at risk by the project. The proposal is contained within an existing powerline easement and does not restrict residential development of the adjacent land.	3.7

Respondent	Summary of submission		Ausgrid response	REF section
		community & stakeholder issues in Table 3-5, nor are the noted impacts considered anywhere else in the REF.		
	8.17.1 REF Section 4.0 Investigation of Alternatives	8.17.1 Section 4.4.1 of the REF notes that construction of powerlines in new easements was not preferred as it would require new easements and create additional costs/clearing impacts. It is clear that in most areas of the route this would be the case, however in areas of high impact, further consideration should have been given to alternative routes, such as the Huntlee residential land. Given the impacts of the proposal do not appear to have been sufficiently assessed, there appears to have been limited impetus to investigate alternative options. During the early consultation process, Huntlee P/L noted that the impacts to the residential zoned land at Huntlee would be significant and suggested alternative locations for the overhead power lines to avoid these major impacts. Following these discussions, Ausgrid staff noted that insufficient time was available to investigate these other options as works needed to proceed. The use of the existing easement through land zoned R1 and planned for 600 homes has not been specifically mentioned within the REF, nor have the impacts of this been adequately addressed. Additional investigation into alternatives needs to be included in the assessment by Ausgrid.	Based on the environmental assessment completed the impact to future homes on this site would be negligible in comparison to the existing infrastructure on the site. Additional information has been provided in the final REF.	4.4.1

Respondent	Summary of submission		Ausgrid response	REF section
	8.18 REF Section 6.1 Land use	8.18.1 The land use description and impacts to discussed in this section do not mention the Huntlee/Misthold land which is zoned for residential development and is also currently the subject of a State Significant Development Application (SSDA). Huntlee's SSDA submission include a proposal for approximately 4000 residential lots overall and approximately 600 in the immediate area of the Ausgrid proposed works.	Ausgrid is not planning to change the existing landuse of any land at Huntlee. The proposal is to rebuild a powerline in an existing easement.	6.1
	8.19 REF Section 6.1.2 Land use Impact Assessment	8.19.1 The impact assessment indicates that the proposal would not restrict access to residential land and in fact benefit surrounding land uses. There has been insufficient consideration given to impacts on existing zoned land and the proposed 600 residential lots within Huntlee's SSDA application. The increased scale of the proposed powerlines through the area of the proposed 600 residential homes will likely be too expensive to be relocated in the future, putting the delivery of these homes at risk. The State and Federal Governments have set ambitious housing delivery targets to assist in solving the housing crisis that exists. The REF needs to include consideration of the potential loss of housing and economic stimulus from the proposed Ausgrid overhead powerline works.	Ausgrid attempted to negotiate with Huntlee regarding relocation of the powerline. This offer was declined.	6.1.2
	8.20 REF Section 6.1.3	8.20.1 The mitigation measures outlined in Table 6-1 should include assessment of alternative route options during the design process to mitigate the	The proposed route is located within an existing powerline easement. There is no requirement to widen the easement or to change the land use.	6.1.3

Respondent	Summary of submission		Ausgrid response	REF section
	Environmental Mitigation Measures	potential loss of housing and economic stimulus which may result from the proposed works.		
	8.21 REF Section 6.3 Electric and Magnetic Fields	8.21.1 The magnetic field calculation for section B-B which is adjacent to the proposed Huntlee residential development indicates that magnetic field (mg) will exhibit a sixfold increase compared to what currently exists at the edge of the easement during average load.	The ICNIRP guideline is 2000mG. The magnetic field referred to is 5mG which is 400 times less than the guideline value.	6.3
		8.21.2 As outlined in the report, prudent avoidance suggests alternative options should have at least been investigated in more detail to reduce the impact of EMF on 600 residential homes in close proximity to the works. This section of powerline represents only 1km out of the total of 85km of power line, as such additional investigations could have been undertaken to explore additional options for the location of the new 132kV overhead line over this short area to limit impacts to a large future residential population. It is also evident that the modelling was prepared based on the powerlines being centrally located within the easement, however no documentation within the REF can confirm whether this is the case. It is assumed that the new powerlines will need to be constructed off centre within the easements due to the existing 66kV line, as such the EMF fields may actually be higher on one side of the easement.	Ausgrid would only apply the prudent avoidance principle to existing residences. The 66kV line will be located on the same poles not separate poles.	

Respondent	Summary of submission		Ausgrid response	REF section
		8.21.3 The Aurecon report included as Appendix E indicates in Section 4.3 that human interaction with the proposed powerline will be intermittent and transitory. Additionally in Section 5.3 it is stated that only 20 dwellings will reside within 100m of powerline section B-B, which passes through the Huntlee/Misthold zoned land. These statements suggest that the impacts to the Huntlee residential development through which the easement passed have not been considered. The actual number of dwellings within 100m of the easement will be several hundred.	The report has considered existing residences. Nb any future residential development outside the easement will be well below the ICNIRP guidelines.	6.3
		8.21.4 Table 6-7 Mitigation measures should include investigation of alternative route options during the design phase to avoid or mitigate impacts to the future residential population planned for lots 11 and 12, DP1137569 near Branxton.	The proposal is to rebuild an existing powerline within an existing easement.	6.3
	8.22 REF Section 6.10 Flora and Fauna	8.22.1 The Persoonia pauciflora is listed as critically endangered under both the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and the NSW Threatened Species Conservation Act 1995 and exists south of the main northern railway near Branxton. The REF and associated Ecological report provided in Appendix I make no mention of this flora or whether any investigations were undertaken to determine if it was present along any of the proposed route in the vicinity of Branxton.	Persoonia pauciflora (North Rothbury Persoonia) was mentioned in the Ecology Assessment. Suitable habitat was present within the vicinity of Rothbury. No individuals were identified during the site survey.	6.10
		8.22.2 Further to previous comments in relation to clearing, the exact extents of clearing are unknown given the location and size of pads/laydown areas	The impact area is generally the extent of the easement.	6.10

Respondent	Summary of submission		Ausgrid response	REF section
		etc have not been documented, as such it is not known how the actual impact on the flora and fauna along the overhead powerline route has been assessed. Table 6-24 notes in the mitigation measures that impacts to native vegetation outside the impact area are to be avoided. However, there is no 'impact area' defined within the project documentation.		
		8.22.3 Table 6-24 includes obtaining consent from NSW Biodiversity Trust for any new works within BCT mapped areas. This process should have already been undertaken along with a review of alternative routes prior to finalising the REF. If consent is not obtained, alternative designs will be required which will require an updated REF to consider impacts of the new alignment. Table 6-24 should have included consideration of alternative routes for the power lines through sensitive areas such as those within BCT mapped areas during the design/REF process.	Preliminary discussions have been undertaken with BCT however, approvals cannot be obtained until detailed design is complete. Note the powerline easement at Huntlee is not mapped as BCT.	6.10
	8.23 REF Section 6.11 Bush fire	8.23.1 Table 6-26 notes that APZ clearing is to be undertaken along the overhead pipeline route in accordance with the ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets. 8.23.2 This Guideline suggests that the extent of clearing various depending on conductor type and span, this should be clearly documented within the REF to ensure that any clearing required for	For the purposes of the Ecology assessment, it has been conservatively estimated that the entire easement will be cleared to the sky. Actual clearing will likely be less in most cases.	6.11

Respondent	Summary of submission		Ausgrid response	REF section
		bushfire purposes is limited to the defined 'impact area' and has been properly assessed.		
	8.24 REF Section 6.12 Heritage	The Archaeological reports attached to the REF indicate that they were prepared for the purposes of an options / constraints assessment and that additional assessment would be required. REF section 6.12.2 indicates that final recommendations for management of the Aboriginal archaeological sites will rely on the final design and the impact assessment therefore appears to largely indicate that the environmental impacts will be assessed and addressed during the design and construction phases, rather than within the REF. It is therefore unclear how the REF adequately assesses the impacts to Aboriginal Heritage when the final expected impacts are not identified. It is also unclear how the Aboriginal Community will be involved in the further design phases where it appears decisions around impacts will be made. Table 6-27 notes that an ACHMP will be prepared in consultation with Aboriginal parties to manage the operation of the HCC REZ network, however this should also be provided as part of the construction works to assist in informing the Contractor of their requirements during construction.	Aboriginal constraints have been identified and investigated in accordance with industry practice. The constraints will feed into the design and where possible be avoided. An AHIP will be obtained to cover any unavoidable impacts. A program of salvage under the AHIP will be implemented in conjunction with the construction works.	6.12
	REF Section 6.13 Visual and Aesthetics	The Visual Impact Assessment included as Appendix L includes an assessment at the north western corner of Huntlee, noted as Viewpoint 5. Whilst the report notes that the Huntlee land is approved for residential development immediately	The proposal involves replacement of an existing powerline with a new powerline in the same easement.	6.13

Respondent	Summary of submission		Ausgrid response	REF section
		south of the electricity easement, the sensitivity, magnitude and significance of visual impacts are all noted as low. The low impact assessment is made despite the fact that the land through which the easement runs is zoned as R1 residential land, and the proposed works consist of increasing the height of the existing infrastructure to 30m. The Visual Impact Assessment should consider impacts to the future residential development within Huntlee immediately adjacent to the proposed overhead easement. This would likely result in a high sensitivity receptor and moderate-high magnitude, resulting in a moderate to high significance of effects from the development, rather than low as documented. Table 6-30 outlining the mitigation measures should include a consideration of an alternative route further to the north to avoid / minimise the visual impacts to the R1 zoned land at Huntlee.		
	REF Section 6.16 Social and Economic	The impact assessment does not consider the impacts to the future Huntlee development located on R1 zoned residential land on lot 11 and 12 DP1137569. The proposed substantial increase in infrastructure within the easement will likely preclude the ability of Huntlee to fund the relocation of these electrical assets further north to allow residential development to progress on the R1 zoned land, potentially putting at risk the creation of 600 desperately needed homes within the local community at a time when a housing crisis and	Ausgrid made attempts to meet with Huntlee to discuss potential relocation of the assets during the preliminary design phase however the offer was declined.	6.16

Respondent	Summary of submission		Ausgrid response	REF section
		housing affordability are key issues for the Government and community alike. The REF and design options prepared by Ausgrid have not considered the potential social and economic impacts of the 600m section of overhead power line through the Huntlee development land in light of the potential 600 homes that could otherwise be provided in this area. The construction of 600 homes would represent an economic investment of approximately $300m into the Hunter and NSW Economies. The visual impacts to other R1 residential land that may proceed further south will also be impacted from the proposed works as outlined further above and will not be deemed as low significance by future residents. Mitigation measures outlined in Table 6-32 investigated by the proponent should have included investigation of alternative routes for the 1km section of overhead power line through the Huntlee land.		
	REF Section 7.1 Section 171 Factors	The Consideration of Factors as required under Section 171 is not currently considered adequate within the REF and requires additional investigation and review of impacts and alternatives. Of particular note are the following. - Limited assessment of impacts to the future ability of the Huntlee R1 residential land to be developed for housing, potentially preventing the creation of 600 home sites (S171 Factors not considered (i) Reduction in the range of beneficial uses of the	Refer to responses above.	7.1

Respondent	Summary of submission		Ausgrid response	REF section
		environment (ii) impact on a community (iii) Increased demands on resources) - Limited assessment of impacts to future community residing on Huntlee R1 residential land (S171 Factors not considered (i) Impact on a community (ii) reduction in the aesthetics of a locality) -No assessment of impacts to the Persoonia Pauciflora (S171 Factors not considered (i) Impact on ecosystem (ii) Impact on habitat		
	REF Section 7.2 Matters of National Significance	The Persoonia Pauciflora was not mentioned in the REF or associated Ecological report. This plant is listed as critically endangered under both the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and the NSW Threatened Species Conservation Act 1995.	Refer to responses above.	7.2
	REF Section 7.3.2 Ecologically Sustainable Development Inter-generational equity	The REF has not considered the potential impacts of 600 residential home sites not being provided on land zoned for such purposes which would significantly assist the local community during a housing crisis and at a time when housing affordability is already a major issue. In addition to potential impacts on housing availability and affordability, the economic impacts to the Hunter Region and NSW from the potential loss of $300m in housing investment far outweighs the benefits of the particular 1km of overhead powerlines through the Huntlee R1 zoned land.	The proposed powerline does not preclude any residential home development at Huntlee as the proposed powerline is on the same footprint as the existing.	7.3.2

Respondent	Summary of submission		Ausgrid response	REF section
	REF Section 8 Summary of Impacts	Based on the review of the REF and comments provided above, several key issues in Table 8-1, Summary of Impacts should have their likely significant impact rating increased. These specific issues are noted below. Likely Significant Impact Land use Yes Visual/Aesthetics Yes Social/Economic Yes	Ausgrid does not agree with the suggestion that impact ratings need to be revised.	8
	REF Section 9 Environmental Management	A more detailed CEMP framework should be prepared for inclusion within the REF and include several Ausgrid provided documents as listed below which should be adhered to be the Contractor; - Construction Noise & Vibration Management Plan - Aboriginal Cultural Heritage Management Plan - Flora and Fauna Management Plan	The CEMP framework is outlined in Section 9.1 of the REF. There is a CNVMP included in the Day Design Noise Impact Assessment Report. Flora and Fauna requirements are outlined in Section 6.10 and Appendix G of the REF.	6.1, 9, Appendix D and G

10. Environmental assessment

Since the consultation and public exhibition of the REF, Minor updates have been made to the Traffic Assessment, EMF assessment, Bushfire Assessments and Ecological Assessment. The REF has also been updated to address comments raised during consultation.

11. Conclusion and next steps

Ausgrid, as the determining authority, has considered the submissions received and made a decision on how each submission may need to be addressed.

Once each submission has been addressed and the decision shared, Ausgrid will finalise the REF (noting any changes made as a result of addressing submissions). This final REF will be available on the Ausgrid website and a reference copy at future drop-in sessions.

Ausgrid will continue to consult with the community and stakeholders prior to and during the construction phase.

12. Ongoing engagement

Ausgrid is strongly committed to ongoing consultation with the community, landowners, government agencies and key stakeholders throughout the development of the Project, up to and during construction, and through operation and maintenance. The aims of ongoing consultation are to provide:

- opportunity for feedback
- awareness of activities and processes being undertaken for construction of the Project
- updates on the construction program as they become available
- information and responses to any issues and concerns raised through ongoing consultation.

Any feedback provided by the community will be managed with respect, and responded to effectively and in a timely manner, with each stakeholder interaction being treated as an opportunity for a positive experience.

Ausgrid will continue to work closely with our directly affected landowners, communities, industry, regional stakeholders, government partners and generators to coordinate the delivery of the REZ. We understand managing cumulative impacts from renewable energy projects is a key priority for REZ communities and are committed to working collaboratively with the community to fully realise the benefits of the Project.

13. Submissions received

HUNTER JOBS ALLIANCE
SECURING OUR FUTURE

Ausgrid HCC REZ

Submission from the Hunter Jobs Alliance (HJA)

Date - 19th May 2025

Submitted via email- hccrez@ausgrid.com.au

Thank you for the opportunity to make a submission. The Hunter Jobs Alliance is a collaboration of unions and environment organisations in the Hunter region, working together to create a future for our region with full employment, good union jobs, a thriving and healthy living environment, an equitable society, a stable climate, and renewable prosperity. The members and supporters of our organisations are workers, conservationists, local businesses people with deep ties to the Hunter region and a shared commitment to its fair and sustainable future.

For inquiries contact: Justin Page, Coordinator - Hunter Jobs Alliance
justin.page@hunterjobsalliance.org.au

Hunter Jobs Alliance affiliate member organisations:

- Australian Manufacturing Workers' Union NSW & ACT Branch (AMWU)
- Electrical Trades Union NSW & ACT Branch (ETU)
- United Workers Union (UWU)
- Australian Municipal, Administrative, Clerical and Services Union NSW & ACT Services Branch (ASU)
- Community and Public Sector Union (CPSU)
- National Tertiary Education Union (NTEU)
- New South Wales Teachers Federation (NSWTF)
- Independent Education Union of Australia NSW/ACT Branch (IEU)
- New South Wales Nurses and Midwives' Association (NSWNMA)
- Labor Environment Action Network (LEAN)
- Lock the Gate Alliance (LTG)
- Hunter Community Environment Centre (HCEC)
- Nature Conservation Council of New South Wales (NCC)

The Hunter Jobs Alliance Supporting Statement

The Hunter Jobs Alliance (HJA) supports the Ausgrid HCC REZ project because it represents a smart, low-impact solution to delivering the clean energy NSW needs. By upgrading existing distribution poles, wires, and utilising existing corridors, the project minimises disruption to surrounding communities, landholders, and the environment. It will provide critical energy to power NSW households and businesses, while fast-tracking the connection of new renewable energy projects essential for meeting the state's 2030 renewable energy and Net Zero targets. Importantly, the project is expected to generate significant economic benefits for local communities by mandating local employment targets and creating real opportunities for local businesses, helping ensure the clean energy transition delivers for regional NSW.

HJA Feedback, Comments & Recommendations

HJA makes the following comments and recommendation on specific sections of the Review of Environmental Factors Hunter-Central Coast REZ Network Infrastructure April 2025 document.

3. Stakeholder and community consultation

Poor stakeholder and community consultation has been a common shortcoming in renewable energy projects to date. As one of the first projects in the Hunter Central Coast REZ, this initiative presents an opportunity, and a responsibility to set a higher standard. Genuine community engagement is critical to earning social license, particularly in the face of public concerns and the growing spread of misinformation.

Ausgrid must make a concerted effort to ensure this project is transparent, inclusive, and delivers meaningful, long-term benefits to local communities. HJA supports the principles outlined in this section, including broad public engagement and targeted stakeholder briefings.

3.6 Aboriginal community consultation

We support strong engagement with First Nations communities. Ausgrid must demonstrate a clear commitment to respectful and ongoing collaboration through continued engagement with Local Aboriginal Land Councils and community groups, and ensure that First Nations voices and cultural values are meaningfully embedded throughout the project.

3.7 Landholder consultation

Continued media reports of compulsory land acquisition and alleged bullying by EnergyCo in the Hunter Transmission Project highlight the critical need for genuine, respectful consultation with

landholders. Ausgrid must actively build trust through transparent and fair engagement to ensure this project is positively received and landholders are treated with respect and not adversely impacted.

6.16.2.1 Employment

HJA supports the development and implementation of an industry and Aboriginal participation plan including:

• investigating opportunities for the delivery of training and upskilling programs for local labour force

• strategies for maximising local training and employment opportunities for residents, especially for First Nations people

• initiatives to promote local employment, such as early engagement with local employment agencies and councils, communication of employment opportunity via relevant local mediums of information, contract workers through existing local businesses, etc.

Recommendations for a Workforce Impact Mitigation Strategy

HJA recommends that Ausgrid implement a comprehensive Workforce Impact Mitigation Strategy to address potential negative effects on the local and regional labour market and safeguard the health and resilience of the regional economy. This strategy should focus on managing risks related to labour shortages and increased costs for local employers resulting from the project's workforce demands. The following actions are recommended:

- **Local Workforce Planning and Coordination:**
  Collaborate with local councils, regional development authorities, TAFEs, and employment service providers to align workforce planning with regional capacity and economic priorities.

- **Investment in Training and Upskilling:**
  Establish or support targeted training, certification, and apprenticeship programs to upskill local unskilled workers, expanding the available labour pool without drawing workers away from existing local businesses.

- **Local Hiring Targets with Industry Safeguards:**
  Set ambitious local employment targets, ensuring recruitment practices do not undermine the viability of existing local employers particularly SMEs and essential services.

- **Labour Market Monitoring Framework:**
  Implement ongoing monitoring of workforce availability, wage trends, and employer feedback to proactively identify and address labour market pressures.

- **Support for Local SMEs and Employers:**
  Provide assistance to small and medium enterprises (SMEs) affected by labour shortages through initiatives such as shared labour pools, wage subsidies, or transitional support programs.

- **Transparent Communication and Engagement:**
  Maintain open, consistent communication with local employers, chambers of commerce, and communities regarding workforce planning, scheduling, and opportunities to build trust and ensure alignment throughout the project lifecycle.

6.16.2.2 Local businesses

Ausgrid, along with its contractors and subcontractors, can implement additional strategies to actively maximise local procurement opportunities and ensure regional businesses benefit from both direct project investment and associated economic activity.

Recommendations to Strengthen Local Business Participation

1. **Set Clear Local Procurement Targets:**
   Establish specific targets or minimum benchmarks for the engagement of local businesses in procurement processes, particularly for subcontracting and supply of materials and services.

2. **Create a Local Business Directory or Registry:**
   Develop a publicly available directory of local and regional businesses to ensure contractors are aware of and can easily engage with suppliers in Singleton, Muswellbrook, and surrounding areas.

3. **Simplify Procurement Processes for SMEs:**
   Tailor procurement procedures to make them more accessible for small and medium enterprises (SMEs), such as by reducing administrative burdens, offering smaller contract packages, or simplifying tender documentation.

4. **Pre-Tender Briefings and Industry Forums:**
   Hold information sessions and pre-tender briefings specifically targeted at local businesses to ensure they are informed about upcoming opportunities and understand the application process.

5. **Mandate Local Supply Chain Reporting:**
   Require major contractors to report on their use of local businesses and suppliers, creating accountability and transparency throughout the project.

6. **Leverage the NSW Aboriginal Procurement Policy:**
   Go beyond the minimum 1.5% contribution requirement by actively identifying and promoting procurement and training opportunities for First Nations businesses and workers in the region.

7. **Establish a Local Business Liaison Officer or Unit:**
   Appoint a dedicated liaison to coordinate between project contractors and local businesses, ensuring clear communication and responsiveness to local capacity and opportunities.

8. **Monitor and Evaluate Local Economic Impact:**
   Conduct regular assessments of the economic impact on local businesses, including changes in revenue, employment, and procurement participation, to inform continuous improvement.

6.16.2.3 Social infrastructure

Experience from previous renewable energy projects has shown that some towns feel they have not benefited due to the short-term nature of construction, particularly where temporary workforce demands have placed pressure on local accommodation without delivering lasting local value. To ensure communities are not only protected from these impacts but also share in the benefits, clear and proactive mitigation strategies must be implemented.

Recommendations to Manage Short-Term Workforce Accommodation Impacts

1. **Engage with Local Tourism and Hospitality Stakeholders:**
   Consult with local tourism operators, accommodation providers, and councils early and throughout the project to develop coordinated solutions and identify potential accommodation conflicts.

2. **Prioritise Use of Underutilised or Non-Tourist Accommodation:**
   Direct construction workers to use accommodation options that are not in high demand by tourists (e.g. motels in low-tourism zones, or longer-term rental units), particularly during peak visitor seasons.

3. **Seasonal Workforce Accommodation Planning:**
   Coordinate workforce accommodation needs with local councils and tourism bodies to avoid peak tourism periods (e.g. school holidays or local festivals), ensuring minimal

disruption to the tourism economy.

4. **Temporary Accommodation Facilities:**
   Explore the feasibility of setting up temporary worker accommodation (e.g. modular housing or temporary cabins) where appropriate, especially for larger workforce cohorts, to ease pressure on existing tourist-focused accommodation.

5. **Accommodation Impact Monitoring:**
   Monitor occupancy rates and availability of local short-term accommodation regularly throughout the project to identify any emerging shortages and adapt accordingly.

6. **Engage with Local Tourism and Hospitality Stakeholders:**
   Consult with local tourism operators, accommodation providers, and councils early and throughout the project to develop coordinated solutions and identify potential accommodation conflicts.

7. **Promote Off-Peak Tourism Support:**
   Encourage workers to book accommodation during off-peak periods and provide incentives for weekday or shoulder-season bookings, helping to balance usage and economic benefit.

8. **Transparent Communication with Communities:**
   Clearly communicate workforce accommodation plans to local residents and tourism operators to manage expectations and ensure transparency.

HCC REZ - Review of Environmental Factors

Submission received 16/05/2025 to hccrez@ausgrid.com.au

Hunter-Central Coast Renewable Energy Zone Submission

T [redacted]

To HCC REZ

Reply | Reply All | Forward | ...

Fri 16/05/2025 5:08 PM

Follow up. Completed on Monday, 2 June 2025.
You replied to this message on 19/05/2025 12:14 PM.

Caution: The sender name (T) is different from their email address [redacted] which may indicate an impersonation attempt. Verify the email's authenticity with the sender using your organization's trusted contact list before replying or taking further action.

Hi,

My name is [redacted] Muscle Creek NSW 2333.

I support the proposed project. Provided it is kept clear of the Woodland Ridge Estate.

I support it for the following reasons.

1. I want Muswellbrook to be an energy hub for the future once coal mining leases expire.
2. The infrastructure project will create jobs and the renewable projects will create jobs.
3. Hopefully it means more stable power supply for the area and surrounding areas.

I do not give consent for my personal information, name & contact details to be shared or placed online.

Thank you.

Our Ref: 0263/RK-00-000/2025

Loxford Project Management Pty Ltd - ACN 639 490 092

6 June 2025

Ausgrid HCC REZ
GPO Box 4009
Sydney NSW 2000

hccrez@ausgrid.com.au

Dear Sir or Madam,

Re: Submission to the Review of Environmental Factors (REF) for the Hunter-Central Coast Renewable Energy Zone (HCCREZ)

Loxford Project Management Pty Ltd (**LPM**) is the Developer of 'The Loxford' a project impacted by the proposed Hunter-Central Coast Renewable Energy Zone (HCCREZ). In its capacity as a potentially impacted party LPM is providing a submission regarding the Review of Enivonrmental Factors (REF) for the HCCREZ The REF was placed on exhibition to 9 June 2025.

The REF proposes the extension of existing easements that would impact on the proposed Biodiversity Stewardship Site (BSS) under the Biodiversity Conservation Act 2016 for the following land that is under the current or future control of LPM in its role as the developer of the land on behalf of the landowners:

- Lot 2, DP 1306737,
- Lot 444, DP 755231,
- Lot 14, DP 1082569, and
- Lot 809, DP 728982.

Since the REF was placed on public exhibition, LPM has received advice from Bree McGregor, Legal & Conveyancing Specialist, Ausgrid, on 29 May and 3 June 2025 that the extension of existing easements is no longer required to occur in a manner that would impact on the proposed BSS.

In reliance upon the advice received from Ausgrid, LPM advises it has no objection to the REF for the HCCREZ, on the basis the proposed impact is consistent with the approach detailed by Bree McGregor, Legal & Conveyancing Specialist on 29 May and 3 June 2025.

Please contact me on 04 28 067 328 or via email at jeffrey.bretag@mcccloygroup.com.au should you have any questions regarding this matter.

Yours sincerely,

JEFFREY BRETAG
Planning Director

EPSILON CABLE SUBMISSION

Review of Environmental Factors

Hunter-Central Coast REZ Network Infrastructure April 2025

EPSILON HVCRC® TECHNOLOGY – HUNTER-CENTRAL CO0AST REZ NETWORK

Introduction

We refer to the Ausgrid document titled Review of Environmental Factors Hunter-Central Coast REZ Network Infrastructure issued 29 April 2025. We are pleased to provide our submission with regards to the infrastructure requirements delivering the stated additional 1GW of network transfer capacity. This submission is based on the supply of Epsilon Cable Advanced Conductors. Xatech International Pty Ltd are the appointed representatives for Epsilon Cable for Australia and New Zealand.

Whilst we acknowledge the purpose of the issued documentation is a review of the environmental factors associated with the upgrade/replacement of the existing infrastructure, we advise that the selection of the overhead conductor technology will have a significant bearing on the impact of the upgraded transmission line on the environment.

We note that the scope of work associated with the infrastructure upgrade includes the rebuilding of the existing Ausgrid powerlines with increased capacity between Kurri STS and the proposed new Antiene STSS and between the proposed new Sandy Creek STSS and Transgrid Muswellbrook BSP. The new powerline infrastructure includes the installation of two new high capacity 132kV circuits between Kurri STS and Antiene STSS, approximately 81 klm in length and an additional line between Sandy Creek STS and the existing Transgrid's Muswellbrook BSP approximately 4 klm. The scope also includes the rebuilding of the existing 66kV circuit between Banxton to Gouldsville (27klm)

Our submission is restricted to the selection of the type of conductor for installation and the effect this selection will have on the size and quantity of transmission line poles and the potential for future capacity increases.

As part of this submission, we provide:

- A brief introduction to Epsilon Cable and their HVCRC® Conductor Technology
- Options based on alternative HVCRC® Conductors
- Available support for Conductor Selection and Installation
- Summary of environmental impacts

Epsilon Cable

Epsilon Cable are a leader in the development of advanced technology composite core high voltage conductors. The company is a division of Epsilon Composite based in Gaillan Medoc France. Epsilon Composite was established in 1987 and is a pioneer in carbon fibre pultrusion with more than 80% of production exported worldwide. The company continues to undertake extensive research and development financed by 10% of turnover with more than 100 patents secured. Epsilon Composite and Epsilon Cable are proud of their quality, environmental and sustainable policies/ actions with certifications including ISO 9001, ISO 14001, ISO 14025, ISO 14044, ISO 14064 and ISO 26000.

Epsilon Cable proven **HVCRC®** technology has been at the forefront of transmission grid modernisation for the past two decades with **HVCRC®** conductors selected for both reconductoring and new transmission projects worldwide.

The technology provided by **Epsilon Cable** is a significant contributor to meeting both targets of decarbonisation and NetZero with latest technology **HVCRC®**, **HVCRC® ULS** and **HVCRC® Lite Advanced**

Conductors. These conductors significantly improve the efficiency and resilience of high voltage transmission lines, the backbone of the electrical distribution system, moving power from renewable energy generators to the electricity consumer.

The application of **Epsilon HVCRC® Technology** provides the lowest cost solution for eliminating grid congestion/ generation curtailment through reconductoring of existing transmission lines whilst **HVCRC® Lite** is the lowest cost option for the construction of new transmission infrastructure as well as providing reductions in operating costs.

HVCRC® Advanced Conductors provide both Investment and Operational benefits for Transmission Utilities/Operators and Renewable Energy Developers. The immediate benefits of the **HVCRC®** Technology Advanced Conductors can be summarised as:

- **Increased Capacity** – **HVCRC®** up to 100% increase of amperage and **HVCRC® Lite** up to 15% increased amperage when compared to traditional ACSR Conductors
- **Improved Flexibility and Resilience** – increased capacity to accommodate surges in renewable energy generation and improved resistance to adverse weather conditions.
- **Improved lifetime** – no thermal expansion or corrosion of composite core.
- **Reduced Investment Costs** – ability to achieve significant investment savings through
    - reduction in quantity/ size of transmission towers,
    - reduced ROW requirements utilizing inherent composite core strength,
    - reductions in required transmission line kV ratings for same capacity,
    - mitigation of impact of transmission line on the environment, communities and co-land use.
- **Increased Operating Efficiency** – reduced line losses when compared to ACSR/AAAC on like for like basis delivering more renewable generated energy to demand centres.

Epsilon HVCRC® Technology

HVCRC® Advanced Conductors are a complete range of HV Conductors manufactured with a strong lightweight composite core and trapezoidal aluminium wires. Each type of **HVCRC®** Conductor is designed to improve line ampacity, reduce sag and to reduce electrical losses on transmission lines.

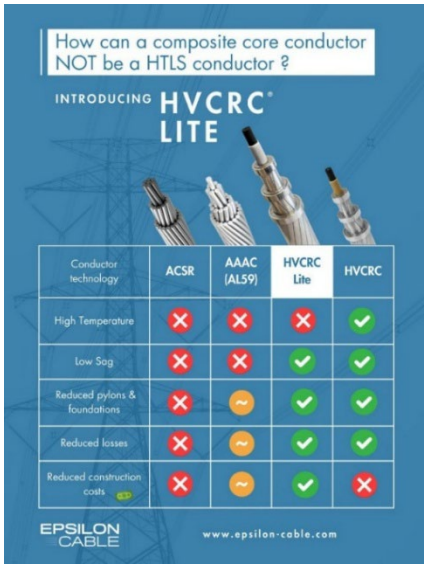
The composite core is manufactured by Epsilon at their facility in France with stranding of the conductors undertaken by selected manufacturing partners each of which has been assessed through a strict qualification process demonstrated by their quality and manufacturing performance.

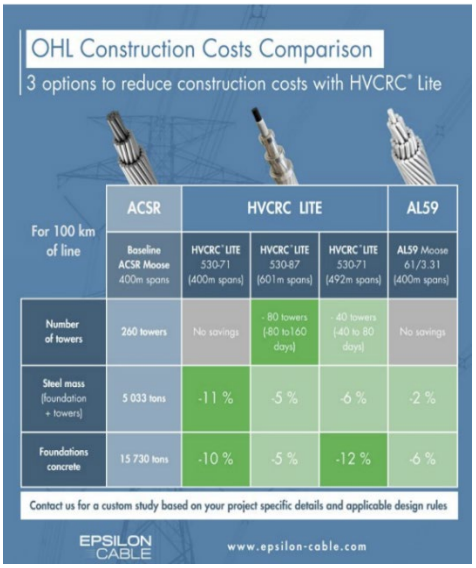
All **HVCRC**® cores are qualified according to **ASTM B987-20**. **ASTM B987** is currently the only existing standard for Carbon Composite Cores used in High Tension Low Sag Conductors. Qualification against this standard guarantees the performance and durability of the composite core to withstand extreme environmental conditions during design life. **Epsilon** is currently represented on the working groups for the review and upgrade of **ASTM B987** and the development of the new IEC technical specification standard for "Conductors for Overhead Lines – Fibre Reinforced Composite Core used as supporting member material".

HVCRC® and HVCRC® ULS Conductors are full specification HTLS (High Temperature Low Sag) conductors that provide a range of benefits to transmission developers and operators. These benefits include a doubling of capacity, reduction in transmission losses by up to 30% and improved operating resilience, all ideal for upgrading existing infrastructure by reconductoring. These conductors' have a strong lightweight composite core with electrical conductivity ensured by trapezoidal strands made of highly conductive 1350-0 annealed aluminium.

HVCRC® Lite is a unique standard temperature low sag conductor technology developed by Epsilon that offers significant savings on upfront capital costs and electrical losses. The patented composite core takes advantages of the properties of Carbon Fibre without the cost premium associated with full specification composite HTLS conductors. By maintaining the high dimensional stability of composite cores while adapting the conductor design to standard operating temperatures (90^{0}C), Epsilon have achieved the lowest cost option for the construction of new transmission lines.

HVCRC® LITE Conductors provide an economic solution for new transmission and distribution lines enabling short- and long-term optimisation in terms of flexibility, efficiency, resilience and cost effectiveness.





Offsetting the higher cost of the conductor, **HVCRC® LITE** reduces the total project costs through the application of low thermal expansion, smaller diameter and lower weight (30% reduction when compared to equivalent ACSR). These attributes enable significant savings in the construction of transmission towers and foundations by minimizing the size of towers and/or allowing for increased span

lengths reducing the number of towers required resulting in reducing material requirements, installation durations and environmental impact.

To substantiate the assessment of reduced project costs Epsilon commissioned EFLA Consulting Engineers to undertake an independent design study comparing ACSR Moose, AAAC Al59 Moose and HVCRC® Lite Drake. EFLA Consulting Engineers are a leading HV transmission line designers based in Europe. The study was based on a 400kV Transmission Line using Indian design rules (IS 802:2015).

The study compared the base of ACSR against three scenarios for the installation of **HVCRC® Lite**. These three scenarios were optimisation of span length to achieve reduced tower size and quantity (Option One), increased spans to reduce number of towers (Option Two) and maintaining span length allowing for smaller and lighter towers (Option Three).

LITE CONDUCTOR

Cost effective Advanced Conductor for **new line design**

Line parameters: 420 kV line, quad bundle conductor, 6mi section assessment. **Same electrical performance (ampacity, resistance) for all designs.**
Calculation based on Indian Bureau of Standards IS 802:2015

Conductor @**1035kcmil**	ACSR Moose	LITE DRAKE 530 H19 71	LITE DRAKE+ 530 H19 87	LITE DRAKE 530 H19 71	AAAC Al59 Moose
	 Ø3.53 Al.54/St.7 Ø conductor 27.7	 Ø core 9.53 + TW H19 Ø conductor 28.8	 Ø core 10.54 + TW H19 Ø conductor 29.2	 Ø core 9.53 + TW H19 Ø conductor 28.8	 Ø3.31 Al.61 Ø conductor 29.8
Span length (m)	400	490	600	400	400
Conductor - Controlling load condition	22% UTS	22% UTS	22% UTS	22% of UTS Moose	22% UTS
Maximum conductor tension (kN)	61.4	64.0	70.7	61.4	54.3
Scenario	Base case - Traditional choice	Leverage added conductor strength. Towers optimized for increased spans	Leverage extra added conductor strength. Towers strengthened for increase spans	Same tension than base case ACSR. Towers shortened	Alu alloy replacement option

Conductor @**1035kcmil**	ACSR Moose	LITE DRAKE 530 H19 71	LITE DRAKE+ 530 H19 87	LITE DRAKE 530 H19 71	AAAC Al59 Moose
	 Ø0.1389 Al.54/St.7 Ø conductor 1.090	 Ø core .375 + TW H19 Ø conductor 1.135	 Ø core .415 + TW H19 Ø conductor 1.150	 Ø core .375 + TW H19 Ø conductor 1.135	 Ø0.1303 Al.61 Ø conductor 1.173
Scenario	Base case - Traditional choice	Leverage added conductor strength. Towers optimized for increased spans	Leverage extra added conductor strength. Towers strengthened for increase spans	Same tension than base case. Towers shortened	Alu alloy replacement option

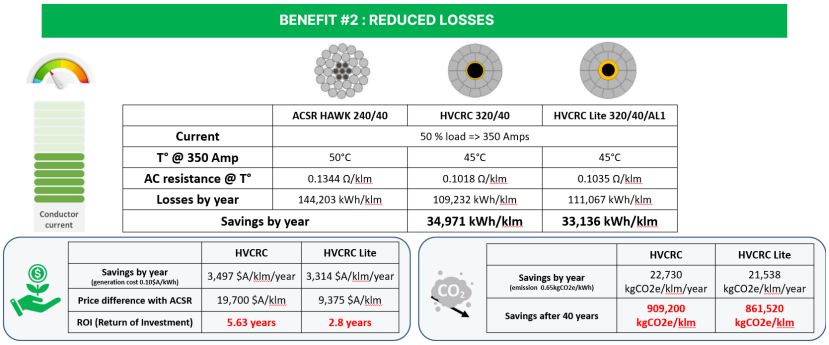
Main conclusions:

Number of towers per 10 klm line	26	22 (-15%)	18 (-30%)	26 (same)	26
% difference in steel mass (foundation, towers)	N/A	-6%	-5%	-11%	-2%
% Difference in foundation concrete volume	N/A	-12%	-5%	-10%	-6%
Helicopter construction amount of days	82	74	78	74	78
Why choosing this option ?	N/A	Mix of fewer tower / less materials	Decrease tower amount as much as possible	Decrease material usage as much as possible	N/A

- **More expensive conductors** however large savings in **tower steel amount, concrete quantity** and **associated installations time**
- For a 100klm project, estimated savings approx. **-6% CAPEX vs ACSR, i.e. ~8M$A/100 klm**

Each option investigated resulted in savings in material requirements for transmission towers, less foundation mass and reduced construction duration. Other benefits resulting from smaller/less transmission towers include reduced impact on the environment, local communities and shared land use, an advantage when seeking approval of ROW for new transmission projects.

Assessments were also prepared to compare line losses between ACSR, HVCRC® and HVCRC® Lite conductors,



BENEFIT #2 : REDUCED LOSSES

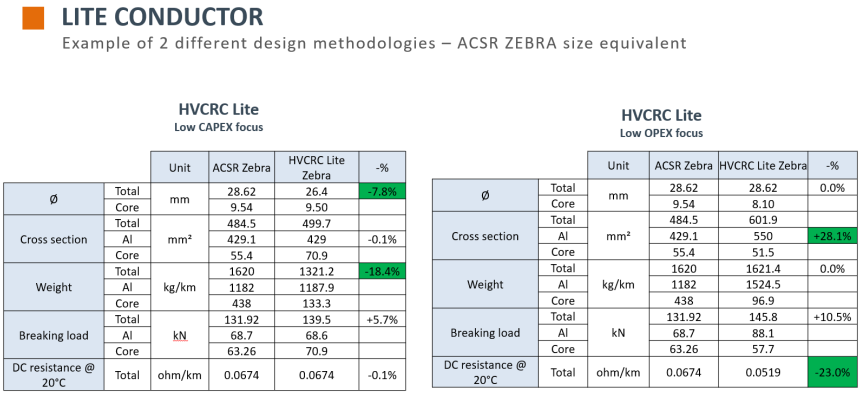
Conductor current

	ACSR HAWK 240/40	HVCRC 320/40	HVCRC Lite 320/40/AL1
Current	50 % load => 350 Amps		
T° @ 350 Amp	50°C	45°C	45°C
AC resistance @ T°	0.1344 Ω/klm	0.1018 Ω/klm	0.1035 Ω/klm
Losses by year	144,203 kWh/klm	109,232 kWh/klm	111,067 kWh/klm
Savings by year		**34,971 kWh/klm**	**33,136 kWh/klm**

	HVCRC	HVCRC Lite
Savings by year (generation cost 0.10$A/kWh)	3,497 $A/klm/year	3,314 $A/klm/year
Price difference with ACSR	19,700 $A/klm	9,375 $A/klm
ROI (Return of Investment)	**5.63 years**	**2.8 years**

	HVCRC	HVCRC Lite
Savings by year (emission 0.65kgCO2e/kWh)	22,730 kgCO2e/klm/year	21,538 kgCO2e/klm/year
Savings after 40 years	**909,200 kgCO2e/klm**	**861,520 kgCO2e/klm**

as well as an assessment based on different design methodologies focused on either a low Capex or low Operating expenses.



LITE CONDUCTOR

Example of 2 different design methodologies – ACSR ZEBRA size equivalent

HVCRC Lite
Low CAPEX focus

		Unit	ACSR Zebra	HVCRC Lite Zebra	-%
Ø	Total	mm	28.62	26.4	-7.8%
	Core		9.54	9.50	
Cross section	Total	mm²	484.5	499.7	
	Al		429.1	429	-0.1%
	Core		55.4	70.9	
Weight	Total	kg/km	1620	1321.2	-18.4%
	Al		1182	1187.9	
	Core		438	133.3	
Breaking load	Total	kN	131.92	139.5	+5.7%
	Al		68.7	68.6	
	Core		63.26	70.9	
DC resistance @ 20°C	Total	ohm/km	0.0674	0.0674	-0.1%

HVCRC Lite
Low OPEX focus

		Unit	ACSR Zebra	HVCRC Lite Zebra	-%
Ø	Total	mm	28.62	28.62	0.0%
	Core		9.54	8.10	
Cross section	Total	mm²	484.5	601.9	
	Al		429.1	550	+28.1%
	Core		55.4	51.5	
Weight	Total	kg/km	1620	1621.4	0.0%
	Al		1182	1524.5	
	Core		438	96.9	
Breaking load	Total	kN	131.92	145.8	+10.5%
	Al		68.7	88.1	
	Core		63.26	57.7	
DC resistance @ 20°C	Total	ohm/km	0.0674	0.0519	-23.0%

The overall result of the independent review was apart from the benefits listed above, the cost of construction of new transmission lines utilising **HVCRC® Lite** Conductor is **less** than the construction cost of the equivalent **ACSR/AAAC** Conductor system thus providing **savings on investment** whilst retaining benefits of lower line losses (efficiency) and improved resilience.

The application of **Epsilon Advanced Composite Core Conductors** can be summarised as below.

Brownfields Transmission Projects: For projects to replace end of life conductors, resolve congestion constraints and generation curtailment or to increase capacity and improve grid resilience, reconductoring with **HVCRC® Conductors** meets all these requirements whilst using existing transmission infrastructure together with existing ROW approvals. Reconductoring is a cost effective and time efficient solution for the immediate upgrade of the HV grid.

Greenfield Transmission Projects: Designing of greenfield transmission projects using Advanced Conductors provide options for savings in capex through reduced voltage requirements whilst meeting capacity requirements (**HVCRC® Conductors**), reduced size and quantity of transmission towers utilizing increased core strength of the composite cores reducing ROW requirements (**HVCRC® and HVCRC® Lite Conductors**). Apart from capex savings, smaller tower heights and ROW requirements reduces the impact of new projects on other land users and environmental visual impact.

Greenfield Transmission Projects Long Spans - Difficult Terrain: **HVCRC® ULS Conductors** have been specifically designed to meet the strength requirements for longer spans such as river crossings and

difficult terrains. The increased strength of the composite cores allows towers to be installed at optimum locations reducing construction costs and environmental impacts. An added advantage of the **HVCRC® ULS Conductor** is their ability to withstand increased loads caused by high winds and ice making them suitable for installation in mountainous/ high country in both Australia and New Zealand.

Greenfield Renewable Energy Connection Project: For developers of renewable energy generation projects, **Epsilon Advance Conductors** provide opportunities to reduced capex (reduction is transmission tower requirements) and improved operating efficiency through a significant reduction in line losses between the generation plant and grid connection.

Bushfire Resilience: Epsilon Cable in cooperation with a world-renowned specialist cable manufacturer is developing a product that combines the benefits of **HVCRC® Lite** with covered conductor specifically for bushfire zones.

It should be noted however that the selection of the appropriate technology depends on the nature of the project and future requirements. Epsilon Cable product specialists are available to assist in the selection of the appropriate technology for each specific project.

Conductor Options – 66kV and 132kV Transmission Lines

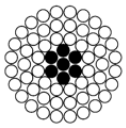
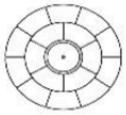
The following options have been based on alternatives to the ACSR Conductors listed in Ausgrid document NS220 Overhead Design Manual Section 5.2.1 Bare Conductor Table 9 Bare Conductor Selection. We have assumed for the purposes of this submission that the 66kV Conductor is ACSR/GZ Lemon (30/7/3.00) and for the 132kV conductor ACSR/GZ Olive (54/7/3.5)

Option One Reconductoring Existing 66kV Line
Immediate Solution to Increase Capacity at Minimum Cost

This option is based on reconductoring the existing 66kV line with **HVCRC®** Lisbon/Hawk **HVCRC®** 320-40 to double the capacity of the line. This provides an immediate solution to meeting network transfer requirements with minimum disruption at the lowest cost based on ability to utilise existing transmission line structures.

The **HVCRC®** Lisbon/Hawk is a full specification HTLS conductor with the benefits of low sag, no thermal expansion, no core corrosion, reduced transmission line losses providing a long-term financial benefit and greater resilience to adverse weather conditions and bushfire impact.

The maximum ampacity of the ACSR/GZ Lemon conductor at 90^0C is 573 amps compared to the **HVCRC®** Lisbon/Hawk at 716 amps at 90^0C and 1,183 amps at maximum operating temperature of 180^0C. It is noted that for the ACSR/GZ Olive the maximum ampacity at 90^0C is only 993 amps which is still below that of **HVCRC®** Lisbon/Hawk

		Lemon ACSR/GZ	HVCRC® LISBON/HAWK HVCRC®320-40	Diff (%)
Dimensional/ mechanical specs	Schematics	 Al: 30/Ø3.00 St: 7/Ø3.00	 Ø7.11 core 6+10 TW	
	Ø conductor (mm)	21.00	21.79	4%
	Linear mass (kg/km)	973	949	-2%
	Aluminium section (mm²)	212	316.7	+49%
	Rated Strength (kN)	90.4	108.1	+20%
Electrical specs - capacity	Max Operating Temp (°C)	90	180	+100%
	Comparative Ampacity at 90°C[1]	573	716	+25%
	Max ampacity at max temp[1]		1183	+106%
	Max capacity on 66kV line (MVA)	66	135	+106%
Electrical specs - losses reduction	DC resistance at 20°C (ohm/km)	0.1360	0.0884	-35%
	AC resistance @ 90°C (ohm/km)	0.1748	0.1141	-35%
	Mean ampacity (*~100% ACSR load*)	570A (hypothesis for calculation)		
	T° conductor @ 570A	89.6	73.7	
	AC resistance @ T°	0.1746	0.1083	
	Losses per year (kWh/km)[2]	496933	308235	
	Yearly savings (kWh/km)	/	188698	
Large CO2 emission reduction	Yearly savings (tonsCO2/km)[3]	/	95	
	Yealy savings - example for single circuit 100km	/	28418	
	40 years total savings (tonsCO2)	/	1140000	
	Co2 offset equivalen: Annual emissions of "*X*" cars	/	284200	
	Co2 offset equivalen: "X" round-trip tickets NY-London	/	568400	
	Co2 offset equivalen: "*X*" wind turbines offset (full lifetime)	/	227	
Financials - rapid ROI*	Yearly savings (AU$/km)[4]	/	37740	
	Price difference gap (AU$/km)	/	16000	
	ROI (Return of Investment, years)	/	0.4	
Financials - long term benefits	Yearly savings, example for single circuit 100km	/	11.32	
	Estimated savings for a 40years lifetime after ROI achieved (MAU$)	/	448.1	

Notes:

(1) Calculation based on IEEE Standard 738-2023 with following parameters: 40^0C ambient temperature, 0.5m/sec wind transverse to conductor, clear atmosphere, 0.5 coefficients of emissivity and absorption, solar radiation 1000MW/m², latitude 34^0S, 50 Hz

(2) Calculation based on CIGRE Technical Brochure TB265

(3) Based on emission at 502gCO_2/kWh

(4) Based on generation cost at 0.2AU$/kWh.

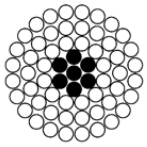
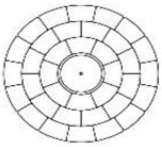
Through reconductoring the existing 66kV transmission line with the **HVCRC®** Conductor it is believed that the network transfer capacity will meet the requirements of the upgrade using where possible the existing transmission line poles. Even should all transmission line poles require replacement this option will remain the cheapest option with the size and therefore visual impact being reduced. It is noted however, with this option there will not be any spare capacity should additional network transfer capability be required in the future.

Option Two Specification of HTLS Conductors for new 132 kV Line

Increased Capacity - Future Proofing The Network

This option is based on specifying **HVCRC®** Budapest/Fort Worth Conductors as an alternative to ACSR/GZ Olive. The specification of the **HVCRC®** Conductor provides several benefits including increased capacity for future transmission requirements future proofing the upgrade,

low sag allowing either reduced transmission tower size or reduced number of towers required by increasing span lengths, no core thermal expansion, no core corrosion, lower transmission losses providing a long-term financial benefit and improved resilience during adverse weather conditions and reduced bushfire impact.

		Olive ACSR/GZ	HVCRC® BUDAPEST/FORT WORTH HVCRC® 680-71	Diff (%)
Dimensional/ mechanical specs	Schematics	 Al: 54/Ø3.50 St: 7/Ø3.50	 Ø9.53 core 8+12+16 TW	
	Ø conductor (mm)	31.50	31.49	0%
	Linear mass (kg/km)	1960	1988	1%
	Aluminium section (mm²)	520	670	+29%
	Rated Strength (kN)	159	200.3	+26%
Electrical specs - capacity	Max Operating Temp (°C)	90	180	+100%
	Comparative Ampacity at 90°C[1]	993	1138	+15%
	Max ampacity at max temp[1]		1922	+94%
	Max capacity on 132kV line (MVA)	227	439	+94%
Electrical specs - losses reduction	DC resistance at 20°C (ohm/km)	0.0557	0.0418	-25%
	AC resistance @ 90°C (ohm/km)	0.0725	0.0552	-24%
	Mean ampacity (*~100% ACSR load*)	1000A (hypothesis for calculation)		
	T° conductor @ 1000A	90.6	80.2	
	AC resistance @ T°	0.0727	0.0536	
	Losses per year (kWh/km)[2]	636852	469536	
	Yearly savings (kWh/km)	/	167316	
Large CO2 emission reduction	Yearly savings (tonsCO2/km)[3]	/	84	
	Yealy savings - example for single circuit 100km	/	25198	
	40 years total savings (tonsCO2)	/	1010000	
	Co2 offset equivalen: Annual emissions of "*X*" cars	/	252000	
	Co2 offset equivalen: "X" round-trip tickets NY-London	/	504000	
	Co2 offset equivalen: "*X*" wind turbines offset (full lifetime)	/	202	
Financials - rapid ROI*	Yearly savings (AU$/km)[4]	/	33463	
	Price difference gap (AU$/km)	/	20000	
	ROI (Return of Investment, years)	/	0.6	
Financials - long term benefits	Yearly savings, example for single circuit 100km	/	10.04	
	Estimated savings for a 40years lifetime after ROI achieved (MAU$)	/	395.6	

Notes:

(1) Calculation based on IEEE Standard 738-2023 with following parameters: 40^{0}C ambient temperature, 0.5m/sec wind transverse to conductor, clear atmosphere, 0.5 coefficients of emissivity and absorption, solar radiation 1000MW/m^2, latitude 34^{0}S, 50 Hz

(2) Calculation based on CIGRE Technical Brochure TB265

(3) Based on emission at 502gCO_2/kWh

(4) Based on generation cost at 0.2AU$/kWh.

It is acknowledged that this option will initially increase the capital cost of the project due to the increased cost of the **HVCRC®** conductor when compared to ACSR/GZ Olive. The additional cost of the conductor will partially be offset utilising the inherent strength of the composite core and low sag characteristics, to either reduce the size of each transmission pole or alternatively maintain the pole size and increase span width reducing the number of poles required.

In both cases this will reduce the cost of the poles/foundations and will also reduce disruption during construction as well as visual impact. In addition, the increased capital cost will be

further recovered by the economic benefit of the significant reduction of transmission line losses that provide long term benefits including both financial and environmental.

The major benefit of this option is the future proofing of the upgrade works to accommodate increased future demand and provide the spare capacity to accommodate surges in renewable energy generation and regional electricity demand. The increased strength and corrosion resistance of the composite core will also improve the resilience of the installation over the longer term including specifically during adverse weather conditions as well as mitigating the effect of bushfires on the conductors.

Option Three – Specification of HVCRC® Lite Conductor
Lowest Cost for Construction of New Transmission Lines

Epsilon have recently released a unique standard temperature low sag conductor under the brand name **HVCRC® Lite**. This conductor uses a patented composite core that takes the advantages of the properties of carbon fibre without the cost premium of full specification HTLS conductors.

The key attributes of an equivalent **HVCRC® Lite** conductor include smaller diameter, lower weight, low sag, no core thermal expansion, no core corrosion, increased capacity and improved efficiency through reduced transmission losses.

As indicated above with regards to the independent design study undertaken by EFLA, the specification of an equivalent **HVCRC® Lite** conductor to the standard ACSR/GZ conductor provides opportunities to reduce the size/ number of transmission towers/poles including reduction in size of foundations. The study by EFLA investigated all aspects of the design of the transmission towers and made comparisons based on different span lengths of the **HVCRC® Lite** conductor versus the ACSR/GZ equivalent.

As indicated in the comparison tables included above the savings in materials and construction costs varies depending on the scenario chosen. Optimisation based on a span length that provided reduced tower size and quantity achieved the greatest saving in capital costs.

To enable a full assessment of the potential capital cost savings for this project would require a further study based on Australian and Ausgrid specifications and would need to be undertaken in association with Ausgrid to determine the most appropriate solution. However we advise based on the detailed study undertaken by EFLA that we are confident that the selection of an equivalent **HVCRC® Lite** Conductor would provide savings in capital costs associated with the upgrading of the existing 66kV line to a double circuit 132kV transmission line and would reduce the environmental impact of the transmission line and construction activities and would provide a long-term benefit to Ausgrid through improved transmission efficiency and a modest increase in capacity.

Product and Installation Support

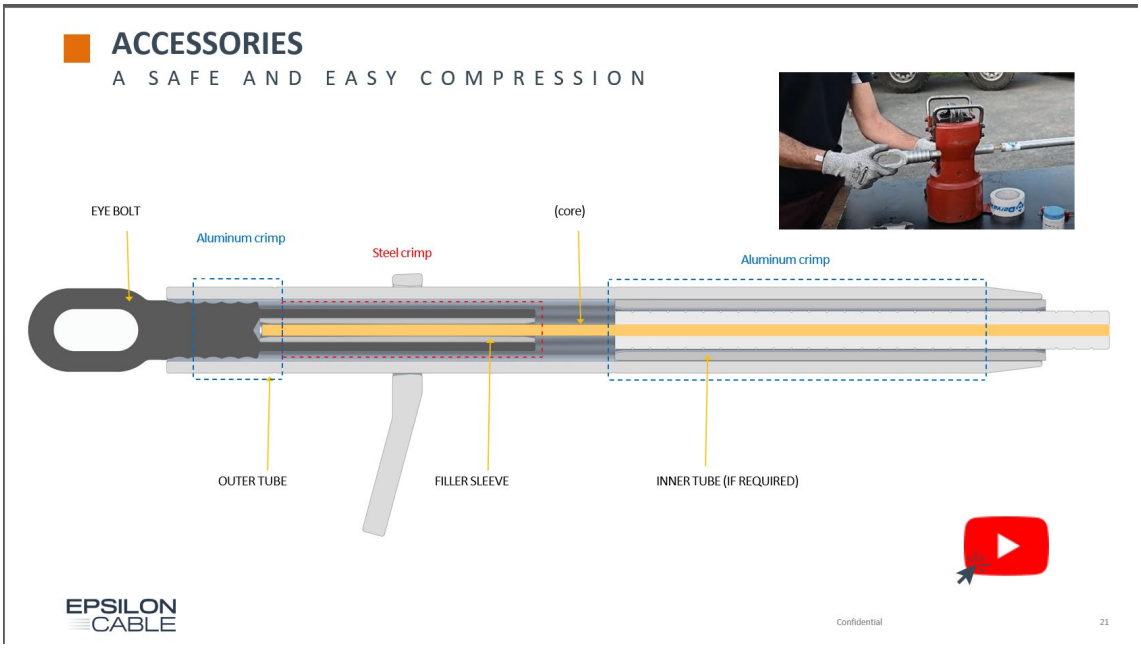
Epsilon Cable provide a full suite of support to Transmission Authorities including assistance in the provision of an installation supervision specialist, onsite training of installation crews and the provision of training videos.

In addition, the company also provides technical assistance for the selection of the relevant conductor to meet the specified requirements of a electrical transmission project. The company used industry standard design software **(PLS CADD)** to ensure best performance on the project including sag, maximum ampacity, conductor temperature and catenary parameters etc.

Other support provided by Epsilon includes the provision of the **CoreCheck®** System that allows to monitor the control of the integrity of the composite core at any stage of its life before, during and after installation. **Corecheck®** provides the ability to check the composite core integrity and detect potential defects or mishandling damages at any stage of a project including after core production on the composite reel, after conductor stranding on the conductor reel and after conductor installation directly on the line.

Corecheck® relies on breakdown voltage testing, also called dielectric breakdown testing and is widely used to test covered conductors. The system developed by Epsilon is simple and fast to setup in the field with a trained operator able to confirm the core integrity with a green light/ red light signal.

HVCRC® Advanced Conductors are installed using proven accessories supplied by the Sicame Group. Sicame Group are a recognised supplier of these components in Australia available from the local subsidiary Sicame Australia with facilities in both Queensland and NSW.



Many of the installations of **HVCRC®** Advanced Conductors has been undertaken using Tesmec Stringing Equipment and we advise that Epsilon have worked closely with Tesmec in the development of equipment suitable for the installation of the conductors. Tesmec are also active in Australia with representation provided by a Queensland company with offices Australia wide.

Summary

As indicated above each of the options presented have a range of benefits for the project including meeting the requirements for network transmission transfer and the inherent benefits of composite core technology such as higher operating temperature (options one and two),

increased strength/ low sag, no thermal expansion or corrosion of the core and improved resilience under adverse conditions.

- Option One provides the lowest capital cost with no/minimal environmental impact whilst meeting network transmission requirements without provision for future demand growth.

- Option Two future proofs the upgrade against future demand whilst providing capacity for surges in renewable energy generation and demand.

- Option Three is the lowest capital cost option for the construction of a new 132kV circuit and provides some additional capacity to accommodate future demand growth.

	Option One		**Option Two**	**Option Three**
	Reconductoring Existing 66kV Line with HVCRC® 320-40		**Specification of HVCRC® 680-71 for 132kV Line**	**Specification of HVCRC® Lite for 132kV Line**
	Existing Poles	New Poles	New Poles	New Poles
Environmental Impacts				
Visual Impact	No Change	Similar to Existing	Potential Reduction	Reduced Smaller/ Less Poles Required
Disruption	Minimal	Reduced	Similar to Ausgrid Proposal	Less due to reduction in number of poles
Construction Duration	Less	Less	As per Ausgrid Proposal	Reduced
Long Term Emissions	Reduced	Reduced	Reduced	Reduced
Resilience	Increased	Increased	Increased	Increased
Financial/Operational				
Capital Cost Implications	Lowest Cost	Reduced Cost	Increase capital cost partially offset through reduction in pole size/quantity	Lowest Cost for New 132kV Line
Transmission Capacity	Meets requirements		Double Capacity **Future Proofing** for increased demand	Provides increased transmission capacity by 15%
Transmission Line losses – Efficiency	Similar to 132kV Proposal		Improved Efficiency through lower transmission losses	Improved Efficiency through lower transmission losses

Conclusion

Epsilon Advance Conductors provide both an economic and environmental solution for the upgrade of the 66kV/132kV transmission network for the Hunter-Central Coast REZ Network Infrastructure. Each of the three options presented in this submission provide benefits financially for Ausgrid through lower capital costs (options 1 and 3) and through improved transmission efficiency delivering more income. In addition, environment benefits include reduced visual impact, lower ROW requirements, reduced

disruption during construction activities and long term benefit of greater efficiency reducing emissions over the life of the installation. We confirm that Epsilon will provide assistance throughout the project from the selection of appropriate conductor, parameters for the design of the transmission poles and installation support.

We advise that Epsilon Cable will be actively engaged **in Energy Networks Australia EN26 Conference and Exhibition** to be held in Adelaide 17 – 19th March 2026. A senior product specialist will be in attendance and will be available for technical meetings with utilities, contractors and renewable energy developers both before and after the conference.

For product information and arrangements for technical presentations please contact:

Xatech International Pty Ltd
David Knight
Representative Epsilon Cable – Australia/New Zealand
Tel: +61 419 439 148 Email: dknight@xatech.com.au
Web: www.xatech.com.au / www.epsilon-cable.com

SINGLETON COUNCIL

Council Reference:

Ausgrid HCC REZ
GPO Box 4009
Sydney
NSW 2000

6 June 2025

Dear Sir/Madam,

Hunter-Central Coast Renewable Energy Zone – Review of Environmental Factors

Singleton Council welcomes the opportunity to provide comment on the Review of Environmental Factors (REF) for the Hunter-Central Coast Renewable Energy Zone (REZ). Council fully supports the strategic transition to renewable energy and acknowledges the REZ's importance to the state's decarbonisation objectives. However, it is essential that this transformation delivers equitable outcomes for local communities, including Singleton. Council wishes to raise the following matters specific to the Singleton Local Government Area (LGA):

Construction Traffic and Road Safety
Council notes that the New England Highway and the Golden Highway are identified as key freight and construction routes. This includes frequent movement of oversize/overmass (OSOM) vehicles and up to 174 construction-related vehicle trips per day during peak construction periods.

- Impacts:
    - Potential for increased congestion, particularly during AM peak periods.
    - Road safety risks associated with large vehicle manoeuvres on already busy corridors.
    - Cumulative traffic pressure from concurrent regional infrastructure projects.

Council requests that all construction traffic movements through Singleton be carefully planned and coordinated with Transport for NSW and local emergency services to ensure minimal disruption to local traffic and resident safety.

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PO Box 314 Singleton NSW 2330
ABN 52 877 492 396

T 02 6578 7290 E council@singleton.nsw.gov.au
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Coordination with Local Projects and Infrastructure
Given the presence of other strategic developments in the Singleton LGA - including mining, other energy transition initiatives, and Council-led infrastructure upgrades - it is essential that Ausgrid maintain close coordination with Council on project staging, traffic management, and stakeholder engagement.

Construction Support Facilities and Workforce Impacts
The REF references Singleton as a potential location for a construction storage yard and laydown area. Council requests:

- Further detail on the exact location and proposed operations of the storage site.
- Consultation with Council's infrastructure and planning teams to assess suitability and impacts.
- Consideration of potential social and economic effects on the local community, including workforce accommodation, parking, and service demand.

Communication and Stakeholder Engagement
Singleton Council requests that it be included as a formal stakeholder in the ongoing engagement process, including traffic management planning, environmental monitoring, and community notification.

Landscape Character and Visual Impact
Council recognises the report's conclusion that the visual impacts during construction will be temporary and that the long-term impacts are anticipated to be of moderate-low significance, due to a combination of screening, existing infrastructure, and topography. However, Council remains committed to ensuring that the character and amenity of our local communities are protected and that all stakeholders have the opportunity to be adequately informed and consulted.

To that end, we request that consultation be undertaken with any residents, landowners, or community groups who may be directly or indirectly impacted by the proposed works, particularly within the identified landscape character zones. This should include those located near key construction sites, transmission corridors, and visually sensitive areas such as the Lake Liddell Recreation Area and areas adjacent to residential or tourism-focused land uses.

Council also asks that any concerns raised during this process be considered in the development of final designs and construction management plans, including mitigation strategies such as visual screening, vegetation buffers, and reinstatement commitments.

Economic Opportunities and Local Benefits
Council supports the investment and job creation potential outlined in the REF however, Council strongly encourages EnergyCo and Ausgrid to:

- Prioritise local procurement and employment during both construction and operations phases.
- Establish measurable local content targets and report on progress.
- Include Singleton LGA in any Community and Employment Benefit Program linked to the REZ.

Council is also interested in exploring partnerships that facilitate local training and upskilling initiatives in renewables and energy-related sectors.

Council acknowledges that Ausgrid maintains existing depot facilities within the Singleton Maison Dieu Industrial Estate. Given the size, scale and duration of this project, and the long-term consequences of this project for other renewable energy projects in the HCC REZ and beyond, Council encourages Ausgrid to establish a presence within the Singleton CBD to facilitate direct community contact with the project and its impacts, and to demonstrate to the community the social values identified in the REF.

Environmental Considerations
Council acknowledges the REF's commitment to avoiding significant environmental impacts by using existing corridors and previously disturbed lands. Council seeks assurances that:

- Comprehensive biodiversity offsets and revegetation will be implemented where clearing is unavoidable.
- Ongoing monitoring of cumulative environmental impacts across multiple REZ-related projects will be undertaken in coordination with local environmental data.

Singleton is uniquely positioned with both sensitive natural areas and legacy mining land; REZ projects must respect these dual contexts.

Land Use and Planning Interface
Council notes the REF’s use of existing easements and efforts to avoid prime agricultural land. However:

- REZ-related infrastructure must respect existing land uses, including active mining, agriculture, and residential zoning.
- Council reiterates the need for transmission access protocols on public land to be clearly defined, including mechanisms for local benefit-sharing.

- Council encourages early engagement where State Significant Infrastructure proposals intersect with local planning controls, to ensure alignment and mitigate land use conflicts.

While Council supports renewable energy infrastructure investment and the broader goals of the REZ, it is essential that the impacts on Singleton's local infrastructure and community are appropriately acknowledged, assessed, and mitigated. We look forward to continuing to work with Ausgrid and EnergyCo to ensure this project delivers shared value across the region.

Yours sincerely,

Justin Fitzpatrick-Barr
General Manager

muswellbrook shire council

Enquiries
Please ask for Theresa Folpp
Direct 02 6549 3700
Our reference CM 25/30664

08 July 2025

Ausgrid HCC REZ
GPO Box 4009
Sydney, NSW, 2000

Em: hccrez@ausgrid.com.au

Dear Ausgrid

Hunter-Central Coast Renewable Energy Zone Network Infrastructure - Council (Staff) comments on Review of Environmental Factors

Reference is made to the following:

- *Hunter-Central Coast REZ Network Infrastructure Review of Environmental Factors* (April 2025) (REF); and
- Opportunity to provide feedback on the REF via the Ausgrid website.

The Hunter Central Coast Renewable Energy Zone (HCC REZ) was formally declared by the Minister for Energy and published in the NSW Gazette on 9 December 2022. The REZ infrastructure intends to deliver an additional one gigawatt (GW) of renewable energy which will provide consumers with cleaner, more affordable and reliable electricity. The Project will span multiple Local Government Areas (LGAs) and will generally include:

- Approximately 85km of upgraded powerlines between Kurri Kurri and Muswellbrook;
- Two new substations in the Muswellbrook area known as Sandy Creek Subtransmission Switching Station (STSS) and Antiene Subtransmission Switching Station (STSS); and
- Major upgrades of Kurri Subtransmission Substation (STS) and Rothbury Zone Substation.

Construction of the proposal is expected to commence in late 2025 with commissioning expected in mid-2028.

Ausgrid (the Proponent) was selected by EnergyCo as the preferred network operator to deliver the Project.

In January 2025, Council Staff provided input on the Project via email to the Project Director. These issues, along with how they have been addressed, are summarised in Table 3-3 of the REF. Ausgrid also met with Council Staff on 16 June 2025 to discuss key aspects of the Project and hear Council's feedback. This feedback has been incorporated into this submission. This submission provides comments and is neither and objection or submission of support as Council does not have capacity to make a full merit assessment of the project.

1. Hebden Road / New England Highway Intersection

Original comment

Data is limited for the Hebden Road and New England Highway intersection, however TfNSW have objected to development at the Liddell Recreation Area in the recent past due to concerns about this intersection. Staff are particularly concerned with the right-hand turn from Hebden Road onto the New England Highway.

Ausgrid should do a traffic safety audit for this intersection, and for Hebden Road from the New England Highway intersection to the proposed development site, including an assessment of the safety and functionality of the right-hand turn onto the New England Highway (including the cumulative impact of traffic movements combined with the proposed Hunter Transmission Project).

Proponent response in the REF

A Roads Safety Audit (RSA) has been undertaken for the intersection of the New England Highway and Hebden Road and is included in the Traffic Impact Assessment. Consideration has been given to existing conditions; road alignment and cross-section; physical objects; existing lighting conditions; pedestrian and cycle facilities and signage / delineation.

Staff comment on the REF

The RSA highlights four safety issues with the intersection. Results from the RSA should be integrated into any Traffic Management Plan (TMP), and Drivers Code of Conduct (where required). The TMP should be prepared in consultation with Council.

2. Condition of Hebden Road

Original comment

Hebden Road is a rural sealed road of variable standard, generally one lane of traffic in each direction but there are a few sections where only one lane of traffic is possible. Road shoulders are not always present. Most of the road has clear line markings but there are some sections that are unmarked or where the markings are difficult to see. The posted speed limit is 80km/hour.

In addition to the traffic safety audit, Ausgrid should prepare a Traffic Assessment for the proposed section of the road intended for use by the Project (including the cumulative impact with the proposed Hunter Transmission Project) to assess its suitability, recommend upgrades and traffic management options.

Proponent response in the REF

One issue identified in the RSA is provided below:

Some sections of Hebden Road are narrow and without linemarking. This may not be wide enough for two trucks to pass each other in a highspeed environment (80km/h).

This issue may be further exacerbated by the crests and horizontal curves that reduce the visibility of oncoming traffic.

In relation to the Traffic Assessment, the assessment states that the Hunter Transmission Project is in its EIS phase and therefore '*there is no information to assess the cumulative impact at this stage*'.

Staff comment on the REF

Results of the RSA should be integrated into any TMP and Drivers Code of Conduct (where required). The TMP should be prepared in consultation with Council.

3. Additional issues related to the use of Public Roads

a) Staff note Section 2.2.10 of the REF that states '*a dilapidation survey would be undertaken as part of the Construction Environment Management Plan (CEMP) to assess any damage that might occur as a result of the proposed works'*.

The dilapidation surveys should record the condition of the road pavement, drainage structures, and other road related infrastructure and the Proponent must repair and/or make good any Project related damage. Where the project construction period overlaps with the construction period for another project (e.g. the Hunter Transmission Project or scheduled ARTC works), the Proponent is required to liaise with the relevant parties to determine a clear and equitable approach to dilapidation responsibilities, and report back to Council for review and agreement. Council will rely on the results of the initial and final dilapidation surveys to seek repairs to road infrastructure and has no mechanism to apportion damage across multiple projects.

b) Sandy Creek Road will be utilised by the Project for the construction of the Sandy Creek STSS, however this road has not been included in the Traffic Impact Assessment.

The following needs to be considered:

i. The use of 19-m B-doubles is approved along a 2-kilometre length of Sandy Creek Road, directly east of New England Highway, provided movements occur outside of the hours of 7.30am to 8.30am and 3.45pm to 4.45pm on school days as school buses use the road during this time;
ii. The Muswellbrook Solar Farm approval includes limits on the total movements per hour on Sandy Creek Road required by TfNSW due to issues with the intersection with the New England Highway;
iii. Based on the assessment report and recommended conditions of consent of the Muswellbrook Solar Farm, the Sandy Creek Road – New England Highway intersection is constrained under existing conditions, and queuing at the rail-level crossing is a safety concern that needs to be carefully considered.

c) On 14 May 2024, Council resolved:

As there will be heavy vehicles along Sandy Creek Road for simultaneous multiple projects (Muswellbrook Battery Energy Storage System, Muswellbrook Pumped

Hydro, Muswellbrook Bypass, and Muswellbrook Solar Farm, New England REZ 500KV transmission line), the pavement damage for any specific project will need to be accurately calculated. As such, a proper methodology for contribution will need to be developed by Council and part funded by the Proponent through the Planning Agreement.

Staff are progressing the Sandy Creek Road Maintenance Contributions Plan and recommend that the Plan apply to this Project if multiple projects are under construction at the same time.

d) Staff note Section 3.7 of the Traffic Impact Assessment that states '*warrant assessment suggests a BA right turn treatment is an appropriate turn treatment on Hebden Road into the construction site access. Therefore, channelised turn treatments are not required*'.

e) Staff note Section 3.12 of the Traffic Impact Assessment that states *'A construction traffic management plan (CTMP) and associated traffic guidance schemes will be prepared for the Project as part of the construction environmental management plan. The CTMP will be prepared in consultation with the Muswellbrook Shire Council and emergency services'*. Staff look forward to providing input to the CTMP.

f) It is disappointing that the REF does not identify all proposed access points from public roads. Regardless, any access from a Council local road must be designed in accordance with Council's *Rural Property Access Drawing*.

g) Where a Section 138 Permit is required for works on a public road, Staff prefer that the principal entity submit the application, as this approach has proven to be more effective than relying on contractors.

h) For Over Size Over mass movements on the railway overbridges, proponents should direct their enquiries via email to:
HeavyVehicle heavyvehicle@uglregionallinx.com.au

4. Temporary Workers' Camp

Original Comment

It is noted that this Project details provided do not include the proposed Construction Support Site (temporary workers accommodation). We assume the temporary accommodation will form part of the Hunter Transmission Project.

Securing accommodation within the Muswellbrook or Singleton LGA's is challenging due to high demand for short stay accommodation from contractors and temporary workforces, accommodation needs should be addressed by Ausgrid.

Proponent response in the REF

A temporary workers camp is not required. There are 280 people required for construction. It is expected that most construction workers would be sourced from the Central Coast, Sydney, or Newcastle. These workers are not expected to require

accommodation, as they would likely travel to the project site each day for their shifts. A small number of workers with specialist skills may be sourced from further afield. These workers may require temporary accommodation in the local area. Due to the short-term nature of construction contracts, these workers are likely to be accommodated in short-term accommodation options such as tourist parks and holiday accommodation.

Staff comment on the REF

a) Whilst these 280 workers are not expected to require accommodation, Council Staff have observed that there is currently no capacity in Muswellbrook for any temporary workers. It is unclear where the workers associated with this project will stay and how the Proponent will manager worker fatigue – travel from the Central Coast is more than an hour to the site.

At the June 2025 Ordinary Council Meeting, Council resolved:

10.1.2. Draft Temporary Workforce Accommodation Policy for Public Exhibition

323 RESOLVED on the motion of Cr D. Marshall and Cr C. Bailey that:

1. Council endorses the *Draft Temporary Workforce Accommodation Policy* for placement on public exhibition via Council's website for a period of 28 days.
2. If no submissions are received in relation to the *Draft Temporary Workforce Accommodation Policy* during the public exhibition period, then Council resolves to adopt the *Draft Temporary Workforce Accommodation Policy* on the day following the conclusion of the exhibition period.
3. If submissions are received in relation to the *Draft Temporary Workforce Accommodation Policy* during the public exhibition period, then a further report will be submitted to Council for consideration of submissions received during the exhibition period.

In Favour: Cr C. Bailey, Cr A. Barry, Cr D. Douglas, Cr L. Dunn, Cr D. Hartley, Cr G. McNeill, Cr R. Mahajan, Cr D. Marshall, Cr M. Morris and Cr S. Ward

Against: Nil

An Employment and Accommodation Strategy is required for this project and has also been requested by Singleton Council. Ausgrid's position that contractors will secure their own accommodation does not align with feedback from either Council, which have advised Ausgrid of existing accommodation shortages within their respective Local Government Areas.

b) The decision to source most construction workers from the Central Coast, Sydney, or Newcastle is disappointing for local government areas outside those regions, as it limits local job opportunities, reduces economic benefits for local businesses, undermines community support, and places strain on local infrastructure without delivering lasting regional or social value.

5. Removal of vegetation at Liddell Recreation Area

Original Comment

It is assumed that the new Antiene STSS will be located on Lot 9 DP 250890 (as this is unclear from the letter provided). In 2022, the Lake Liddell Recreation Area Reserve successfully secured a Landcare Grant through Council to plant a diverse selection of up to 800 native flora species adjacent the fence line on this lot. The initiative aimed to restore endemic vegetation to previously overgrazed farmland. Lake Liddell Rec Area have also separately secured funds from AGL Macquarie and volunteer hours from AGL staff to conduct plantings in this area.

Construction of the Antiene STSS should be designed to avoid impacting this planting area.

Any trees that must be removed for the Project should be replaced in consultation with the Lake Liddell Recreation Area Reserve to ensure appropriate species selection and alignment with the original planting objectives. The Landcare Grant was awarded to introduce endemic species and improve the land's ecological value. Removing the trees without replacement would conflict with the grant's goals.

Proponent response in the REF

It is acknowledged that there is the potential for the removal or modification of habitat for threatened flora and fauna species, however there are mitigation measures and no-go zones in place to reduce this impact. Wherever possible works that will result in the removal of trees and native vegetation must be avoided. In addition, in the case when a hollow bearing tree must be removed, the removal will be supervised by a suitably qualified ecologist.

There is an acknowledgement that there could be an impact to *Diuris tricolour* and *Grevillea parviflora,* within the existing easement. However, there is a commitment to identifying areas of *Diuris tricolour* and *Grevillea parviflora* and making these as no-go zones, reducing the likelihood of impact. There are commitments to protect the *Grey-Headed Warbler* and protect fish passages.

There are actions included to reduce unintentional tree damage or removal. Material stockpiles and vehicle parking will occur on areas that have previously been cleared, not in areas with native vegetation. All deliveries and removals will only access the site on main access roadways.

There is a commitment to leaving stumps in the ground in any riverbanks where trees require removal to prevent bank erosion and temporary erosion and sediment controls will be installed to prevent any sediment entering waterways.

There is a commitment to consulting with the Lake Liddell Recreation Area and the local Landcare Group around landscape planting to screen the STSS, however no specific landscape plan has been developed.

Staff comment on the REF

Staff would welcome any opportunity to work with Ausgrid, the Lake Lidell Recreation Area and local Landcare group to identify mitigation and appropriate species for replanting.

Staff are pleased to see that areas containing threatened species such as *Durius tricolour* and *Grevillea parviflora* within the easement will be avoided.

While it is noted from the Flora and Fauna Assessment that '*the proposed REZ Project will result in an incremental reduction/modification of habitat, however taking into consideration the mitigation measures the proposal is unlikely to have a significant impact on any addressed threatened species, endangered population or threatened ecological community*'.

Staff request that when planning additional plantings across any of the project area, Staff recommend that consultation occur with the Planning, Offsets and Threatened Species and Ecosystems Division of Department of Climate Change, Energy, the Environment and Water who are developing a strategic approach to identifying biodiversity stewardship sites.

6. Visual Impact

Original Comment

Staff are concerned about the combined landscape and visual impact of the presence of coal mines/electricity transmission lines/industry adjacent to the New England Highway and how they impact the perception of Muswellbrook.

It is important that Lake Liddell and its surroundings present a visually appealing landscape, contributing positively to the region's image and potential future uses.

Proponent response in the REF

The indicative view toward Antiene STSS is provided in the photomontage below. Vegetation screening will be considered on the Antiene STSS site in consultation with the Lake Liddell Recreation Area and the local land care group.

Staff comment on the REF

Staff are pleased to see that vegetative screening will occur at Antiene STSS to present a visually appealing landscape.

7. Proposed New Sandy Creek Substation

Original Comment

The location of the proposed new Sandy Creek STSS (outlined approximately within the yellow polygon in the image below) is situated in an area that may hold potential for future residential expansion.

Proponent response in the REF

Not addressed.

Staff comment on the REF

a) Staff request that this comment is considered during detailed design so that impacts to residential expansion is minimised as far as reasonably practicable.

b) During construction, Staff would also like to see plans for controls for erosion and sediment runoff during high rainfall events.

c) Staff are pleased to see a commitment to exploring options for vegetation screening once works are complete.

d) It is disappointing that the Sandy Creek STSS has not been sited on less vegetated areas on Ausgrid owned land.

8. Additional Staff comments on the REF

e) Section 6.16.2.9 of the REF states that '*other financial benefits may be provided to the community to offset some of the impacts'*. Further clarification on the intent of this statement is required.

f) Section 2.1.10 of the REF states that '*As existing powerlines are dismantled and recovered, waste materials will be stockpiled for collection and disposal at appropriately licenced facilities*'.

Ausgrid should consult with the Hunter Joint Organisation in relation to its Circular Economy Program for potential re-use and recycling of discarded materials.

g) Staff note the commitment in Section 6.9 of the REF which states '*Prior to construction, prepare a Waste Management Plan (WMP) which contains a list of expected wastes, their volume and their planned reuse, disposal or recycling'*. Any WMP should be prepared in consultation with Council.

h) Staff note that there are two heritage items in the vicinity of the project: Fairview and Hillcrest, and note the commitments to '*highlight the location of heritage items to construction personnel*' and '*all workers to be made aware of sensitive areas and the need to avoid impacts*'.

i) Section 2.2.2 of the REF states that '*Water infrastructure is available at the existing Muswellbrook STS near the site and will be extended to service the STSS'*. Further information is required as to whether this will directly impact Council infrastructure.

Council engineers have raised concerns regarding the capacity of the Council managed water treatment facilities, that generate potable water, to support the cumulative demands of the temporary construction workforce and multiple renewable energy projects under construction at the same time.

j) Staff are developing a strategy to enable project proponents to use recycled water for

construction activities where potable water is not required. Consultation should be undertaken with Council to determine the availability, capacity, and suitability of recycled water sources.

Council Staff appreciate the opportunity to comment and would be pleased to provide additional information if requested. Should you need to discuss the above, please contact Theresa Folpp, Environmental Planning Officer on 02 6549 3700 or email council@muswellbrook.nsw.gov.au.

Yours faithfully

Sharon Pope
Director Environment and Planning

Transport for NSW

12 June 2025

TfNSW reference: REN25/00087/001| SF2025/056782

DPHI reference: HCC REF consultation

Ausgrid HCC REZ

GPO Box 487 Newcastle NSW 2300

Attention: Tyler Vernon and Richard Duncliff

Response to exhibition of the Review of Environmental Factors for Hunter Central Coast Transmission Line- public exhibition closure 6 June 2025

TfNSW is responding to the public exhibition and consultation for the Hunter Central Coast Transmission Line Review of Environmental Factors.

TfNSW notes that early engagement with Ausgrid occurred on 8 April 2025, before the exhibition material for the REF was formally exhibited. Considering the exhibition of detailed information on the alignment and interactions with the State's classified road network, TfNSW has delayed its response to review the exhibition material before responding to the REF.

Clarification was requested regarding the process and for concurrence under s138(2), as well as the approval required for s138 Roads Act 1993 consents.

The requests for further information and amendments to the REF (refer to Attachments 1 and 2). Further consultation will be required after the amendments are completed with TfNSW.

This information is requested to address the safety, asset, and network efficiency concerns related to the project's impact on the State road network.

The Country Rail Network (UGLR) and Maritime have not raised any concerns with the project. However, TfNSW recommends continuing to consult with the Maritime section of TfNSW as the project progresses if there are any interactions with navigable waters.

Property comments have been provided within separate attachment.

If you have any questions or wish to discuss this matter further, please get in touch with Alexandra Power on 1300 019 680 or email development.renewables@transport.nsw.gov.au

Yours sincerely,

Alexandra Power
Team Leader Development Services- Renewables
Transport Planning
Planning, Integration and Passenger

Attachment 1

Response to exhibition of the Review of Environmental Factors for Hunter Central Coast Transmission Line- public exhibition closure 6 June 2025

To clarify, the s138 Roads Act Approvals are required to be approved by the relevant road authority. TfNSW is a road asset manager for the state's classified road network, except freeways. TfNSW provides concurrence to s138 Roads Act approvals under s138(2) of the Roads Act 1993. Therefore, all locations where transmission line work will be undertaken within or over the road reserve will require Roads Act approvals to be issued by the relevant road authority, with concurrence from TfNSW.

However, based on this project, there is one exception in which TfNSW is the roads authority and does provide approval, and that is for the Hunter Expressway (Road No. 6011).

TfNSW acknowledges that a traffic assessment has been prepared for one intersection with the state road network that will be used for the project. However, it is unclear how access will be obtained to the transmission line infrastructure for work within, adjoining or crossing the state classified road network. TfNSW requires a further Traffic Impact Assessment to be prepared to address the requirements below:

Provide an assessment of the following traffic impacts during the construction of the project, in the form of a traffic assessment:

1. Hours, days and periods of construction.
2. Schedule for phasing/staging of the project (including pre-construction, accommodation and ancillary infrastructure works) and identifying the traffic volumes for each stage.
3. Identify each transmission line access point with the state road network (including GPS coordinates), each state/local road intersection that will be required to be used for the project and any locations that will be used for compounds, crossings of the state road network etc (including identifying use of TfNSW stockpiles or rest areas).
4. Provide a vehicle movement plan of the intended project routes.

Traffic volumes:

5. Surveyed existing background traffic at key intersections per Part 3 of *the Austroads Guide to Traffic Management*, with survey raw data included.
6. Project-related traffic volumes (measured as vehicle trips per hour and day) for each stage, including pre-construction, construction, operation, and decommissioning and identifying peak period(s) for traffic volumes.

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Traffic volumes are to include a description of:

7. Ratio of light vehicles to heavy vehicles during the AM/PM peak hours and the turning direction,
8. Differentiation of the low risk Over Size/Over Mass (OSOM) (i.e OSOM that require a pilot or escort but do not require an NHVR permit).
9. Project-related traffic interaction with existing and projected background traffic, with annual growth rate applied linearly.
10. Peak times for existing background and proposed project-related peak hours.

The origin, destination and routes for:

11. Employee and contractor traffic is minimal.
12. Heavy vehicle traffic.
13. OSOM vehicle traffic (for OSOMs that require a pilot or escort but do not require an NHVR permit),

14. A description of all non-high-risk OSOM vehicles and materials to be transported. The shortest and least trafficked route is to be given priority for the movement of materials and machinery to minimise risk and impact to other motorists, so far as is reasonably practicable.

15. A turn warrant assessment is conducted for the project on the accesses and intersections along the routes that connect to the state road network. This is required to understand the suitability of the intersections and access with the state road network for safely accommodating the project's traffic, particularly at key intersections and site accesses (for transmission line construction and maintenance) that connect with the state road network. The turn warrant assessment is to include the following within the assessment:
    a. The light and heavy vehicles at the AM/PM project peak hour during the peak of construction activities,
    b. The growth rate for the state road network applied to the peak of construction,
    c. Cumulative traffic volumes for projects at REF, EIS or approved that will be present in the background and turning traffic volumes at the same time as the construction of the HCC,
    d. All this information is to be applied to the existing network peak hour, and
    e. Be plotted on a turn warrants assessment graph (refer to Figure 3.25 of *Austroads Guide to Traffic Management Part 6),*

    Based on the outcome of the turn warrant assessment for the intersections and access points the following options will be required to be undertaken:

    - Strategic concept designs are to be prepared for intersections and access points (both new and existing locations) based on the outcome of the turn warrant assessment and must be captured within the scope of the REF. The strategic concept designs are to be accompanied by swept path analyses prepared in accordance with Austroads Design Vehicles and Turning Path Templates.
    - Avoid use of intersections or existing access points with insufficient intersection treatments,
    - Propose alternative traffic mitigation measures (which will be assessed based on traffic volumes, speed environment and duration of use).

16. Review and assess other relevant sections of Austroads for each existing or proposed intersection or access point, in particular Safe Intersection Sight Distance, refer to *Part 4 of Austroads Guide to Traffic Management*.

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Note: Any road works or intersection upgrades required based on the outcome of the above assessment need to be reviewed, accepted by TfNSW, included within the scope of the REF and will require a Works Authorisation Deeds (per s64 of the Roads Act 1993). TfNSW will not prepare and determine REFs for third-party works on the state road network.

Transmission line crossing of the state road network and works within the road reserve requirements

TfNSW requires the following matters to be assessed and addressed as part of the REF for the Hunter Central Coast Transmission line:

a. New poles for the transmission line infrastructure are to be located outside clear zones, as per Table 4.1 of the 2010 Austroads Guide to Road Design, Part 6 (see separate attachment). The alignment designs are to be updated to identify compliance with this requirement.
b. Provide the forward construction program for the crossings across the state road network and any work within the road reserve. The forward schedule should provide:
   - Monthly,
   - Quarterly,
   - Weekly,
   - Timeframes for the setup, construction and removal of any temporary infrastructure within the road reserve,
   - Include the time of day at which the works will occur, daylight or nighttime works.

c. Consider the timing and coordination with other projects on the state road network (refer to the TfNSW website for planned or under-construction projects) and other transmission line works (e.g., the Hunter Transmission Project).
d. Provide Traffic Guidance Schemes (TGS) prepared following AS1742.3 and Austroads Guide to Temporary Traffic Management, the plans must detail the specific methodology for construction and include the following details"
   - Number of intermittent closures per day,
   - The type of closures (i.e fast lane etc),
   - The queue lengths that will be generated,
   - The timeframes for stopping and clearing traffic (max 10 minutes for delays),
   - Signage to enforce the temporary traffic control,
   - After care,
   - Speed zone reductions,
   - Any potential impacts to larger freight or other road users along the network during closures,
   - Traffic data collected via traffic count surveys to inform the traffic modelling for queue lengths.
e. Provide structural details and strategic concept designs for scaffolding or temporary infrastructure that will be located within the road reserves for the duration of the construction of the transmission line crossings. Any temporary scaffolding or hurdle structures within the road reserve must comply with Austroads and TfNSW supplements, particularly in providing heights to accommodate OSOM vehicles, creating clear zones, and installing safety barriers to prevent any potential risk to road users.
f. Prepare a communications strategy that factors in the impacts on road users, the state road network, the freight industry, vulnerable road users, TfNSW, and road authorities. The communications strategy should include accountable and enforceable measures.

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g. Location of infrastructure and impacts (excavation or fill) relative to the road reserve, including demarcation of local and state-classified road reserves.
h. Identify and assess new and existing access points, tracks, and routes (including existing intersections) within the state road network that are required for the construction and maintenance of the pipeline infrastructure. Access points or access tracks as are necessary for the pipeline will need the same level of assessment as the primary project access point.
i. Any trenchless excavation for the transmission line near or crossing the State Road network must comply with TfNSW Technical Direction-Geotechnical (GTD 2018 002) for Trenchless Excavation with the Road and Maritime Infrastructure.
j. Strategic concept designs for each crossing of the state road network.

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Attachment 2

Concept Level Route Analysis required for High Risk OSOM

1. The route assessment is required for high-risk OSOM (as defined on the TfNSW website), which will likely be the delivery of transformer components for this project. The concept-level route analysis must include:
   a. Port or point of origin for the entire route to the site access and intersections required to Facilitate high-risk OSOM movements required for the project.
   b. The high-risk OSOM laden loads, class and vehicle configuration must include the following information regarding the dimensions, weight and length:
      - NHVR route ID,
      - Overall dimensions (width, height and length) of the laden load (laden load is the vehicle combination and the load to be transported),
      - Total weight of laden load,
      - GSM,
      - Payload,
      - deck height,
      - axle configuration,
      - axle spacing, including from the prime mover, and
      - axle masses (including split axle and group axle masses).
   c. The location of pull-over bays/rest areas along high-risk OSOM routes (including GPS coordinates) and the demonstration through swept paths that high-risk OSOMs can be physically accommodated for the project (in terms of size, width, and accessibility).
   d. Bridge and culvert assessments for any at-risk bridges on classified roads due to the dimensions and weight of OSOM vehicles on the State road network. Bridge and culvert assessments of TfNSW assets can be requested by TfNSW Road Access team by lodging a request to spu@transport.nsw.gov.au. The routes, NHVR Route ID, and the information detailed in point (b) above are to be included in this request.
   e. Highlighting each at-risk road structure that the haulage route crosses, including bridges, traffic signals, signage, major culverts, and minor culverts that may not meet the desirable cover to cater for proposed axle loads.
   f. Identifying the traffic mitigation measures, road works, modifications, or upgrades to facilitate the movement of the high-risk OSOM(s) associated with the project.
   g. Potential high-level mitigation measures or commitments to mitigate known traffic, safety and impacts to road users along the high-risk OSOM route (i.e school bus routes, mining shift changes, TSRs, harvest periods and events).
   h. Identify and assess implications of any road and rail projects under construction during the indicative schedule for project-related OSOM movements.
   i. Swept paths are required for all pinch points along the State Road network identified in the route assessment.
   j. Strategic concept designs for all pinch points on the State Road network that require modifications or widening to accommodate the high-risk OSOM loads.
   k. Provide a consistency check with the Port to REZ EnergyCo scope of works if the Newcastle route is proposed to be used for the project.

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6th June 2025

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HCC REZ, Response to Public Exhibition of Review of Environmental Factors
Letter of Objection to the Proposal

This letter of objection is prepared on behalf of Huntlee P/L and Misthold P/L for land impacted by the proposed HCC REZ powerline project. The specific land impacted by the proposal consists of lot 11 and 12 DP1137569, located near Branxton, south of the Main Northern Rail line.

Whilst the Huntlee owners are pleased to see major infrastructure projects progressing in the Hunter Region which will support future development, these projects need to be well considered and investigated to ensure that there are no unintended consequences which may significantly detract from the desired outcomes of the project to the community.

The Ausgrid REF documentation has been assessed in detail and comments have been provided on the following pages, however Huntlee's key reasons for the objection to the project proposal and REF submission are summarised below;

i. The REF documentation lacks detail and has not adequately assessed the impacts of the proposal nor properly investigated alternative options to reduce the significant impacts to land zoned for residential development.
ii. The REF appears to largely ignore the fact that the Huntlee land is zoned for residential development and will be home to many thousands of residents in the coming years.
iii. The social and economic impacts of the proposal are significant as they relate to the Huntlee R1/MU1 zoned land and the Ausgrid REF has not considered these impacts appropriately.
    a. The proposed overhead power line project places at risk the delivery of 600 residential home sites during a housing crisis and when housing affordability is a major issue for the Community and State/Federal Governments.
    b. In addition to the direct risk to housing supply provision in the Hunter Region, the potential loss of investment to the NSW Economy from 600 homes would be over $300m.

The proposed powerlines through the Huntlee zoned land represents only 1km out of the 80km plus length of the HCC REZ powerline project. The significant potential impacts from the loss of housing sites and investment in the NSW economy warrant a serious assessment of alternative routes for the 1km route proposed through Huntlee land and it would be expected that this would be undertaken as part of the initial design and REF process.

It is clear that the HCC REZ Project has a clear delivery target and need to commence as soon as possible to complete these works. However with a construction timeline noted of 3 years within the REF, this provides significant opportunity to spend additional time refining the design of the route in key areas of significant impact without delaying the overall completion date.

Our Project team looks forward to the opportunity to further discuss the impacts to the Huntlee project and options on how best to mitigate them.

In addition to this submission on the REF process, Huntlee and its owners will be making various submissions to Local and State Government Departments to ensure the Social and Economic impacts of this project are known at the highest levels.

Yours sincerely,

Stephen Thompson
Huntlee Project Director

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Table 1 - Summary of Key REF Comments

#	REF Item	Submission	Basis of Submission
1	**REF Section 2.1.1 Summary of Proposed Works**	*Insufficient information & impacts not assessed*	Figure 2-1 shows the proposed new assets located within the existing easement widths, but does not indicate how the new assets can be located within the existing 20m easement whilst existing infrastructure is present. The summary of proposed works should outline the general configuration of easements including existing pole infrastructure and the proposed offset to new overhead poles to confirm that the existing easement widths are sufficient.
2	**REF Section 2.1.2 Easements**	*Insufficient information & impacts not assessed*	It is noted in this report section that Ausgrid may need to acquire additional easements over the proposed power lines in some cases, however it is not noted where or in how many instances this might be required. If this information is not currently known, the REF will not have assessed the full potential Environmental Impacts of the proposal. Additional easement widths would create additional impacts on vegetation clearing and soil disturbance. The REF should clearly indicate if and where these are required to ensure these impacts are considered.
3	**REF Section 2.1.3 Clearing**	*Insufficient information & impacts not assessed*	A clearing corridor of 20m is noted, however it is not confirmed if this is confined to within the existing easement. The REF provides general comment about additional clearing however information on where this additional clearing is required is not provided.
4	**REF Section 2.1.4 Access Points**	*Insufficient information & impacts not assessed*	No detail on the location and extent of access points has been provided. The comments in this section are general in nature only and given the noted number of access points being over 100, the potential environmental impacts could be significant but given no locations presented, these impacts have not been assessed.
5	**REF Section 2.1.5 Access Tracks**	*Insufficient information & impacts not assessed*	No detail has been provided to confirm the extent of existing access tracks or whether these are located within the existing easements. Significant works are noted as being required to construct the access tracks, including vegetation clearing, however without locations being presented within the REF, these environmental impacts have not been addressed. It is noted that Huntlee/Misthold P/L or its agents have not been contacted in regard to the creation or requirement for any access tracks to the area of works that may be required outside of the current easement.

6	**REF Section 2.1.7 Worksites, Construction Benches and Pads**	*Insufficient information & impacts not assessed*	Worksites and construction pads of 20x20m, 25x25m or potentially larger have been noted as being required adjacent to new poles. Given these sizes are at least the same width or larger than the easement widths and appear to be offset from one side of the new poles, it appears that these areas will be outside of the existing easements. Additionally, brake and winch sites are noted as requiring up to 50x70m which will be well outside the existing easement. As outlined in Section 2.1.3 and the Ecological Assessment report, impacts of clearing have only been noted as due to the clearing within easements. No details are provided about how the existing power poles will be dismantled and whether these works will be able to be undertaken from within the easement or require additional space outside it. These construction worksite areas have not been nominated on the plans and given not located within the easements, impacts of these works have not been assessed.
7	**REF Section 2.1.10 Construction laydowns**	*Insufficient information & impacts not assessed*	These laydowns are noted as being 'typically' located within easements and potentially containing petrol generators and site fencing. No locations or diagrams of these are provided within the documentation and as such it is unclear if these can fit within the existing easements whilst maintaining access for construction. Additionally, the noted use of petrol generators for unstated uses suggests either site sheds or potentially hot work. It is unclear if additional clearing is required for bushfire risk mitigation given the uncertain nature of the works and unknown locations.
8	**REF Section 2.1.11 & 6.9.2 Waste**	*Insufficient information & impacts not assessed*	The existing powerlines are noted as needing to be dismantled, stockpiles and taken for disposal. The REF does not contain a Waste Management plan which should be considered a standard inclusion to outline what waste materials will be generated, approximate quantities and how they will be handled and disposed of.
9	**REF Section 2.1.13 Construction Methodology**	*Insufficient information & impacts not assessed*	This section notes the requirement for the Contractors prepare a CEMP. A CEMP Framework should be provided as part of the REF to ensure the ultimate contractors undertaking the work sufficiently address all measures required under the REF.

			Table 2-2 notes that existing pole locations are to be backfilled to natural levels, the methodology and fill used to complete this work is not noted in the documentation, level of compaction and material used for example. Table 2-2 refers to the potential need for anchors and ground stays. These do not appear to be noted elsewhere in the documents and it is unclear if these will be contained within the easements. The impacts of these anchors/stays do not appear to be assessed. Table 2-2 notes clean spoil to be spread on site but provides no quantum or detail around how this would be undertaken or how the area would be revegetated. Given this is potentially within private land holdings it is suggested that removal of all waste spoil is required to avoid impacting site levels and creating a future issue for landowners. Table 2-2 notes some access tracks and pads will be left in a stable condition, however no specification is provided in regard to what this consists of or how they would be stabilised. Additionally, there is no mention about how disturbed areas created for construction but not required long term would be restored, this should require removal of material/regrading and topsoiling/ revegetating with suitable hydroseed or similar. There is no discussion in the REF as to how construction works will be confined to an assessed impact area. Construction machinery and vehicle movements should be controlled during construction with fencing and/or flagging to prevent assessed impact areas expanding during the actual works.
10	**REF Section 2.3.1 & 6.4** **Timing and Working Hours / Noise & Vibration**	*Insufficient information & impacts not assessed*	The REF notes that construction will take three years and generally standard construction hours will be adhered to, however there are instances noted where works can occur outside of these hours. The reasons noted for being able to work outside the standard hours are general and appear quite flexible and open to interpretation by Ausgrid personnel. Given this it would be expected that a Noise and Vibration Management Plan would have been prepared as part of the REF which is standard practice for large scale projects. No actual assessment of noise and vibration in relation to the overhead power line construction works has been included within the Noise and Vibration Assessment report in Appendix F. This is unsatisfactory given the 3 year construction period and potential for construction in rock and use of helicopters in stringing power lines between

			poles. No assessment of noise and vibration impacts to nearby sensitive receivers has been provided for the overhead powerline works.
11	**REF Section 2.3.2** **Extended Working Hours for Remote Powerline works**		Further to above comments on noise and vibration, Section 2.3.2 indicates where works are located away from sensitive receivers works would be undertaken outside of normal construction hours including 7-6pm on weekends and public holidays. No details regarding the definition of 'located away from sensitive receivers' has been provided and as such this explanation to allow works outside normal work hours is insufficient to allow any assessment of the potential impacts or to inform the Contractor when this is acceptable / allow for compliance checks during construction. An assessment in the Noise and Vibration Assessment Report should be included to confirm this proposed distance to sensitive receivers which is considered far enough away to allow extended construction hours.
12	**REF Section 3.7 / 3.8 Landowner Consultation Summary of Community & Stakeholder Issues Raised**	*Impacts not assessed* *Alternative options not investigated to mitigate impacts*	It is noted in Table 3-4 that "*some concerns from developers around potential impact to their development yield*". This would be a result of Huntlee's discussion with the Ausgrid team during the consultation process. Despite the concerns being noted, the REF and design process has not followed up or considered the impacts to future residential development at Huntlee which are expected to be significant and puts at the risk the delivery of 600 home sites and $300m of investment into the NSW Economy. These significant impacts should have been further investigated and alternative route options considered within the REF to mitigate or avoid these impacts. It is clear that this issue was not further considered by the Ausgrid team given the noted concerns in Table 3-4 did not make it into the summary of community & stakeholder issues in Table 3-5, nor are the noted impacts considered anywhere else in the REF.
13	**REF Section 4.0 Investigation of Alternatives**	*Alternative options not investigated to mitigate impacts*	Section 4.4.1 of the REF notes that construction of powerlines in new easements was not preferred as it would require new easements and create additional costs/clearing impacts. It is clear that in most areas of the route this would be the case, however in areas of high impact, further consideration should have been given to alternative routes, such as the Huntlee residential land. Given the impacts of the proposal do not appear to have been sufficiently assessed, there appears to have been limited impetus to investigate alternative options.

			During the early consultation process, Huntlee P/L noted that the impacts to the residential zoned land at Huntlee would be significant and suggested alternative locations for the overhead power lines to avoid these major impacts. Following these discussions, Ausgrid staff noted that insufficient time was available to investigate these other options as works needed to proceed. The use of the existing easement through land zoned R1 and planned for 600 homes has not been specifically mentioned within the REF, nor have the impacts of this been adequately addressed. Additional investigation into alternatives needs to be included in the assessment by Ausgrid.
14	**REF Section 6.1** **Land use**	*Insufficient information & impacts not assessed*	The land use description and impacts to discussed in this section do not mention the Huntlee/Misthold land which is zoned for residential development and is also currently the subject of a State Significant Development Application (SSDA). Huntlee's SSDA submission include a proposal for approximately 4000 residential lots overall and approximately 600 in the immediate area of the Ausgrid proposed works.
15	**REF Section 6.1.2** **Land use** **Impact Assessment**	*Insufficient information & impacts not assessed* *Alternative options not investigated to mitigate impacts*	The impact assessment indicates that the proposal would not restrict access to residential land and in fact benefit surrounding land uses. There has been insufficient consideration given to impacts on existing zoned land and the proposed 600 residential lots within Huntlee's SSDA application. The increased scale of the proposed powerlines through the area of the proposed 600 residential homes will likely be too expensive to be relocated in the future, putting the delivery of these homes at risk. The State and Federal Governments have set ambitious housing delivery targets to assist in solving the housing crisis that exists. The REF needs to include consideration of the potential loss of housing and economic stimulus from the proposed Ausgrid overhead powerline works.
16	**REF Section 6.1.3** **Environmental Mitigation Measures**	*Alternative options not investigated to mitigate impacts*	The mitigation measures outlined in Table 6-1 should include assessment of alternative route options during the design process to mitigate the potential loss of housing and economic stimulus which may result from the proposed works.
17	**REF Section 6.3** **Electric and Magnetic Fields**	*Insufficient information & impacts not assessed*	The magnetic field calculation for section B-B which is adjacent to the proposed Huntlee residential development indicates that magnetic field (mg) will exhibit a sixfold increase compared to what currently exists at the edge of the easement during average load.

		Alternative options not investigated to mitigate impacts	As outlined in the report, prudent avoidance suggests alternative options should have at least been investigated in more detail to reduce the impact of EMF on 600 residential homes in close proximity to the works. This section of powerline represents only 1km out of the total of 85km of power line, as such additional investigations could have been undertaken to explore additional options for the location of the new 132kV overhead line over this short area to limit impacts to a large future residential population. It is also evident that the modelling was prepared based on the powerlines being centrally located within the easement, however no documentation within the REF can confirm whether this is the case. It is assumed that the new powerlines will need to be constructed off centre within the easements due to the existing 66kV line, as such the EMF fields may actually be higher on one side of the easement. The Aurecon report included as Appendix E indicates in Section 4.3 that human interaction with the proposed powerline will be intermittent and transitory. Additionally in Section 5.3 it is stated that only 20 dwellings will reside within 100m of powerline section B-B, which passes through the Huntlee/Misthold zoned land. These statements suggest that the impacts to the Huntlee residential development through which the easement passed have not been considered. The actual number of dwellings within 100m of the easement will be several hundred. Table 6-7 Mitigation measures should include investigation of alternative route options during the design phase to avoid or mitigate impacts to the future residential population planned for lots 11 and 12, DP1137569 near Branxton.
18	**REF Section 6.10** **Flora and Fauna**	*Insufficient information & impacts not assessed* *Alternative options not investigated to mitigate impacts*	The Persoonia pauciflora is listed as critically endangered under both the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and the NSW Threatened Species Conservation Act 1995 and exists south of the main northern railway near Branxton. The REF and associated Ecological report provided in Appendix I make no mention of this flora or whether any investigations were undertaken to determine if it was present along any of the proposed route in the vicinity of Branxton. Further to previous comments in relation to clearing, the exact extents of clearing are unknown given the location and size of pads/laydown areas etc have not been documented, as such it is not known how the actual

			impact on the flora and fauna along the overhead powerline route has been assessed. Table 6-24 notes in the mitigation measures that impacts to native vegetation outside the impact area are to be avoided. However there is no 'impact area' defined within the project documentation. Table 6-24 includes obtaining consent from NSW Biodiversity Trust for any new works within BCT mapped areas. This process should have already been undertaken along with a review of alternative routes prior to finalising the REF. If consent is not obtained, alternative designs will be required which will require an updated REF to consider impacts of the new alignment. Table 6-24 should have included consideration of alternative routes for the power lines through sensitive areas such as those within BCT mapped areas during the design/REF process.
19	**REF Section 6.11** **Bush fire**	*Insufficient information & impacts not assessed*	Table 6-26 notes that APZ clearing is to be undertaken along the overhead pipeline route in accordance with the ISSC3 Guide for the Management of Vegetation in the Vicinity of Electricity Assets. This Guideline suggests that the extent of clearing various depending on conductor type and span, this should be clearly documented within the REF to ensure that any clearing required for bushfire purposes is limited to the defined 'impact area' and has been properly assessed.
20	**REF Section 6.12** **Heritage**	*Impacts not appropriately assessed*	The Archaeological reports attached to the REF indicate that they were prepared for the purposes of an options / constraints assessment and that additional assessment would be required. REF section 6.12.2 indicates that final recommendations for management of the Aboriginal archaeological sites will rely on the final design and the impact assessment therefore appears to largely indicate that the environmental impacts will be assessed and addressed during the design and construction phases, rather than within the REF. It is therefore unclear how the REF adequately assesses the impacts to Aboriginal Heritage when the final expected impacts are not identified. It is also unclear how the Aboriginal Community will be involved in the further design phases where it appears decisions around impacts will be made. Table 6-27 notes that an ACHMP will be prepared in consultation with Aboriginal parties to manage the

			operation of the HCC REZ network, however this should also be provided as part of the construction works to assist in informing the Contractor of their requirements during construction.
21	**REF Section 6.13** **Visual and Aesthetics**	*Impacts not appropriately assessed* *Alternative options not investigated to mitigate impacts*	The Visual Impact Assessment included as Appendix L includes an assessment at the north western corner of Huntlee, noted as Viewpoint 5. Whilst the report notes that the Huntlee land is approved for residential development immediately south of the electricity easement, the sensitivity, magnitude and significance of visual impacts are all noted as low. The low impact assessment is made despite the fact that the land through which the easement runs is zoned as R1 residential land, and the proposed works consist of increasing the height of the existing infrastructure to 30m. The Visual Impact Assessment should consider impacts to the future residential development within Huntlee immediately adjacent to the proposed overhead easement. This would likely result in a high sensitivity receptor and moderate-high magnitude, resulting in a moderate to high significance of effects from the development, rather than low as documented. Table 6-30 outlining the mitigation measures should include a consideration of an alternative route further to the north to avoid / minimise the visual impacts to the R1 zoned land at Huntlee.
22	**REF Section 6.16** **Social and Economic**	*Impacts not appropriately assessed* *Alternative options not investigated to mitigate impacts*	The impact assessment does not consider the impacts to the future Huntlee development located on R1 zoned residential land on lot 11 and 12 DP1137569. The proposed substantial increase in infrastructure within the easement will likely preclude the ability of Huntlee to fund the relocation of these electrical assets further north to allow residential development to progress on the R1 zoned land, potentially putting at risk the creation of 600 desperately needed homes within the local community at a time when a housing crisis and housing affordability are key issues for the Government and community alike. The REF and design options prepared by Ausgrid have not considered the potential social and economic impacts of the 600m section of overhead power line through the Huntlee development land in light of the potential 600 homes that could otherwise be provided in this area. The construction of 600 homes would represent an economic investment of approximately $300m into the Hunter and NSW Economies.

			The visual impacts to other R1 residential land that may proceed further south will also be impacted from the proposed works as outlined further above and will not be deemed as low significance by future residents. Mitigation measures outlined in Table 6-32 investigated by the proponent should have included investigation of alternative routes for the 1km section of overhead power line through the Huntlee land.
23	**REF Section 7.1** **Section 171 Factors**	*Impacts not appropriately assessed*	The Consideration of Factors as required under Section 171 is not currently considered adequate within the REF and requires additional investigation and review of impacts and alternatives. Of particular note are the following. - Limited assessment of impacts to the future ability of the Huntlee R1 residential land to be developed for housing, potentially preventing the creation of 600 home sites ***(S171 Factors not considered (i) Reduction in the range of beneficial uses of the environment (ii) impact on a community (iii) Increased demands on resources***) - Limited assessment of impacts to future community residing on Huntlee R1 residential land (***S171 Factors not considered (i) Impact on a community (ii) reduction in the aesthetics of a locality***) -No assessment of impacts to the Persoonia Pauciflora ***(S171 Factors not considered (i) Impact on ecosystem (ii) Impact on habitat)***
24	**REF Section 7.2** **Matters of National Significance**	*Impacts not appropriately assessed*	The Persoonia Pauciflora was not mentioned in the REF or associated Ecological report. This plant is listed as critically endangered under both the Commonwealth Environment Protection and Biodiversity Conservation Act 1999 and the NSW Threatened Species Conservation Act 1995.
25	**REF Section 7.3.2 Ecologically Sustainable Development Inter-generational equity**	*Impacts not appropriately assessed*	The REF has not considered the potential impacts of 600 residential home sites not being provided on land zoned for such purposes which would significantly assist the local community during a housing crisis and at a time when housing affordability is already a major issue. In addition to potential impacts on housing availability and affordability, the economic impacts to the Hunter Region and NSW from the potential loss of $300m in housing investment far outweighs the benefits of the particular 1km of overhead powerlines through the Huntlee R1 zoned land.
26	**REF Section 8** **Summary of Impacts**	*Impacts not appropriately assessed*	Based on the review of the REF and comments provided above, several key issues in Table 8-1, Summary of Impacts should have their likely significant impact rating increased. These specific issues are noted below.

			Likely Significant Impact Land use Yes Visual/Aesthetics Yes Social/Economic Yes
27	**REF Section 9** **Environmental Management**	*Impacts not appropriately assessed*	A more detailed CEMP framework should be prepared for inclusion within the REF and include several Ausgrid provided documents as listed below which should be adhered to be the Contractor; - Construction Noise & Vibration Management Plan - Aboriginal Cultural Heritage Management Plan - Flora and Fauna Management Plan