EnergyCo

Central-West Orana Renewable Energy Zone Transmission project

Amendment Report

Appendix E: Updated mitigation measures

March 2024

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E1 Updated mitigation measures

This appendix provides the approach to environmental management of the amended project and a compiled list of all revised mitigation measures to address impacts of the amended project.

E1.1 Approach to environmental management

The Network Operator appointed by EnergyCo will design, build, finance, operate and maintain the amended project. The proposed Network Operator would be required to have an environmental management system that is ISO 14000 accredited.

Should the amended project be approved, the environmental performance of the amended project would be managed in accordance with:

- the Network Operator's environmental management system, including processes and procedures
- the amended project as described in Section 1.2 and Chapter 3 (Description of amendments, refinements and clarifications) of the Amendment Report
- the mitigation measures that have been identified to minimise environmental impacts (as summarised in Section E1.4)
- the conditions of approval and other licences, permits and consents granted for the amended project
- the Construction Environmental Management Plan (CEMP)
- an Operational Environmental Management Plan (OEMP) (or equivalent).

The approach to construction environmental management is outlined further in Section E1.2.

E1.2 Construction environmental management

A range of processes, procedures and actions would be implemented to ensure that construction activities are undertaken in accordance with the environmental, stakeholder and community management requirements identified in the EIS, Amendment Report and Submissions Report throughout the construction period. Specifically, this would include, but not be limited to the following:

- preparation and implementation of Environmental Work Method Statements for enabling works
- preparation and implementation of the CEMP, sub-plans and other supporting documentation for each specific environmental impact
- identification of roles and responsibilities including the relationship between EnergyCo, the Network Operator and the Environmental Representative (if required by the conditions of approval)
- implementing environmental management training and awareness for construction staff
- continuation of stakeholder and community engagement activities during construction.

These requirements are summarised in the following sections.

E1.2.1 Enabling works

Enabling works are activities required to:

- facilitate the commencement of substantial construction works
- to manage specific feature or issues
- collect additional information required to finalise aspects of the design and construction methodology.

To be considered enabling works, these works must be considered to have minor or low impacts, and typically must not impact features of high environmental or heritage conservation significance, or involve substantial amenity impacts to nearby receivers. Enabling works are further described in Appendix A (Updated project description).

Enabling works would be managed under site-specific Environmental Work Method Statements or similar environmental management documents. All enabling works would be subject to the relevant mitigation measures, any relevant conditions of approval.

E1.2.2 Construction environmental management plan

The management of environmental impacts during the main construction works would be documented in the CEMP and would be prepared by the Network Operator in collaboration with EnergyCo. The CEMP would provide the overall environmental management framework and procedures to ensure that environmental impacts are minimised and that legislative and approval requirements are fulfilled.

The CEMP would be prepared in accordance with *Environmental Management Plan Guidelines for Infrastructure Projects* (DPIE, 2020d) and *Independent Audit Post Approval Requirements* (DPIE, 2020e). It would include:

- the environmental policy, objectives and performance targets for construction
- reference to relevant statutory and other obligations, including approvals, licences, permits and consents
- issue-specific sub-plans that detail how construction activities would be managed and monitored to avoid or minimise impacts
- processes for managing non-conformances, including identifying and implementing corrective and preventative actions to rectify the non-conformance and prevent recurrence
- processes for demonstrating compliance with the commitments made in the EIS, Amendment Report, Submissions Report and relevant approval conditions
- responsibilities for planning, implementing, maintaining and monitoring environmental controls including the responsibilities of sub-contractors
- procedures for the control of environmental records
- a compliance tracking and auditing program
- environmental management training and awareness for construction staff.

The CEMP would be supported by issue-specific sub-plans, activity-specific procedures and strategies, and site-based control maps. An outline of the issue-specific sub-plans that would form part of the CEMP is provided in Figure E-1. Development of plans and strategies is based on managing medium and high environmental risks as identified in Chapter 22 (Environmental risk analysis) of the EIS and on best practice construction methods.

The CEMP and sub-plans would be reviewed and updated as required, including in response to audit findings, compliance monitoring results, and incidents and inspections that identify corrective and preventative actions. The Network Operator may choose to combine sub-plans.

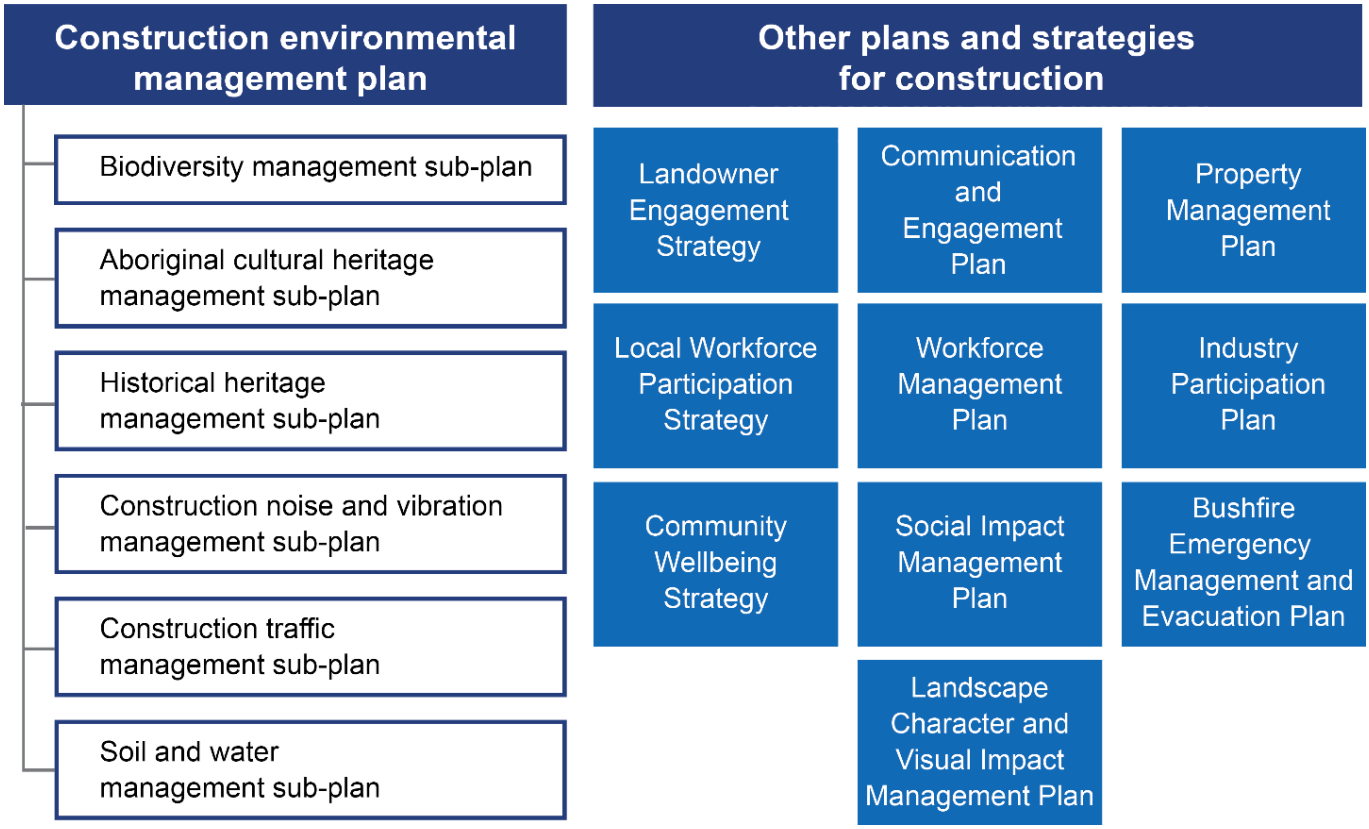

Figure E-1 Construction environmental management - indicative plans and strategies

E1.2.3 Community and stakeholder engagement

A construction communication and engagement plan will be developed by the Network Operator. Throughout construction, the Network Operator will work closely with stakeholders and the community to ensure they are well informed regarding the construction works.

Stakeholders and the community will be informed of significant events or changes that affect or may affect individual properties, residences and businesses. These will include significant milestones, any proposed design changes, changes to traffic conditions and access arrangements, construction operations which will have a direct impact on stakeholders and the community including noisy works, interruptions to utility services or construction work outside of normal work hours.

Other plans and strategies in place during construction (refer to Figure E-1) would also specify targeted engagement with the community and stakeholders to address key issues.

E1.3 Operational environmental management

Operation of the amended project would be undertaken in line with the Network Operator's procedures and processes and the operational management measures identified in the EIS. An OEMP (or equivalent) would be developed prior to commissioning of the amended project. The OEMP would include:

- the performance outcomes, commitments and mitigation measures identified in the EIS, Amendment Report and Submissions Report
- environmental policies, standards and principles to be applied to operation
- ongoing environmental risk analysis to identify new or changing environmental risks
- the roles and responsibilities of all key personnel
- procedures and plans to address key issues such as vegetation management and emergency responses
- a communication strategy for updating and liaising with the local community
- review, audit and/or monitoring processes to measure environmental performance and identify opportunities for improvement.

E1.4 Changes to mitigation measures

Changes proposed to the measures provided in the EIS to mitigate and manage the potential impacts of the amended project are presented in Table E-1. These measures have been revised in response to submissions raised during public exhibition of the EIS and the project amendments and refinements made following exhibition. Revisions to the measures are presented in bold text (for new text) or strikethrough text (for deleted text).

Table E-1 Proposed changes to mitigation measures

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
Land use and property				
LP1	Land use	The design will continue to be refined to minimise potential impacts on existing land uses and properties as far as practicable.	Detailed design	All locations
LP2	Land requirements	Prior to the commencement of construction, land for the energy hubs will be acquired in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW).	Detailed design	Energy hubs
LP3	Impacts to land use	Pre-condition assessments of the construction area will be undertaken to determine the existing condition of assets, infrastructure, utilities and the general condition of the land. This will inform requirements for rehabilitation within Property Management Plans established with landowners.	Pre-construction and construction	Construction area – transmission lines
LP4	Impacts to utilities and services	The location of all services and utilities within the construction area will be confirmed during detailed design, and any required protection or relocation will be designed in consultation with utility providers.	Detailed design	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
LP5	Indirect impacts on State forests	EnergyCo will consult with Forestry Corporation of NSW and any relevant stakeholders with regards to access limitations.	Pre-construction	Locations where the project intersects State Forests
LP6	Impacts to travelling stock reserves (TSRs)	Local Land Services will continue to be consulted during detailed design to confirm how impacts on travelling stock reserves will be managed during construction and operation. Alternative access arrangements will be made as required.	Detailed design	Barneys Reef TSR
LP7	Impacts to mine operations	To minimise disruption to mining activities, mine operators will be consulted on construction methodologies and activities as part of continued design development and prior to and during construction activities. This will include consultation relating to: • any adjustments to existing mining-related infrastructure (fences, tracks, mine roads, access tracks etc) • the timing and location of construction works, especially where there are some restrictions on vehicle or construction equipment movements • the timing and location of construction works which have the potential to impact mine operations, such as the stringing of transmission lines over existing mine infrastructure or active mining areas.	Pre-construction and construction	Mining areas
LP8	Impacts to existing biodiversity offset sites	EnergyCo will, in consultation with applicable regulatory authorities, Glencore, YanCoal and Peabody, identify and secure biodiversity offsets for impacts to existing biodiversity offset sites (associated with the Wilpinjong, Moolarben and Ulan coal mines approvals).	Pre-construction and construction	Existing biodiversity offset areas
LP9	Land disturbance	**Areas disturbed by construction** ~~Disturbed areas~~ will be stabilised and appropriately rehabilitated ~~back to pre-construction condition where practical, or as agreed~~ in consultation with the relevant landowner and ~~documented~~ as per any relevant requirements in Property Management Plans.	Construction	Construction area
LP10	Land requirements	The ~~permanent~~ acquisition of land for the switching stations will be carried out by EnergyCo in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW).	Detailed design	Switching stations
LP11	Land requirements	Easements will be established for transmission lines by EnergyCo in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW) and *Crown Lands Management Act 2016* (NSW) (as relevant) at the completion of construction.	Detailed design	Transmission lines
Agriculture				
AG1	Access impacts – construction	The location of any additional access tracks (temporary and permanent) will be confirmed in consultation with ~~landowners~~ landholders to minimise impacts on agricultural activities. Where permanent tracks are required, a single access track will be designed to serve both temporary and permanent purposes, where practicable.	Detailed design and construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AG2	Impact of structures	Where the positioning of transmission line structures and other associated permanent structures will impact: • cropping land • areas used for set up and pack up of agricultural equipment, entry points and turning areas • farm dams, or • locations of high biosecurity risk. ~~e~~Consultation will be undertaken with the affected landowner to identify opportunities to avoid or minimise these impacts, where practicable, prior to the commencement of relevant works which will impact the applicable area, equipment and/or property infrastructure.	Detailed design and construction	All locations
AG3	Disruption Impacts – Property Management Plans	Individual Property Management Plans will be developed in consultation with each landowner directly affected by construction activities. The intent of the plans is to provide a flexible approach which balances the needs of existing agricultural operations and construction activities. The plans will address relevant matters including: • pre- and post-condition surveys • access arrangements and protocols • proposed timing and location of construction works, particularly where some restriction on vehicular, equipment, grazing or livestock movements will be necessary • grazing and cropping activities on and adjacent to the construction area during the construction period • farm infrastructure arrangements • any required adjustments to property infrastructure (fences, access tracks, etc) • noise intensive activities during sensitive periods of the livestock production cycle (e.g. lambing/calving) • vehicle movements and other activities within the vicinity of livestock • movement of stock away from potential stressors created by construction activities • details of any access tracks or other infrastructure provided for temporary construction activities that are to be retained and not restored to the pre-existing condition (where requested by the landholder prior to the completion of construction within the applicable area) • biosecurity requirements • contact details for the person who will liaise with landowner to provide direct avenues of enquiry for information and issues management. Property Management Plans will be developed prior to the commencement of relevant works which will impact the applicable property, activity, equipment and/or property infrastructure. The requirements of the plans will be adhered to/implemented throughout the construction period.	Detailed design, pre-construction and construction	All relevant properties within the construction area

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AG4	Disruption Impacts – General	To minimise disruption to agricultural activities: • property infrastructure (such as gates) will be managed in accordance with landowner requirements • any damage to property infrastructure caused by construction will be repaired in a timely manner in consultation with the landowner • use of existing roads, tracks and other existing disturbed areas will be prioritised over the construction of new access tracks where practicable • where access is required across open spaces, either within the easement or to the easement, care will be exercised to ensure that surface disturbance is minimised by confining vehicular and plant movements, as far as possible, to a single route.	Detailed design and construction	All relevant properties within the construction area
AG5	Biosecurity - construction	Biosecurity controls will be implemented during construction to minimise the risk of transport or spread of disease, pests or weeds. A Biosecurity Management Plan will be developed addressing the following protocols/matters including: • **review of the latest publicly available weed data including relevant Regional Strategic Weed Management Plans** • **consideration of information on weeds identified in biodiversity studies undertaken for the project** • weed management controls, including inspection and cleaning of plant and equipment, and management of earthworks and clearing activities • development of specific controls where high biosecurity risks are identified. For example appropriate measures will be implemented with respect to foot and mouth disease to control any risk of introduction of the pathogen as a result of project activities • ~~the specific controls applicable to a property will be consistent with property biosecurity plans where they are in place. Agreed protocols will be documented in the Biosecurity Management Plan~~ • a monitoring program to track the effectiveness of the controls identified in the Biosecurity Management Plan • consultation with the owners of organic certified properties will be carried out to identify the specific risks and controls required to be implemented • **notification of relevant councils of new infestations of priority weeds listed in the relevant Regional Strategic Weed Management Plans if identified.** **The specific controls applicable to a property will be consistent with approved Property Biosecurity Plans** ~~biosecurity plans~~ **where they are in place. Property-specific protocols will be documented in the relevant Property Management Plans.**	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		The Biosecurity Management Plan will be prepared in consultation with relevant local council biosecurity officers in relation to the distribution of important weeds and the location of high biosecurity risk areas.		
AG6	New weed infestations	In the event of new infestations of State priority weeds as a result of construction activities, the relevant control authority will be notified in accordance with the requirements of the *Biosecurity Act 2015* and Biosecurity Regulation 2017.	Construction	All locations
AG7	Access impacts – operation	Fencing and access arrangements, such as locked gates and requirements for opening and closing of gates, will be determined in consultation with landowners. Any damage caused by maintenance activities will be repaired promptly.	Operation	Transmission line
AG8	GPS impacts	In the event that nuisance impacts on agricultural precision farming GPS signals arises due to operation of the project, the cause of any such interference will be investigated. Any disruption due to operation of the project will be addressed in consultation with the affected landowner and may include measures such as signal boosting equipment or antenna enhancements (where applicable).	Operation	Transmission line
AG9	Biosecurity – Operation	~~Biosecurity controls set out in~~ **The Biosecurity Management Plan will be updated for the operational phase and** implemented during operation to minimise the risk of transport or spread of disease, pests or weeds during **operation and** maintenance activities.	Operation	All locations
AG10	Weed management	Where present within the transmission line easement and associated areas for permanent infrastructure, weeds will be managed in accordance with the *Biosecurity Act 2015*.	Operation	All locations
Landscape character and visual amenity				
LV1	Vegetation retention	Vegetation clearance for the project will be limited to the minimum extent necessary for construction and operation to maximise existing visual screening and retention of the existing landscape character. Retained vegetation will be clearly demarcated on site as 'no-go zones' prior to the commencement of construction. Construction personnel will be made aware of no-go zones as part of environmental site induction(s).	Pre-construction, Construction, Operation	Whole of project
LV2	Lighting control	Lighting at construction compounds and workforce accommodation camp(s) will be designed and operated in accordance with Australian and New Zealand Standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting*.	Pre-construction and construction	Construction compound and workforce accommodation camp(s)

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
LV3	Private dwellings with a moderate or high visual impact	For private dwellings on non-host properties where the project is predicted to have a moderate or high visual impact, reasonable and feasible opportunities to reduce the visual impact (including the provision of screening vegetation) will be investigated. Appropriate visual screening or other options will be confirmed in consultation with the affected landowner (supported by detailed landscape plans where appropriate) and implemented either before or during construction. Maintenance of vegetative screening provided on privately owned land outside of the operation area will be the responsibility of the landowner.	Pre-construction, Construction	Private dwellings on non-host properties with a moderate or high visual impact
LV4	Lighting control	Lighting at the Energy Hubs and switching stations will be designed and operated in accordance with: • Australian and New Zealand Standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting* • the design guidelines contained in the Siding Springs Dark Sky Planning Guideline (DPE 2016). This will include: — eliminating upward spill light — ensuring lighting is directed downwards — using shielded fittings — avoiding overlighting — switching lights off when not required, such as with the use of sensor lights — using energy efficient bulbs — using asymmetric beams if floodlighting is required — ensuring lights are not directed towards reflective surfaces — using warm white colours.	Pre-construction, Construction, Operation	Merotherie Energy Hub, Elong Elong Energy Hub, and switching stations
Biodiversity				
B1	Avoidance of threatened species and threatened ecological communities	~~Sensitive areas to be avoided during detailed design and sensitive areas (including species polygons, buffered threatened species locations (including off site features adjacent to the subject land and areas of Threatened Ecological Communities) will be identified on sensitive area plans using spatial data.~~ **The locations of threatened ecological communities and habitat for threatened species will be considered and potential impacts avoided or minimised to the greatest extent practicable during finalisation of the detailed design and construction methodology. This will include**: • micro siting of transmission line infrastructure **within the biodiversity study area** • prioritising disturbance in areas with a Vegetation Integrity score <17 as per section 9 of the Biodiversity Assessment Method (2020). **Sensitive areas to be avoided during detailed design and sensitive areas (including species polygons, buffered threatened species locations and areas of Threatened Ecological Communities) will be identified on sensitive area plans using spatial data.**	Detailed design Pre-construction	Identified sensitive areas

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B2	Avoidance of threatened species and threatened ecological communities	Prior to construction activities taking place within the Little Eagle nest buffer and during the breeding season (from Spring until after young and fledged in early Summer), an ecologist will be engaged to determine if the species is present. If present, an impact assessment of proposed activities will be completed to determine what, if any, activities can take place within the buffer area, and what mitigation measures need to be implemented. Measures may include cessation of certain activities, amending the construction methodology including selecting alternative plant or equipment.	Detailed design Pre-construction	Within Little Eagle tree nest buffer area(s)
B3	Avoidance of threatened species and threatened ecological communities	Prior to construction activities taking place within 100 m of rocky areas containing caves, overhangs or crevices, cliffs or escarpments and during the breeding season for the Large-eared Pied Bat, Eastern Cave Bat, Large Bent-winged Bat (November to February), an ecologist will be engaged to determine if the species are present. If present, an impact assessment of proposed activities will be completed to determine what, if any, activities can take place within the 100 m and what mitigation measures need to be implemented. Measures may include cessation of certain activities, amending the construction methodology including selecting alternative plant or equipment.	Detailed design Pre-construction	Within 100 metres of rocky areas containing caves, or overhangs or crevices, cliffs or escarpments as mapped by Technical paper 4 – Biodiversity Development Assessment Report
B4	Micro-siting of associated works and access tracks	Micro-siting of **temporary** construction infrastructure (including site offices, compounds and access tracks) will be undertaken to minimise vegetation clearing and disturbance of watercourses. This will include: • prioritising areas of low biodiversity value • utilising existing access tracks, where feasible • locating waterway crossings at narrow width locations • minimising the quantity of cut and fill activities.	Pre-construction Construction	All locations
B5	Connectivity corridors	Connectivity corridors~~, are to be investigated in the form of installation of under-transmission line glider poles (in accordance with clearance requirements for transmission lines and infrastructure)~~**in the form of installation of under-transmission line glider poles (in accordance with clearance requirements for transmission lines and infrastructure)** where the construction area will impact habitat connectivity for arboreal species (see Appendix J of Technical paper 4 – Biodiversity Development Assessment Report for an examination of regional and terrestrial habitat connectivity and target species for mitigation), **are to be investigated and installed in appropriate locations**. The exact location and design of under-transmission line glider poles and/or rope bridges will be nominated as part of a Connectivity Strategy guided by the locations of habitat connectivity outlined in Figure 14-14 and 14-15 of Technical paper 4 – Biodiversity Development Assessment Report. Where poles are proposed to be installed on land adjacent to the easement, they will be subject to landowner agreement and captured in the property management plan. This strategy will require ongoing management of connectivity corridors.	Pre-construction (Connectivity Strategy) Construction Operation (Corridor Management)	Relevant locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B6	Impacts on availability of nesting hollows	A Supplementary Hollow and Nest Strategy will be developed and implemented for the creation of nest boxes or other hollow creation method to provide alternative roosting and/or nesting habitat for threatened fauna displaced during clearing. ~~A target ratio for the provision of three artificial hollows/nest boxes for every occupied hollow removed will be implemented. Where supplementary hollows are proposed to be established on land adjacent to the easement, these will be subject to landowner agreement and captured in any property management plan.~~ **Nest box/hollows are to be installed prior to commencement of clearing works where practicable in each construction area.** **Where supplementary hollows are proposed to be established on land adjacent to the easement, these will be subject to landowner agreement and captured in any property management plan.**	~~Nest box/hollows are to be installed at least 3 months prior to commencement of clearing works where practicable in each construction area.~~ **Pre-construction** **Construction**	Relevant locations
B7	Biosecurity impacts	A Biosecurity Management Plan will be prepared in accordance with mitigation measure AG5.	Pre-construction Construction	All locations
B8	Biodiversity impacts	A Biodiversity Management Plan will be prepared and implemented for the duration of construction. The plan is to include (as a minimum): • **a protocol for identifying and demarcating, prior to clearing commencement at each location,** the location and extent of areas of vegetation clearance and habitat disturbance, and how these will be suitably demarcated on site • **a protocol for identifying and demarcating, prior to clearing commencement at each location,** the location and extent of areas to be protected (e.g. retained vegetation, hollow-bearing trees, nests, burrows and other habitat features**),** ~~(~~including applicable buffers to habitat features~~)~~ ~~located inside the construction area or in close proximity to the clearing areas~~ • measures to be implemented on site to clearly demarcate areas to be retained as 'no go areas' ~~with suitable fencing or equivalent exclusion barrier.~~	Pre-construction ~~To be installed prior to the commencement of clearing works in each construction area.~~ ~~'No go area' fencing and other tags/marks must be maintained throughout the construction phase.~~ **Construction**.	All locations
B9	Tree protection measures	Tree protection measures are to be installed and maintained **as necessary for trees to be retained within and in the vicinity of energy hubs, construction compounds and accommodation camps,** in accordance with *AS 4970-2009 – Protection of Trees in Development Sites* throughout construction.	Pre-construction	Applicable trees within **and in the vicinity of the energy hubs, construction compounds and accommodation camps**

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B10	Pre-clearing surveys	Pre-clearing surveys are to be completed prior to clearing at each location by a suitability qualified ecologist. The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. **Pre-clearing surveys are to be carried out prior to the commencement of clearing works in each construction area.** **During the surveys, the ecologist will:** • **survey areas of 'Assumed Habitat' for SAII entities and confirm clearing extent of habitat** • survey the proposed clearing extent • **within 48 hours prior to clearing,** identify any fauna that will require relocation prior to clearing, including inspection of any built structures and wooden fence posts to be demolished • confirm ~~the location and mark out the extents of any~~ **that** biodiversity exclusion zones **are physically demarcated** • confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged; and • confirm that nest boxes are in place (where required) in suitable locations adjacent to areas to be cleared, or suitable locations for installation have been identified.	~~Within 48 hours prior to the commencement of clearing works in each construction area.~~ **Pre-construction** **Construction**	All locations
B11	Ecology inductions, toolbox talks, targeted training	All relevant project personnel, including relevant sub-contractors are to be trained on biodiversity management protocols and requirements for the project, through inductions, toolbox talks and targeted training, and provided with sensitive area maps (showing clearing boundaries and exclusion zones) and updates as required. Inductions and training must be completed prior to commencement of work for all relevant personnel. ~~Toolbox talks will be undertaken daily or as required.~~	Construction	All locations
B12	Retention of understorey vegetation in riparian areas	Understorey vegetation is to be protected within vegetated riparian zones where reasonable and feasible (within the definition of *Water Management Act 2000*). Vegetation clearing will be limited to the tree stratum and shrubs above two metres in height only, with root systems and trunk bases being retained in-situ.	**Construction** ~~N/A~~	Riparian environments disturbed as part of construction
B13	Rehabilitation of riparian areas	A Riparian Vegetation Management Plan (RVMP) will be developed and implemented for the project to manage activities within vegetated riparian zones to minimise impacts to aquatic environments. The plan will be prepared ~~within 3 months~~ prior **to and implemented during** any disturbance to a riparian area. The plan will identify the measures to be implemented to minimise impacts from construction activities (such as temporary and permanent waterway crossings) within riparian and aquatic environments. ~~A schedule of works will be stipulated within the approved RVMP~~. Riparian areas subject to disturbance will be progressively stabilised and rehabilitated.	Pre-construction Construction	Riparian environments disturbed as part of construction

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B14	Installation of bird diverters	Bird diverters will be installed **on transmission lines** within one kilometre (at a minimum) of wetland/riverine habitats to reduce impacts on aerial fauna species from collision with transmission lines and infrastructure. The exact position and diverter model will be finalised during detailed design. Installation of the bird diverters will occur within two weeks of transmission line installation or as soon as practical, and will remain in place and/or replaced as required.	Construction	Relevant locations
B15	Vegetation offsets requirements	The predicted clearing of native vegetation by the project identified in **Chapter 8 of** ~~Technical paper 4 –~~ **the updated** Biodiversity Development Assessment Report **(in Appendix G of the Amendment Report)** will be monitored against the recorded clearing. A revised Biodiversity Assessment Method (BAM-C) calculation on the project's final disturbance to biodiversity post construction will be completed. Any additional credit liability identified will be met as part of the biodiversity offset requirements within the biodiversity offset package.	Construction **Operation**	Construction area
B16	Unexpected finds	A species unexpected finds protocol will be implemented if threatened ecological communities or flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area.	Construction	Construction area
B17	Water quality, watercourse geomorphology and aquatic habitat	Watercourse crossings will be designed to minimise disturbance and harm within riparian corridors and rehabilitate aquatic habitat to achieve a 'no net loss' of habitat within the affected area and catchment as a whole, in accordance with the following guidelines: • *Guidelines for controlled activities on waterfront land* (~~NRA~~**DPE**, 2018) • *Why do fish need to cross the road? Fish passage requirements for waterway crossings* (Fairfull & Witheridge, 2003) • *Policy and guidelines for fish habitat conservation and management* (DPI, 2013).	Pre-construction and construction	All locations
B18	Operational guidelines and procedures	Develop and implement guidelines and procedures for maintenance of the project during operation as part of the OEMP or equivalent. These guidelines and procedures will cover the following: • vegetation clearing and maintenance commitments in the Biodiversity Development Assessment Report and Environmental Impact Statement • avoiding access and disturbance in areas of high biodiversity conservation significance; outside of the areas required for construction and • avoiding maintenance of vegetation that does not need to be maintained during operation.	Prior to **operation** **O**peration	Operation area
B19	Minimise indirect impacts from light spill	Lighting designs to be in accordance with the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023).	Detailed design	Operation area

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
Aboriginal heritage				
AH1	Impact avoidance and minimisation	The project will avoid impacts to the following identified Aboriginal objects and/or sites within the construction area: • the proposed workforce accommodation camps and construction activities at the Merotherie Energy Hub will establish a heritage protection zone to avoid SNI-GG02 **to SNI-GG09** inclusive • the proposed workforce accommodation camps and construction activities at Neeleys Lane will establish a heritage protection zone to avoid SNI-AS65 • **the proposed construction activities at brake and winch sites near the Talbragar River will establish a heritage protection zone to avoid direct impacts to Argyll No.3 (#36-3-0111)** • a protection zone will also be implemented at the Elong Elong energy hub to protect cultural material within 150 m of ~~the eastern bank of~~ Laheys Creek (excluding the unavoidable impacts associated with the crossing of Laheys Creek by the transmission corridor, which will be minimised~~),~~ **and ground disturbance associated with upgrades and maintenance along Spring Ridge Road and Dapper Road).** Some guiding principles for consideration of avoidance are presented in Appendix ~~F~~ **E of the Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix H of the Amendment Report).**~~of Technical paper 5 (Aboriginal cultural heritage assessment report)~~**Any site-specific avoidance measures developed to address this commitment would be integrated into AH4.**	Pre-construction Construction	SNI-GG02 – GG09 inclusive, SNI-AS65; Argyll No.3 (#36-3-0111), and 150 m of Laheys Creek

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH2	Impact avoidance and minimisation	The project will investigate the micro-siting of project infrastructure and construction activities in consultation with an Aboriginal heritage specialist to avoid or minimise impacts to: • rockshelters (#36-3-3794, #36-3-0449, #36-3-0570, #36-3-3790, SNI-RS01 – RS04 inclusive) • grinding groove sites (SNI-GG01, SNI-GG15 and SNI-GG16-17 **inclusive**) • a culturally modified tree (SNI-CMT02) **following validation (AH7)** • high-density **and/or significant** stone artefact sites (#36 3 1140, #36 3 1141**, SNI-FA02, SNI-FA05/SNI-AS80, SNI-FA12, SNI-IF104),** ~~and~~ • **within** 150 m of ~~Prospect Creek, Sandys Creek, Browns Creek, Whites Creek, Sportsman Hollow Creek~~, Deadmans Creek, Bora Creek, Cumbo Creek, ~~Cockabutta Creek, Planters Creek,~~ Wilpinjong Creek, Tallawang Creek **(north crossing)**, Copes Creek **and Laheys Creek**. Some guiding principles for consideration of avoidance and/or impact minimisation are presented in Appendix ~~F~~ **E of the Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix H of the Amendment Report). Management and any site-specific mitigation measures developed to address this commitment would be integrated into AH4.**	Pre-construction Construction	#36-3-3794, #36-3-0449, #36-3-0570, #36-3-3790, SNI-RS01 – RS04 inclusive, SNI-GG01, SNI-GG15, **SNI-GG16-17 inclusive,** SNI-CMT02, **SNI-AS101** (#36-3-1140, #36-3-1141**), SNI-FA02, SNI-FA05/SNI-AS80, SNI-FA12, SNI-IF104, and** areas within 150 m of ~~Prospect Creek, Sandys Creek, Browns Creek, Whites Creek, Sportsmans Hollow Creek~~, Deadmans Creek, Bora Creek, Cumbo Creek, ~~Cockabutta Creek, Planters Creek,~~ Wilpinjong Creek, Tallawang Creek **(north crossing),** Copes Creek **and Laheys Creek.**
AH3	Impact avoidance and minimisation	On-Country meetings will be undertaken with participating Elders and key knowledge-holders of the project to discuss **efforts to conserve and communicate appropriate important information about** ~~any potential view-line impacts of the project and~~ places of cultural **value intersected by the project** ~~and their subsequent management.~~ **If identified, feasible and reasonable measures would be developed in consultation with the Elders and key-knowledge-holders and integrated into AH4~~**8.**	Pre-construction Construction	SNI-CS4 – CS6 inclusive, and travelling routes #1 and #5 where they intersect the construction area.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH4	Cultural heritage management	An Aboriginal Cultural Heritage Management Plan (ACHMP) ~~will be developed by an Aboriginal heritage specialist in consultation with the Registered Aboriginal Parties (RAPs) and Heritage NSW.~~ **will be jointly prepared by the proponent and a suitably qualified heritage professional, with the latter providing archaeological and cultural heritage inputs and requirements, and final endorsement of the document. The ACHMP would be developed in consultation with the Registered Aboriginal Parties (RAPs) and Heritage NSW.** The contents and guiding principles for the management of identified site types for the ACHMP are presented in Appendix ~~F~~ **E** of Technical paper 5 (Aboriginal cultural heritage assessment report), and include: • processes, timing, communication methods and project involvement for maintaining Aboriginal community consultation and participation through the remainder of the project • inputs and content of a cultural heritage induction package for all construction personnel and subcontractors • descriptions and methods for archaeological test/salvage excavations of rockshelters, stone artefact scatters, potential archaeological deposits, and cultural deposits that will be adversely affected by the project • descriptions and methods for surface collection of identified isolated objects and stone artefact scatters that will be adversely affected by the project • descriptions and method for mitigation and/or recovery of grinding grooves and culturally modified trees that will be adversely affected by the project • delineating and protecting Aboriginal and cultural sites within or in close proximity to the construction area, including clear marking, appropriate screen for any gender-specific areas, surface protection, etc • procedures for managing the unexpected discovery of Aboriginal objects, sites and/or human remains during the project • procedures for the curation and long-term management of recovered cultural materials • methods of post-excavation analysis and reporting of the archaeological investigations, including suitable collection and processing of stone artefacts, palaeo-environmental, chronological and other soils from archaeological activities; and • a monitoring regime for implementing the above measures.	Pre-construction Construction	Construction area, and all identified Aboriginal objects, sites and deposits in ~~the~~ Chapter **5** ~~9~~ of ~~Technical paper 5~~ **the Addendum ACHAR** that will be adversely impacted by the project.
~~AH5~~	~~Cultural heritage management~~	~~Additional archaeological field survey will be undertaken of the portions of the construction area inaccessible during the Aboriginal cultural heritage assessment. Any identified Aboriginal objects, sites, places and/or deposits during these works will be integrated into the ACHMP (AH4).~~	~~Pre-construction~~	~~Previously unsurveyed portions of the construction area~~

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
~~AH6~~	~~Cultural heritage management~~	~~Where construction is unable to avoid areas within 150 m of Prospect Creek, Sandys Creek, Browns Creek, Whites Creek, Sportsmans Hollow Creek, Deadmans Creek, Bora Creek, Cumbo Creek, Cockabutta Creek, Planters Creek, Wilpinjong Creek, Tallawang Creek and Copes Creek, archaeological test excavations will be undertaken.~~ ~~Test excavations will adopt the methods outlined in Appendix F and/or developed in the ACHMP (AH4). The findings of the test excavations will be integrated into the ACHMP (AH4).~~	~~Pre-construction~~	~~The construction area, where it is located within 150 m of Prospect Creek, Sandys Creek, Browns Creek, Whites Creek, Sportsmans Hollow Creek, Deadmans Creek, Bora Creek, Cumbo Creek, Cockabutta Creek, Planters Creek, Wilpinjong Creek, Tallawang Creek and Copes Creek~~
AH~~7~~5	Cultural heritage management	An inspection will be undertaken by a qualified arboriculturist of all tentatively identified culturally modified trees to confirm whether they have formed through anthropogenic or natural processes. ~~Where identified as of cultural formation, they will be integrated into the ACHMP (AH04).~~ The findings ~~of~~ from this ~~investigation~~ inspection and subsequent management of the trees confirmed as being culturally modified will be integrated into the ACHMP (AH04) as required.	Pre-construction	~~#36-3-0565, #36-6-0626, #36-3-0638, #36-3-0103, #36-3-0643,~~ #36-3-3918, ~~SNI-CMT01,~~ SNI-CMT02, ~~SNI-CMT06, SNI-CMT08, SNI-CMT11, SNI-CMT13, SNI-CMT15~~ SNI-CMT04, SNI-CMT16, SNI-CMT19

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH~~86~~	Cultural heritage management	Archival recording will be undertaken of all rockshelters, grinding grooves, and culturally modified trees that may be adversely impacted by the project. Archival recording will be undertaken in accordance with relevant Heritage NSW guidelines **and submitted to the Heritage NSW AHIMS database.**	Pre-construction	#36-3-3794, #36-3-0449, #36-3-0570, #36-3-3790, SNI-RS01 – RS04 inclusive, ~~SNI-GG01, SNI-GG15,~~ **SNI-RS-06,** **SNI-GG01-GG09 inclusive, SNI-GG15 -GG17 inclusive,** **Argyll No.3 (#36-3-0111)** **SNI-AS65; and as required for the following: AH05:** **#36-3-3918, SNI-CMT02, SNI-CMT04, SNI-CMT16, SNI-CMT19** ~~#36-3-1140, #36-3-114; and as required following AH03: #36-3-0565, #36-6-0626, #36-3-0638, #36-3-0103, #36-3-0643, SNI-CMT01, SNI-CMT02, SNI-CMT03, SNI-CMT06, SNI-CMT08, SNI-CMT11, SNI-CMT13, SNI-CMT15~~
AH~~97~~	Heritage interpretation	An Aboriginal heritage-interpretation strategy and plan will be developed by an Aboriginal heritage specialist, in consultation with Registered Aboriginal Parties, which will identify the interpretive values of the construction area (and specifically Aboriginal heritage values) and provide direction for interpretive installations and devices. The contents and guiding principles for the management of the strategy and plan are presented in Appendix ~~F~~E of Technical paper 5 and include the need to incorporate Registered Aboriginal Parties' views on traditional and contemporary values, local ethnographic and post-Contact information, and archaeological data developed for the project.	Construction Post-construction	Construction area
AH~~10~~8	Aboriginal engagement	Consultation will be maintained with the Registered Aboriginal Parties ~~during the finalisation of the assessment process and subsequent stages of the project~~ where cultural heritage requires management.	Pre-construction Construction	**All Aboriginal objects, sites and places**

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH~~11~~9	Administrative	A copy of the Aboriginal cultural heritage assessment report **(and Addendum ACHAR)** and all relevant AHIMS site recording forms and information for the project will be lodged with Heritage NSW and provided to each of the RAPs.	Pre-construction Construction	All Aboriginal objects, sites and places described in Chapter ~~9~~5 of ~~Technical paper 5~~ **the Addendum ACHAR.**
AH10	**Cultural heritage management**	**Where ground disturbance activities are unable to avoid areas within 150 m of Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek (north crossing), Copes Creek and Laheys Creek (excluding areas already disturbed during construction of existing access tracks and access roads), archaeological excavations will be undertaken.** **Where sub-surface artefacts or cultural materials are uncovered, archaeological excavations will be followed immediately by salvage mitigation requirements in locations where ground disturbance activities would occur, following the methods outlined in Appendix E of the Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix H of the Amendment Report) and described in the ACHMP (AH4).**	**Construction**	**The construction area, where it is located within 150 m of Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek (north crossing), Copes Creek and Laheys Creek**
Non-Aboriginal heritage				
HH1	Avoidance of direct impacts to Tallawang Creek Archaeological Site 02	Prior to construction, an exclusion barrier (e.g. fencing or suitable alternative) will be installed to prevent construction activities or access into the portion of CWO-22-HH11 which extends into the construction area. The barrier would be maintained for the duration of construction.	Pre-construction Construction	CWO-22-HH011
HH2	Minimisation of direct impacts	Construction methodologies will be refined to avoid and/or minimise direct impacts to listed and potential historic heritage items where reasonable and feasible. ~~[‡] The final mitigation measure for the Tallawang Union and Catholic Churches (HH09b and HH09c) and cemetery depend on the outcome of the non-intrusive geophysical investigations~~	Pre-construction Construction	CWO-22-HH03 CWO-22-HH05a CWO-22-HH05b CWO-22-HH08 CWO-22-HH09a CWO-22-HH09b[‡] CWO-22-HH09c[‡] CWO-22-HH10 CWO-22-HH13 CWO-22-HH16 CWO-22-HH18 CWO-22-HH19 CWO-22-HH20 CWO-22-HH21 CWO-22-HH14 CWO-23-H01 CWO-23-H02
HH3	Minimisation and management of indirect impacts	Construction methodologies will be refined to avoid and/or minimise indirect impacts to listed and potential historic heritage items where reasonable and feasible.	Pre-construction Construction	CWO-22-HH06 CWO-22-HH22 CWO-22-HH23

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH4	Cultural heritage management	**Cultural Heritage Sensitivity Assessment** **If sites CWO-23-HH01 and CWO-23-HH02 cannot be avoided through detailed design, a site inspection assessment will be completed in accordance with NSW guidelines for items to determine their cultural heritage sensitivity.**	**Pre-construction**	**CWO-23-HH01** **CWO-23-HH02**
HH~~4~~5	Cultural heritage management	**Archival recording** If avoidance **of sensitive sites** cannot be established during the detail**ed** design stage, **where determined to have state or local significance in accordance with HH4,** an archival recording will be completed in accordance with ~~the following~~ **NSW** guidelines and be lodged with the Heritage NSW and local councils for access to researchers**.** ~~• photographic recording of heritage items using film or digital capture (Heritage Office, 2006), and~~ • ~~how to prepare archival records of heritage items (NSW Heritage Office, 1998).~~	Pre-construction	CWO-22-HH08 CWO-22-HH10 CWO-22-HH18 CWO-22-HH19 CWO-22-HH14 ~~CWO-23-H01~~ ~~CWO-23-H02~~
HH~~5~~6	Cultural heritage management	**Archaeological test excavation** If direct impacts to a heritage item cannot be reasonably and feasibly avoided during the detailed design stage, a program of archaeological test excavation will be undertaken (where the extent of the archaeological deposit is not known). This will include development of: • a detailed archaeological research design • consultation with Heritage NSW • systematic test excavation of historical archaeological sites that meet the 'relics' threshold identified for impact • where archaeological deposits are uncovered, sampled recovery of historic heritage relics will occur prior to disturbance. Once recorded and analysed artefacts will be offered to local heritage society/museum. A detailed excavation method and research design for this process will be included in the Historic Heritage Management Plan (HHMP).	Pre-construction Construction	CWO-22-HH03 CWO-22-HH05a ~~CWO-22-HH09a~~ ~~CWO-22-HH09b~~[1] ~~CWO-22-HH09c~~[1] CWO-22-HH13 CWO-22-HH16
HH~~6~~7	Cultural heritage management	**Archaeological salvage excavation** Salvage excavation will be undertaken on archaeological sites subject to direct impacts where the extent of the archaeological deposit is known. This will include development of: • a detailed archaeological research design • consultation with Heritage NSW • systematic salvage excavation of historical archaeological sites. Once recorded and analysed, salvaged artefacts will be offered to local heritage society/museum. A detailed excavation method and research design for this process will be included in the HHMP. [1] ~~The final mitigation measure for the Tallawang Union and Catholic Churches (HH09b and HH09c) and cemetery depend on the outcome of the non-intrusive geophysical investigations~~	Pre-construction	CWO-22-HH03 CWO-22-HH05a CWO-22-HH09a CWO-22-HH09b CWO-22-HH09c CWO-22-HH13 CWO-22-HH16

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH~~7~~8	Cultural heritage management	**Unexpected finds procedure** Any items of potential heritage conservation significance or human remains discovered during construction and operation will be managed in accordance with an Unexpected Finds Procedure. ~~Work in the vicinity of the find will stop if objects such as bonded bricks, timber or stones appearing in formation indicating a wall or floor for instance are found, or if soil with artefacts concentrations, is excavated~~. A description of the types of finds that will stop works within the vicinity of the finds will be determined prior to construction as part of the HHMP and staff involved in excavation work will be informed about how to apply it. **Finds would include objects such as bonded bricks, timber or stones appearing in formation indicating a wall or floor for instance are found or excavated soil with artefact concentrations.** The unexpected finds procedure will include actions such as: • stop work procedures and exclusion buffers • utilising the advice of a technical specialist • consultation with Heritage NSW • protocols for continuing work in the area after assessment. ~~[1] The final mitigation measure for the Tallawang Union and Catholic Churches (HH09b and HH09c) and cemetery depend on the outcome of the non-intrusive geophysical investigations~~	Pre-construction Construction	~~CWO-22-HH03~~ ~~CWO-22-HH05a~~ ~~CWO-22-HH05b~~ ~~CWO-22-HH09a~~ ~~CWO-22-HH09b[1]~~ ~~CWO-22-HH09c[1]~~ ~~CWO-22-HH10~~ ~~CWO-22-HH11~~ ~~CWO-22-HH17~~ ~~CWO-22-HH20~~ ~~CWO-22-HH21~~ ~~CWO-22-HH14~~ ~~CWO-23-H01~~ ~~CWO-23-H02~~ **Construction area**
HH~~8~~9	**Avoidance of impacts to** Laheys Creek Cemetery	A structural assessment of the standing headstones will be undertaken to determine if additional conservation works may be required to mitigate nearby construction works. **Prior to and during any activities with the potential to generate vibration levels that exceed tolerance levels identified by the structural assessment, a vibration monitor will be installed within the cemetery at the closest point to construction works to confirm that vibration levels are compliant with applicable criteria.** Vibration monitoring would be discontinued if it indicates that the risk exceeding the tolerance levels is negligible.	Pre-construction Construction	CWO-22-HH06

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH~~9~~10	Avoidance of ~~direct and indirect~~ impacts to Laheys Creek Cemetery	Prior to construction **in the vicinity of CWO-22-HH06 (Laheys Creek Cemetery)**, an exclusion **area of a suitable minimum width, as confirmed by a vibration assessment,** ~~barrier (e.g. fence or suitable alternative)~~ will be installed ~~to provide a minimum 100 metre exclusion buffer around the heritage item~~ to ensure ~~direct and indirect~~impacts to the cemetery are avoided. The **initial** nominated exclusion buffer for CWO-22-HH06 ~~may be reduced~~ **will be determined** on the following basis: • a report from a structural engineer assesses the stability of the headstones in the cemetery and **identify vibration tolerance levels to avoid damage; and** • **the report** ~~can~~ **must certify that the proposed exclusion** ~~a reduced~~ **buffer** ~~exclusion area~~ **is sufficient** ~~is unlikely cause~~ **to avoid damage to the items.** • ~~the headstones identified as being at risk of collapse are stabilised and conserved; and/or~~ **If a reduction in the initial exclusion area is required:** • **a structural engineer must certify that the proposed revised exclusion buffer is sufficient to avoid damage to the items.** • ~~a report from a structural engineer assesses the stability of the headstones in the cemetery; and~~ • ~~the report can certify that a reduced buffer is unlikely to cause damage; and/or~~ • **if vibration-generating works are unavoidable within the exclusion buffer, headstones identified as being at risk of collapse will be stabilised and conserved.** • the report can provide and certify vibration criteria, vibration monitoring equipment is installed and vibration criteria are not exceeded; and • any damage sustained to the cemetery during construction or in the succeeding 12-month period **will be** ~~is~~ repaired and **rectified** ~~conserved~~ by the proponent.	Pre-construction Construction	CWO-22-HH06

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH11	Avoidance of impacts to Upper Tallawang Catholic Church and Union Church Cemeteries	To avoid harm to any relics present, Restricted Zones will be established around the suspected graves and buried architecture within specific areas of the Tallawang Catholic Church lots. To implement this recommendation: • The detailed design and construction methodology will be developed to avoid excavation and ground disturbance within the Restricted Zones to the greatest extent practicable. • Subsurface anomaly confidence locations identified in the Ground Penetrating Radar Interpretation Report (EMM 2024) will be marked out within the construction area using non-intrusive (i.e. non-ground-penetrating) methods prior to project-related activities commencing in the vicinity. • Heavy vehicle access within the Restricted Zones will be limited to only essential movements to support other construction activities required within the zones. • A clearing approach will be developed and implemented within the Restricted Zones to avoid accessing the subsurface anomaly confidence locations and minimise ground/subsurface disturbance generally during the clearing process, where feasible and reasonable. • If surface activities in the immediate vicinity of the subsurface anomaly confidence locations are unavoidable, implementing protective measures (for example using road plates) to prevent ground disturbance and minimise potential compaction. • Heritage specialist surveillance of any excavations required in the immediate vicinity of the Moderate High subsurface anomaly confidence locations.	Pre-construction Construction	CWO-22-HH09b CWO-22-HH09c
Social				
SI1	Property acquisition	A Landowner Engagement Strategy will be developed and implemented for the project which will include the following: • appointment of a dedicated Land Acquisition Manager to oversee the implementation of the strategy • ensure personnel appointed to engage with landowners have been suitably trained to undertake engagement with vulnerable people and those potentially affected by mental health issues.	Pre-construction, Construction	Properties hosting infrastructure

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI2	Workforce management	A Workforce Management Plan will include: • a code of conduct for workers, which will include a zero-tolerance policy relating to anti-social behaviour • cultural awareness training for the workforce • measures for the workforce residing at the workforce accommodation camps including recreation areas, internet connections etc. The plan will include strategies to promote wellbeing of the workforce and a positive interaction with local community, which may include promoting workforce participation in community life (sports, events, volunteering), providing healthy food options, implementing health and safety assessments, among others. The plan will be reviewed every six months to identify and manage any unanticipated impacts.	Pre-construction/ Construction	Regional social locality
SI3	Local workforce participation	A Local Workforce Participation Strategy will be prepared **in accordance with the Renewable Energy Sector Board Plan (Office of Energy and Climate Change, 2022)** and implemented**.** It will include the following initiatives: • identification of local skills gaps and potential workforce skills and training requirements • investigate 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 council, communication of employment opportunity via relevant local mediums of information, contract workers through existing local businesses, etc.	Pre-construction	Regional social locality
SI4	Industry participation	An Industry Participation Plan will be prepared **in accordance with the Renewable Energy Sector Board Plan (Office of Energy and Climate Change, 2022)** and implemented which will: • identify services and goods that could be sourced locally (quarry materials, catering, transport, cleaning, stationery) • identify the capacity of local and Indigenous businesses and suppliers to be ready for potential additional demand • provide local and Indigenous procurement targets • identify tailored 'meet-the-contractor' events for local and Aboriginal businesses to learn about potential opportunities associated with the delivery of the project • monitor the availability of key goods and services to the local community when procured locally.	Pre-construction/ Construction	Regional social locality

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI5	Community engagement	A pre-construction and construction Communication and Engagement Plan will be prepared to ensure: • landowners, businesses and local residents with the potential to be affected by construction activities are notified in a timely manner about the timing of activities and potential for impacts, and the measures that will be implemented to minimise the potential for impacts on individual properties • include proactive methods of communication with affected parties and strategies to reach vulnerable members of the community such as doorknocking, text messages, newsletters and or phone calls • ensure receivers identified as eligible for noise mitigation treatments in ~~Technical paper 9 – Noise and vibration~~ **Appendix I (Noise and Vibration Impact Assessment) of the Amendment Report are supported** and engaged through the delivery process • provide further information in the local social locality about the regional energy strategy, including about community energy schemes, power purchasing agreements and other initiatives • enquiries and complaints are managed, and a timely response is provided for concerns raised and information about how solutions are being investigated is provided to the community • **consultation with local health and emergency services to establish processes for managing potential increased demands due to non-resident workforce.**	Pre-construction/ Construction	Local social locality
SI6	First Nations liaison	A First Nations liaison group will be established. It will focus on identifying and implementing strategies to enhance and maximise opportunities for employment, procurement, education and other potential project related benefits. Members of the First Nations liaison group will be identified through collaboration with the existing Central-West Orana REZ Aboriginal Working Group, and will include local and regional members including: • Local Aboriginal Land Councils • Aboriginal Representative Organisations • relevant Aboriginal social, health and support services • educational organisations and services • employment agencies • Aboriginal business organisations/groups.	Pre-construction/ Construction	Regional social locality

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI7	Complaints management	A complaints management system will be maintained throughout the construction period and for a minimum of 12 months after the completion of construction. The complaints management system will include the following (at a minimum): • contact details for a 24-hour response line and email address for ongoing stakeholder contact throughout the project • details of all complaints received will be recorded • **target timeframe for responding to complaints** • verbal and written responses describing what action will be taken will be provided to the complainant (or as otherwise agreed by the complainant) • **an avenue for escalating unresolved complaints.**	Construction Initial 12 months of operation	Regional social locality
SI8	Social impact	A Social Impact Management Plan (SIMP) will be prepared that will: • describe the social impact mitigation measures to be implemented and the impacts that they are intended to address • set out how the community and stakeholders can provide feedback on the mitigation measures and the effectiveness of their implementation. Monitoring findings will be presented to the project's Community Reference Groups meetings (if active) and ~~to an annual community meeting where feedback will be sought on the monitoring program and whether actions or targets require revision.~~ **to the broader local community. Feedback will be sought on the monitoring program and whether actions or targets require revision.** EnergyCo will track implementation of the SIMP and review performance measures quarterly, to facilitate continual improvement. The SIMP will be reviewed annually and updated based on monitoring data and community and stakeholder feedback. In addition to the monitoring review, proposed mitigation measures will also be reviewed to assess whether they are still applicable and on track to meet the residual risk rating applied in the EIS. Any new issues or initiatives that have emerged and that should be included in ongoing mitigations and/or monitoring will be addressed. The results of SIMP reviews will be published on the EnergyCo website.	Pre-construction/ Construction	Regional social locality
SI9	Operational communications	An Operational Communication Plan will be developed and implemented, which will address the following: • maintaining communications with those located in close proximity to the transmission line to provide updated information and monitor experience and concerns. The Operational Communication Plan will be reviewed and updated on an annual basis.	Operation	Local social locality

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI10	Mental Health Strategy	A mental health support telephone service as already established by EnergyCo will be maintained to assist landowners whose properties are subject to acquisition for the transmission line. A broader mental health strategy will be developed and implemented by the EnergyCo to identify other initiatives that could be implemented to provide additional mental health support.	Pre-construction Construction Operation	Local social locality
Noise and vibration				
NV1	Construction noise (source controls)	As part of development of the detailed design and construction methodology, all reasonable and feasible mitigation measures will be considered, confirmed and implemented to minimise construction noise impacts and to avoid exceedances of the applicable noise goals at adjacent sensitive receivers where practicable. Measures that may achieve this outcome may include, but are not limited to the following: • portable temporary noise screens will be erected adjacent to stationary or long-term static noise sources, or noise generating items, where reasonable and feasible • spotters, "smart" reversing alarms, or broadband reversing alarms will be used in place of traditional tonal beeper reversing alarms, particularly on equipment where reversing alarms are frequently in use such as rollers, loaders or compactors • noise source controls, such as the use of residential class mufflers, will be used reduce noise from all plant including cranes, excavators and trucks • the offset distance between noisy plant items and sensitive receivers will be maximised, where reasonable and feasible • machinery will be operated in a manner which reduces maximum noise level events such **as reduce** shaking of excavator buckets, dropping materials into trucks from height or steel on steel contact • construction plant and equipment will be turned off when not in use • helicopters will not be operated during evening and night-time periods. Where the use of drones is proposed during evening and/or night-time periods, an additional assessment(s) will be undertaken to identify appropriate operational limits to ensure that noise impacts to nearby sensitive receivers are acceptable.	Detailed design Pre-construction Construction	All locations where exceedances of the applicable construction noise criteria are predicted at sensitive receivers

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
NV2	Construction noise (administrative controls)	Opportunities to reduce exceedances of the applicable construction noise goals through the implementation of administrative controls will be examined, confirmed and implemented where reasonable and feasible. Controls to be considered will include, but not limited to the following: • environmental awareness training and inductions for site personnel will include noise mitigation techniques/measures to be implemented when on site and accessing the site • the avoidance of simultaneous construction activities during transmission line construction in the vicinity of the Energy Hubs will be investigated to minimise potential cumulative noise impacts • plant and equipment will be selected with noise emission levels being a consideration for selection ~~based on noise emission levels~~. This will include the consideration of alternative stringing methods, such as the use of drones instead of helicopters • noise-intensive works will be limited to less sensitive construction hours (i.e. away from early morning and late afternoon periods) as far as practicable, when working in the vicinity of sensitive receivers • plant and equipment will be well maintained to ensure that excessive noise is not generated • the provision of respite periods for helicopter take off/landing will be considered at the construction compounds • a blasting vibration and overpressure assessment will be required as part of any potential blast design. This assessment will determine the Maximum Instantaneous Charge to achieve the recommended ground vibration and overpressure limits. In addition, a Blast Management Strategy will be prepared in accordance with Section 4 of AS 2187.2-2006 for inclusion in the CNVMP • any works undertaken outside standard working hours will be further assessed in accordance with the ICNG and the CNVG during detailed design and an Out of hours works protocol will be developed **and implemented** to mitigate any identified impacts.	Detailed design Pre-construction Construction	All locations where exceedances of the applicable construction noise criteria are predicted at sensitive receivers.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
NV3	Construction noise	Opportunities to reduce the impacts associated with construction noise levels through the implementation of proactive community consultation will be examined, confirmed and implemented where reasonable and feasible. Controls to be considered will include, but not limited to the following: • sensitive receivers potentially affected by the works will be notified of the commencement of construction activities at least five days prior to works starting. The notification will inform potentially impacted sensitive receivers of the nature of and duration of works, expected noise levels and contact details of where sensitive receivers can contact can project representatives • the community will be kept regularly informed of noise intensive activities in the immediate area • if noise complaints are received, the complainant will be offered the opportunity for noise monitoring to be carried out to confirm the noise level at the receiver. Where the noise monitoring confirms that the applicable noise predictions are being exceeded, the construction methodology will be reviewed and changes implemented to reduce construction noise levels to be compliant with noise predictions where reasonable and feasible. Additional mitigation measures such as respite periods have been outlined in Table 15-29 of Chapter 15 (Noise and Vibration) of the EIS.	Pre-construction	All locations where exceedances of the applicable construction noise criteria are predicted at sensitive receivers.
NV4	Construction vibration	Where construction is likely to result in vibration levels that exceed relevant criteria at sensitive receivers, mitigation and management will be implemented where practicable and appropriate. **Measures that will be considered and implemented where feasible and reasonable include (but are not limited to):** • avoid the use of vibration-intensive plant at distances where human discomfort will result • substitute lower vibration-intensive plant and methods (for example use a smaller machine, lower power settings or alternative equipment) • sequence operations to avoid or minimise concurrent vibration intensive activities • schedule the use of vibration-sensitive equipment during the least sensitive times of the day • confirm any vibration-sensitive heritage structures that could be impacted by the proposal works • inform and consult with potentially affected receivers about upcoming vibration-intensive activities • **pre and post condition surveys.**	Detailed design Pre-construction	All locations where exceedances of the applicable construction vibration criteria are predicted at sensitive receivers.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
NV5	Heritage vibration impacts	Vibration sensitive Aboriginal and non-Aboriginal heritage items which have potential to be impacted by the project works will be confirmed prior to the commencement of vibration generating works in proximity to relevant structures. Suitable, item specific criteria will be developed for heritage items and vibration impacts at these locations will be managed before commencement of construction. This may include the use of alternative construction methods which generate lower levels of ground vibration and the installation of vibration monitors while vibration intensive activities are conducted.	Detailed design	All heritage items where exceedances of the applicable construction vibration criteria are predicted.
NV6	Operational noise	An Operational Noise Review will be prepared to confirm the predicted noise impacts from the project (based on the final infrastructure locations). Where necessary, the operational mitigation measures to be implemented below will be revised so operational noise impacts are compliant with the project noise trigger levels, where feasible and reasonable. Where exceedances of the project specific noise trigger levels are predicted (i.e. transmission lines audible noise), feasible and reasonable operational noise mitigation measures will be further investigated ~~prior to construction,~~ in consultation with the affected receivers. This will include: • Transmission lines — Scheduling of maintenance activities during less sensitive times of day. — Noise control at the receiver, such as 'at property' treatment to upgrade aspects of the dwellings including the façade or ventilation systems. — Monitoring after the commissioning of the project to be conducted at each residence where potential operational noise levels are predicted to exceed project trigger levels. — If additional measures are found to be required during the compliance monitoring, these will be implemented as soon as practicable. • Energy hubs and switching stations — Adoption of lower generating noise equipment (where practicable). — Site layout designed to minimise noise impacts. — Restriction of operational parameters such as cooling fans where meteorological conditions are favourable. — Noise control at the receiver, such as 'at property' treatment to upgrade aspects of the dwellings including the façade or ventilation systems. ~~— Monitoring after the commissioning of the project to be conducted at each residence where potential operational noise levels are predicted to exceed project trigger levels.~~ ~~— If additional measures are found to be required during the compliance monitoring, these will be implemented as soon as practicable.~~	Pre-construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		Identified measures will be implemented prior to operation of the relevant infrastructure. **In addition, the following will be undertaken:** — Monitoring after the commissioning of the project to be conducted at each residence where potential operational noise levels are predicted to exceed project trigger levels **to compare operational noise levels to predictions.** — If additional measures are found to be required during the compliance monitoring, these will be implemented as soon as practicable.		
Hazard and risk				
BF1	Exposure of energy assets to radiant heat beyond the design tolerance of the asset	Asset Protection Zones (APZs) **for appropriate components of** switching stations, energy hubs (including the maintenance facility), **construction compounds and workforce accommodation camps** will be established in accordance with the requirements of the NSW Rural Fire Service's documents Planning for Bushfire Protection 2019 (Appendix 4) and Standards for asset protection zones. **The final design and associated APZs of appropriate components of switching stations and energy hubs (including the maintenance facility), will be developed in consultation with RFS.**	Pre-construction Construction	Key project assets in the operational area that require protection from the impact of radiant heat and direct flame contact associated with a bushfire
BF2	Exposure of energy assets to radiant heat beyond the design tolerance of the asset	Energy hubs, and switching stations, will be designed and constructed in accordance with bushfire attack level 29 in accordance with *AS3959-2018 Construction of Buildings in Bushfire Prone Areas*.	Pre-construction Construction	Operation area
BF3	Insufficient access to the construction and operation area for fire fighting	Access for firefighting appliances will be provided in accordance with Section 2 of the *NSW Rural Fire Service Fire Trails Standards*.	Pre-construction Construction Operation	All locations
BF4	Bushfire risk from construction	Hot work (activities involving high temperatures) and fire risk work (activities involving heat or with the potential to generate sparks) will be undertaken with appropriate safeguards to minimise the risk of ignition and spread of fire from construction activities. ~~including~~ **This may include** suspension of hot work and fire risk work **or implementation of additional controls for such work** on days of elevated fire danger.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
BF5	Bushfire risk from construction	Firefighting equipment will be maintained and made available for use during the construction phase in accordance with Planning for Bushfire Protection 2019 (NSW RFS 2019) including the following: • static water supply tanks with a minimum volume of 20,000 litres (each) will be provided at the construction compounds and workforce accommodation camps for firefighting purposes • 38 millimetre metal Storz outlets with a gate or ball valve will be provided as an outlet on each of the tanks • non-combustible water tanks and fittings will be used • firefighting equipment (inclusive of a slip on unit) will be maintained at and/or accessible to all active construction site personnel during the declared bushfire danger season and site personnel trained in its use.	Construction	All locations
BF6	Bushfire risk during operation	The ~~project~~ APZ**s** will be established at construction **sites** and managed during operation in accordance with Appendix 4 of *Planning for Bushfire Protection 2019* and the NSW Rural Fire Service's document *Standards for asset protection zones*.	Operation	**Energy hubs, switching stations and maintenance facility**~~All locations~~
HR1	Mine subsidence risk	Detailed design ~~and construction planning~~ **for areas of the transmission alignment that traverse the Mudgee Mine Subsidence District** will be undertaken in accordance with approvals issued by Subsidence Advisory NSW.	Detailed design Pre-construction	Mining areas
HR2	Impacts on underground utilities	The location of all services and utilities within the construction area will be confirmed prior to the commencement of construction (using Before-You-Dig searches, non-destructive digging and/or other appropriate methods). Any required protection or relocation will be designed in consultation with utility providers.	Detailed design Pre-construction	Construction area
AS1	Safety of aircraft movements	The final design of the project with transmission line and tower coordinates and elevations will be provided to the following stakeholders prior to construction: • Air Services Australia • Commonwealth Department of Defence • owners of Dalkeith, Tongy and Merotherie aircraft landing areas • NSW National Parks and Wildlife Service • property owners/occupiers within 5.5 km the transmission easement. Additional notification(s) will be undertaken if the final detailed design of the project alters the details previously supplied to these stakeholders, prior to the construction of the modified design elements.	Detailed design	Operation area
AS2	Aerial farming operations	At locations where the transmission lines will impact existing aerial farming operations, consultation will be undertaken with relevant landowners to identify appropriate mitigation arrangements such as the installation of aerial warning markers on the transmission lines (where feasible).	Detailed design	Operation area

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AS3	Safety of aircraft movements	The following stakeholders will be notified of the scheduling of the use of cranes (**for transmission tower erection only**), drones and helicopters for the construction of the project, prior to the commencement of relevant works: • Air Services Australia • Commonwealth Department of Defence • property owners/occupiers within 5.5 km the transmission easement • owners at Dalkeith, Tongy and Merotherie aircraft landing areas • NSW Parks and Wildlife Service.	Pre-construction	Operation area
HA1	Storage and use of Dangerous Goods	Dangerous goods will be stored in accordance with suppliers' instructions and relevant legislation, Australian Standards, and applicable guidelines; and may include bulk storage tanks, chemical storage cabinets/containers or impervious bunds. Any storage areas will be designed in accordance with Australian Standard *AS1940: The storage and handling of flammable and combustible liquids* where applicable. All personnel required to work with Dangerous Goods and other hazardous material will be trained in their safe use and handling.	Construction Operation	All locations
HA2	Management of hazardous materials (design)	Further assessment of hazardous materials and dangerous goods will be undertaken during detailed design, when detailed information on material quantities and types, transport movements ~~and BESS design details~~ are known, to ensure the thresholds in Applying SEPP 33 are not exceeded. Safety in design will be considered and implemented in operational design in accordance with a Safety Management System (SMS) based on applicable Australian Standard and guidelines for the Lithium-ion packed batteries and Class 9 Dangerous Goods.	Detailed design	Energy hubs and switching stations
~~HA3~~	~~Battery Energy Storage System (BESS) thermal runaway and resultant fire~~	~~Prior to construction of the BESS, a Fire Safety Study will be prepared based on the final design of the BESS. The Fire Safety Study will be prepared in accordance with the *Hazardous Industry Planning Advisory Paper No. 2 – 'Fire Safety Study' guideline* (DoP, 2011c).~~	~~Detailed design~~	~~Merotherie Energy Hub~~
~~HA4~~	~~BESS thermal runaway and resultant fire~~	~~The BESS will be installed in accordance with *AS/NZS 5139 Electrical installations – Safety of battery systems for use with power conversion equipment*. Optimal operation conditions of the BESS will be maintained in accordance with the operational design requirements, Australian Standard *AS 1670: Fire detection, warning, control and intercom systems* and Best Practice Guide: Battery Storage Equipment – Electrical Safety Requirements (2018) or equivalent.~~	~~Detailed design~~	~~Merotherie Energy Hub~~
~~HA5~~	~~Pollutant release~~	~~The design of the BESS (if applicable) will identify containment measures to be provided for the containment of cooling water and oils to ensure no offsite discharge occurs.~~	~~Detailed design~~	~~Merotherie Energy Hub~~

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
~~HA6~~	~~Pollutants and smoke moving offsite~~	~~Emergency procedures will include details for the establishment of a downwind exclusion zone(s) and evacuation protocols to be implemented in the event of a fire at the BESS (depending on the severity of the event).~~	~~Operation~~	~~Merotherie Energy Hub~~
Traffic and transport				
T1	Intersection ~~and access point~~ upgrades	As part of the detailed design process, an evaluation of the potential need for upgrades to the following intersections will be undertaken as detailed below: • intersection of Ulan Road/Neeleys Lane: Investigate and confirm if short channelised right and/or auxiliary left turn treatments (or suitable alternative) are required for safe access to the ~~satellite~~ workforce accommodation camp • intersection of Golden Highway/Ulan Road: Investigate and confirm if a new short channelised right turn treatment (or suitable alternative) is required to provide safer intersection operation and to accommodate additional increases in traffic demand during construction. • **Intersection of Golden Highway / Blue Springs Road: Investigate option to restrict construction vehicle volumes to levels which avoid the need for implementation of intersection upgrades. Where construction vehicle volumes cannot be limited to provide safe intersection operation, the required turning treatment upgrades (new short channelised right turn treatment or suitable alternative) will be implemented.** • **Typical access gates off Cope Road: Construction vehicle movements turning right into access gates on the northern side of Cope Road will be limited to vehicles 25 per hour during the AM peak hour period to ensure safe and efficient traffic movements compatible with a Basic right turn (BAR) treatment. If higher construction vehicle movements are required and are incompatible with a BAR treatment, the required turning treatment upgrades will be implemented.** • **Typical access gate locations off Ulan Road (near Ulan township): Construction vehicle movements turning into the northwest and southeast access gates will be limited to the following during the AM peak hour period:** — **left turning vehicles** — **18 vehicles per hour (southeast access gates)** — **5 vehicles per hour (northwest access gates)** — **right turning vehicles – 5 vehicles per hour (all access gates)**	Detailed design	~~Intersections and access points to construction sites~~ **Intersection of Ulan Road/ Neeleys Lane** **Intersection of Golden Highway/ Ulan Road** **Intersection of Golden Highway/ Blue Springs Road** **Typical access gate locations off Ulan Road (near Ulan township)** **Typical access gate locations off Ulan Road (north of Ulan-Wollar Road)**

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		Turn warrant assessments will be conducted for each hour outside of the AM peak period to determine the maximum number of vehicle movements allowed to ensure safe and efficient traffic movements compatible with a Basic right turn (BAR) and Basic left turn (BAL) treatments. If higher construction vehicle movements are required and are incompatible with BAR / BAL treatments, the required turning treatment upgrades will be implemented. • **Typical access gate locations off Ulan Road (north of Ulan-Wollar Road): Construction vehicle movements turning into the northwest and southeast access gates will be limited to during the AM peak hour period:** — **left turning vehicles - 25 vehicles per hour** — **right turning vehicles - 5 vehicles per hour** **Turn warrant assessments will be conducted for each hour outside of the AM peak period to determine the maximum number of vehicle movements allowed to ensure safe and efficient traffic movements compatible with a Basic right turn (BAR) and Basic left turn (BAL) treatments. If higher construction vehicle movement volumes are required and are incompatible with BAR / BAL treatments, the required turning treatment upgrades will be implemented.** Where the intersection upgrades are required, these will be designed and constructed in accordance with Austroads Guidelines, relevant applicable standards and consider the appropriate design vehicles.		
T2	Road and traffic management	Traffic control plans will be prepared in ~~consultation with the relevant road authorities~~ **for locations where construction-related traffic enters and leaves the public road network for project construction related purposes**. The plans will be implemented by licensed traffic management contractors. Necessary road occupancy licences and road related work approvals will be obtained prior to the commencement of relevant works (including site access and access tracks).	Construction	Construction routes, access tracks, construction compound and workforce accommodation camp accesses
T3	Road safety – design related	All accesses will be designed to accommodate the required construction vehicle(s) requiring access, and in accordance with relevant Austroads guidelines (where applicable) **in consultation with the relevant roads authority**. ~~Road safety audits and routine inspections will be completed on a regular basis.~~ **Appropriate traffic management and controls may be adopted to facilitate safe site access and egress for vehicles prior to access point installation and upgrading.** **Routine inspections will be completed on a regular basis.**	Construction **Operation**	Construction routes, access tracks, construction compound and workforce accommodation camp accesses

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
T4	Road safety – driver related	The following road safety measures will be implemented with regard to driver management during construction: • a Driver Code of Conduct will be developed and implemented **for the entire workforce**. The code will define acceptable driver behaviour for proposal personnel to promote road safety and ensure that the impacts of construction-related vehicle movements on local roads and the local community are minimised • ~~in-vehicle monitoring systems (IVMS) will be installed in relevant vehicles to monitor load limits and fatigue management~~ • a Driver Fatigue Management Plan will be developed and implemented as part of the Construction Environmental Management Plan, and will incorporate appropriate measures to manage driver fatigue risks, including, but not limited to: — planning of regular breaks — mapping locations of driver rest areas along the proposed construction routes.	Construction	Construction routes, access tracks, construction compound and workforce accommodation camp accesses
T5	Rail safety	Early and ongoing consultation with the ARTC will be undertaken for works which will cross over existing rail lines. Relevant works will only proceed following receipt of applicable approvals/permits, including accreditations for workers requiring access within the rail corridor to undertake construction activities.	Construction	Where the transmission line requires access to rail corridor over railway tracks on select railway lines
T6	Access track condition	Access tracks used for construction sites, construction compounds and workforce accommodation camps will be maintained to safe standard.	Construction	All areas affected by construction including construction routes, access tracks, construction compounds and workforce accommodation camp accesses
T7	Road condition	Pre-construction road dilapidation surveys and routine inspections will be completed along all nominated construction routes on local roads. Where rectification works are required due to project impacts, consultation with the appropriate road authority will be undertaken to confirm the scope of the work required.	Pre-construction Construction	Local roads

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
T8	Temporary lane closures or temporary road closures	Road Occupancy Licence(s) will be sought for all temporary lane closures (as required **by the relevant roads authority).** Where road closures are likely to result in a significant traffic impact (e.g. short-term full road closure and long-term temporary lane/ road closures), prior consultation will be undertaken with potentially affected stakeholders (e.g. landowners, emergency services, transport services) and relevant approval(s) obtained from the relevant roads authority. Where feasible, temporary road closures will be planned to occur outside of the traffic peak periods to minimise impacts to the road network.	Construction	**All locations where project works will occur within the public road network** ~~roads that intersect with the transmission line alignment (for stringing of transmission lines) or on construction routes~~
T9	Access to properties	Access to properties will be maintained throughout construction where feasible. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected landowners and in accordance with the requirements of the pre-construction and construction Communication and Engagement Plan (as detailed in mitigation measure SI5). Disruptions to property access and traffic will be notified to landowners at least five days prior and in accordance with the relevant community consultation processes outlined in the Construction Environmental Management Plan.	Construction	All areas affected by construction
T10	Pedestrian and cyclist access	The project will actively consult with local bicycle groups, such as Central West Cycle (CWC) during construction, particularly regarding construction routes proposed on CWC's cycling route between Gulgong to Dunedoo. Safe pedestrian and cyclist access will be maintained where the project interacts with existing pedestrian or bicycle facilities. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected stakeholders and the relevant roads authority.	Construction	All areas affected by construction.
T11	Heavy vehicles using road network	A Vehicle Movement Plan will be prepared which identifies the construction vehicle route(s) (including OSOM routes) to be used during construction. The Vehicle Movement Plan will also include details of activities of adjoining land uses and awareness of public safety measures (e.g. entering urban areas from the highways) to provide guidance to drivers of construction vehicles travelling to and from project locations. Ongoing consultation will be undertaken with Transport for NSW regarding the use of State roads for OSOM vehicle routes.	Pre-construction Construction	Construction routes.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
T12	Access tracks maintenance and safety	The following maintenance and safety measures will be implemented at relevant locations along each of the access tracks, construction compounds and workforce accommodation camp accesses: • appropriate line marking and signage at access points • wheel cleaning facility as required at access points/intersections • signage to indicate trucks turning • potential use of road plates, propping (or similar) over culverts where required • improvements to existing roads at new access points which may include importing or stabilising material if required.	Construction	Access tracks, construction compound and workforce accommodation camp accesses
T13	**Access points**	**Access points on the public road network will be confirmed and implemented in consultation with the relevant roads authority. Establishment of access points will occur in accordance with road occupancy licences (or similar) where issued by the relevant roads authority.** **For access points that are deficient in Safe Intersection Sight Distance, temporary speed limits would be implemented at these intersections and access gates. This is to ensure sufficient sight distance for road users during construction. Temporary speed limits will be agreed with the relevant road authorities.**	**Pre-construction** **Construction**	**Access point on the public road network**
Waste				
WM1	Waste generation	Measures to minimise spoil generation, off-site disposal and reuse of material on-site will be investigated **and adopted** as part of the continued development of the project's design and construction methodology.	Pre-construction	All locations
WM2	Waste disposal	EnergyCo will explore further opportunities with Mid-Western Regional, Dubbo Regional, Warrumbungle Shire and Upper Hunter Shire councils to reduce landfill demand placed on local waste management facilities as a result of the project.	Pre-construction	All locations
WM3	Waste generation	Where practicable, opportunities to re-use or recycle waste and wastewater generated during construction and operation will be investigated **and adopted** during continued development of the project's design and construction methodology, as well as during operation, subject to meeting water reuse quality requirements.	Pre-construction **Construction** **Operation**	All locations
WM4	Waste generation	All waste generated by the project will be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014a) and the relevant requirements of the Protection of the Environment Operations (Waste) Regulation 2014.	Construction and operation	All locations
WM5	Waste generation	Waste streams will be segregated to avoid cross contamination of materials and maximise reuse and recycling opportunities.	Construction and operation	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
WM6	Waste generation	All waste generated and surplus spoil to be removed from the construction and operation of the project will be transported to appropriately licensed waste disposal or transfer facilities or other facilities lawfully able to accept materials.	Construction and operation	All locations
WM7	**Waste water generation**	**Wastewater volumes and management processes would be confirmed prior to construction and the relevant council will be consulted if transfer to a local wastewater treatment facility is proposed.**	**Pre-construction** **Construction** **Operation**	**All locations**
Hydrology, flooding and water quality				
WA1	Construction water supply	Construction water supply arrangements will be confirmed during continued design development and detailed construction planning, based on further investigations that include ongoing consultation with water suppliers to access the local reticulated network, use of treated mine water, and use of water tanks within construction compounds.	Detailed design and pre-construction	All locations
WA2	Construction water supply	Opportunities to minimise water demand will be further explored during detailed design and construction planning **and adopted where practicable,** including: • capture and use rainwater at construction compounds and/or workforce accommodation camps • use of treated mine water, subject to any onsite reuse requirements • reuse/recycling of construction water (for example, water could be reused onsite for dust suppression, to assist with compaction) • treated wastewater and/or groundwater inflows • the use of additives in concrete mixtures to reduce the amount of water required • identification of alternative construction techniques which will reduce water use (where practicable).	Detailed design and pre-construction	All locations
WA3	Watercourse geomor-phology	Where relevant, permanent ~~erosion~~ **surface water** control measures will be designed and implemented at relevant energy hubs, switching stations and transmission line towers to minimise potential scour and erosion risks associated with surface water runoff during operation.	Detailed design, ~~and~~ construction **and** **Operation**	Energy hubs, switching stations and transmission line towers
WA4	Dispersion of sediment into the environment	Areas disturbed as a result of construction activities will be managed in accordance with the requirements of *Managing Urban Stormwater Soils and Construction* (4th Edition) (Landcom, 2004). This will include the implementation of a range of erosion and sediment control measures which may include: • drainage control measures, e.g. flow diversion banks, straw bale berms and rock-lined chutes • sediment control measures, e.g. sediment fences, traps and basins and impervious covers • erosion control measures, e.g. covering of stockpiles, erosion control blankets, dust suppression measures (e.g. water trucks) and revegetation • **progressive and timely stabilisation of disturbed surfaces with the potential to generate sediment.**	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
WA5	Water quality	A water quality monitoring program for construction will be prepared and implemented to monitor water quality conditions at perennial watercourses that the transmission lines will cross, and to facilitate monitoring of any changes in water quality that could be attributable to the project during construction. The program will detail: • water quality objectives and criteria for the project, in accordance with the *Murray–Darling Basin Plan 2012* (Murray–Darling Basin Authority, 2012) and *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (ANZECC/ARMCANZ, 2000) • frequency, location and duration of sampling, as minimum will include at least two monitoring locations located downstream and upstream of the project on the ~~Talbragar River,~~ Talbragar River at Elong Elong (412042), Cudgegong River at Yamble Bridge (421019) and Wollar Creek • monitoring for total dissolved solids, dissolved oxygen, electrical conductivity, total suspended solids, total nitrogen and total phosphorus. In the event of exceedances of the project water quality criteria, soil and water management measures adopted as part of the Construction Environmental Management Plan will be reviewed and revised accordingly.	Pre-construction and construction	~~Relevant locations~~ **Talbragar River at Elong Elong (412042), Cudgegong River at Yamble Bridge (421019) and Wollar Creek**
FL1	Flooding	Detailed construction planning will consider flood risk at construction sites and support facilities, including: • reviewing construction work area layouts and staging construction activities in order to avoid or minimise obstruction of overland flow paths and limiting the extent of flow diversion required • designing the layout of construction facilities and implementing stormwater management controls during their establishment in order to manage the impact of flooding on construction personnel, equipment and materials • identifying and applying measures to not worsen flood impacts on the community and on other property and infrastructure during construction up to and including the 1% AEP flood event where practicable. Where warranted by the scale and nature of the proposed works this will include flood modelling and assessment to assess the extent of potential impacts and therefore the scope of mitigation measures that may be required • measures to mitigate alterations to local runoff conditions due to construction activities.	Detailed design	All locations
FL2	Flood behaviour (construction)	Stockpiles will be located in areas which are not subject to frequent inundation by floodwater, ideally outside the 10% AEP flood extent. The exact level of flood risk accepted at stockpile sites will depend on the duration of stockpiling operations, the type of material stored, the nature of the receiving drainage lines and also the extent to which it will impact flooding conditions in adjacent development.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
FL3	Flood safety	Construction compounds and workforce accommodation will be located outside high flood hazard areas based on a 1% AEP flood event.	Detailed design	Construction compounds and workforce accommodation camps
FL4	Emergency management	Flood emergency management measures for construction of the project will be prepared and incorporated into relevant environmental and/or safety management documentation. This will include: • contingency planning for construction facilities that are located in areas that are inundated by mainstream flooding during a 1% AEP event • for construction facilities located within the floodplain the identification of how flood related risks to personal safety and damage to construction facilities and equipment will be managed • procedures to monitor accurate and timely weather data, and disseminate warnings to construction personnel of impending flood producing rain.	Pre-construction	All locations
FL5	Climate change adaptation	The impact of the project on flood behaviour will be confirmed during detailed design. This will include consideration of future climate change.	Detailed design	All locations
FL6	Impacts to existing flooding regime	The project will be designed to minimise adverse flood related impacts on: • surrounding development for storms up to 1% AEP in intensity • critical infrastructure, vulnerable development or increases in risk to life due to a significant increase in flood hazard for floods up to the PMF.	Detailed design	All locations
FL7	Flood impacts	The energy hubs and switching stations will be designed to manage adverse impacts on the receiving drainage lines as a result of changes in the depth, velocity, extent and duration of flow during storms up to 1% AEP in intensity.	Detailed design	Energy hubs and switching stations
FL8	Flood impacts	The energy hubs and switching stations, including their access road connections to existing roads, will be designed to ensure that the existing level of flood immunity of the road network is maintained and increases in flood depths and hazards along the road network are minimised.	Detailed design	Energy hubs and switching stations
FL9	Waterway impacts	Localised increases in flow velocities at drainage outlets and waterway crossings will be mitigated through the provision of scour protection and energy dissipation measures.	Detailed design and construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
FL10	Flood impacts	Detailed construction planning would consider flood risk associated with the construction of the new bridges over the Talbragar River and Laheys Creek, including the following: • Flood emergency management procedures for the construction of the new bridges would be prepared and incorporated into the relevant environmental and/or safety management documentation that would include: — procedures to monitor accurate and timely weather data, and disseminate warnings to construction personnel of impending flood producing rain, and — procedures for the safe evacuation of construction personnel and machinery following the dissemination of flood warnings. • Temporary working platforms that would be required to construct the new bridges would be constructed using clean rock fill and installed in a manner that minimises their impact on the inbank area of the watercourses. • The layout of temporary access roads, working platforms and other temporary works required to construct the bridges will be designed and staged in order to manage their impact on flood behaviour.	Detailed design and construction	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
FL11	Waterway impacts	Localised increases in flow velocities at the new bridges over the Talbragar River and Laheys Creek would be mitigated through the provision of scour protection measures.	Detailed design and construction	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
FL12	Flood impacts	The upgrades to the local roads that service the Merotherie and Elong Elong Energy Hubs would be designed such that: • the existing level of flood immunity of the road is maintained or improved, and • during storm events that result in overtopping of the road, there is no significant increase in the depth and hazardous nature of flooding.	Detailed design	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
FL13	Flood impacts	A detailed flood assessment would be carried out of the upgrades to the local roads that service the Merotherie and Elong Elong Energy Hubs to inform the scope of drainage measures to be incorporated into their design in order manage any adverse impacts on the depth, velocity and duration of inundation external to the road corridors.	Detailed design	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
Soils and contamination				
SC1	Mobilisation of saline soils	Prior to ground disturbance, a visual inspection will be undertaken in areas identified as potentially containing saline soils will be undertaken to look for the presence of saline soils. Areas where evidence of salting has been observed or recorded will be subject to further testing as required. If salinity is confirmed, excavated soils will be managed in accordance with *Book 4 Dryland Salinity: Productive use of Saline Land and Water* (NSW DECC 2008) to prevent impacts from salinity.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SC2	Impacts due to spontaneous combustion	Disturbance of areas of active (and previously active) surface mining, underground mine access and process routes will be avoided where practicable. Where this cannot be avoided, testing of the material(s) will be undertaken to confirm if High Carbon Material will be disturbed and/or exposed, and appropriate safeguards implemented to ensure the risk of spontaneous combustion is adequately controlled (in accordance with the *MDG Spontaneous Combustion Management Guideline* (Industry and Investment NSW, 2011)).	Detailed design, pre-construction and construction	Wilpinjong Coal Mine
SC3	Contamination exposure to human health and/or the environment	Disturbance to areas of medium to high risk of contamination will be avoided or minimised where practicable during construction. Management of contamination and any resulting remediation will be carried out in accordance with the relevant legislation, standards and guidelines, including but not limited to the National Environment Protection (Assessment of Contamination) Measure 1999, as amended 2013, and all relevant guidelines made or approved under the *Contaminated Land Management Act 1997* and the *Protection of the Environment Operations Act 1997*.	Detailed design and pre-construction	Areas of medium to high contamination risk
SC4	Contamination exposure to human health and/or the environment	Prior to construction activities within the Wilpinjong Coal Mine lease, areas subject to disturbance will be tested to confirm the presence/absence of contaminants of concern identified in Technical paper 16 – Contamination.	Detailed design and pre-construction	Wilpinjong Coal Mine site
SC5	Contamination exposure to human health and/or the environment	Additional intrusive investigations will be undertaken to confirm the presence/absence of the contaminants of concern prior to commencing ground disturbance within 50 metres of farm structures or farm dams (if applicable).	Detailed design and pre-construction	All locations
SC6	Impacts due to spontaneous combustion	Remediation areas disturbed during construction of the project will be capped in accordance with the Peabody Energy Wilpinjong Capping of Tailings Storage Facilities TD5 Procedure (WI-MIN-PRO-0119).	Construction	Wilpinjong Coal Mine site
SC7	Contamination impact to human health and/or the environment	An unexpected finds protocol will be developed and implemented to manage the discovery of previously unidentified contaminated material (including the discovery of high carbon material within mining lease areas outside of areas indicated by mine operators where this occurs).	Construction	All locations
SC8	Soil and/or water pollution	Construction materials, spoil and waste will be stored/ managed in accordance with applicable EPA requirements to minimise the potential for the project to result in the contamination of soil, groundwater, and/or surface water quality.	Construction	All locations
SC9	Soil and/or water pollution	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards, and applicable guidelines. The capacity of any bunded area will be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s will be shown on site plans.	Construction Operation	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SC10	Soil and/or water pollution	Incident response procedures will be implemented to avoid and manage accidental spillages of fuels, chemicals or fluids during operation and maintenance activities. Environmental spill kits will be provided at strategic, accessible locations, and staff will be trained in spill response procedures (as a minimum, spill kits will be located at the energy hubs and New Wollar Switching Station).	Operation	All
Groundwater				
GW1	Lowering of groundwater levels due to interception and take of water	In the event that groundwater is encountered during excavations **and dewatering is required**, any dewatering volumes will be recorded and managed in accordance with the *Water Management Act 2000*.	Construction	Areas of intercepted groundwater
GW2	Lowering of groundwater levels due to water extraction	Monitoring and recording of extraction volumes from water supply bores will be undertaken and regular analysis of extracted volumes will be completed against predicted volumes in Technical paper 17 (refer to Table 6-5), applicable water access licence and approval requirements.	Construction	Water supply bores at energy hubs
GW3	Impacts due to blasting	Control measures will be identified prior to blasting activities in relevant areas to avoid adverse impacts to sensitive groundwater receivers.	Construction	Finalised blasting locations if within 50 metres of high potential groundwater dependent ecosystems or existing bores
GW4	Damage to bore infrastructure	Direct impacts to registered bores will be avoided, where practicable. If the bores are not required to be removed during construction, then they will be clearly demarcated to protect the infrastructure. Where impact is unavoidable and a bore will require decommissioning, it will be replaced in a similar nearby location in consultation with landowner.	Construction	All locations
Air quality				
AQ1	Dust generation – general	Management measures to prevent or minimise dust generation and impacts to the local community and environment will include (but not be limited to): • use of water sprays or dust suppression surfactants as required for dust suppression where required and appropriate • adjusting the intensity of activities based on observed dust levels and weather forecasts • minimising the amount of material stockpiled and position stockpiles away from surrounding receivers • project construction vehicle movements are to adhere to designated entry/exit routes and parking areas • implementation of measures to minimise the tracking of material onto sealed roads (e.g., wheel wash) • covering of loads	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		• stabilising disturbed areas as soon as practicable, including new access routes • minimising the extent of disturbance as far as practicable • regularly conducting visual inspections of dust emissions and applying additional controls as required • where practicable minimise concurrent construction activities near sensitive receivers that have a greater potential of the risk of dust impact.		
AQ2	Vehicle and plant emissions	Where feasible, construction vehicles and machinery will be fitted with appropriate emission control equipment and maintained in a proper and efficient manner.	Construction	All locations
AQ3	Dust emissions from concrete batching plants	Measures will be implemented at concrete batching plants to minimise emissions to air as far as practicable. The measures will be regularly inspected with additional controls implemented as required. Measures to minimise emissions to air from concrete batching plants may include: • all aggregate and sand will be stored appropriately in storage bins or bays to minimise dust generation, and material will not exceed the height of the bay • cement silos and hoppers will be fitted with dust filters • all inspection points and hatches will be fully sealed • all dry raw materials to be transferred into the bowl of an agitator via front end loaders by maintaining adequate moisture levels and/or an enclosed conveyor • cement silos will be fitted with fitted with an emergency pressure alert and automatic cut off protection to prevent overfill • transfer of cement from storage to batching will occur via sealed steel augers.	Construction	Concrete batching plant(s)
AQ4	Dust emissions from crushing and screening plant	To minimise dust emissions associated with the proposed crushing and screening activities, the following measures will be implemented: • ensure screen covers are fitted to the screening operations • control dust emissions from screening operations using water sprinklers, where required and appropriate • inspect the water sprinklers on a regular basis to ensure operational efficiency • where practicable, install wind breaks in appropriate locations adjacent to the dust generating equipment and processes • prior to screening, dampen the rocks during dry weather conditions.	Construction	Crushing and screening

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AQ5	~~Vehicle~~ **Dust** emissions along construction routes	During high wind conditions (wind speeds greater than ~~5~~ **8** metres per second), reduced speed limits for project heavy vehicles on unsealed roads will be implemented **in the vicinity of sensitive receivers.**	Construction	Construction routes
Climate change and greenhouse gas				
GHG1	Greenhouse gas emissions	A greenhouse gas (GHG) assessment and design refinement will be carried out during detailed design to identify opportunities to minimise GHG emissions during construction. Opportunities for consideration will include: • using low carbon concrete and steel in transmission line towers and civil infrastructure • giving preference to environmentally labelled products and materials, such as those with Environmental Product Declarations • implementing product stewardship schemes to take back, reuse or recycle materials/products used during construction to minimise waste and associated emissions • minimising vegetation clearing during construction to preserve carbon sinks • implementing efficient construction practices, such as modular construction and off-site fabrication to minimise construction time and associated emissions.	Detailed design	All locations
GHG2	Greenhouse gas emissions	A GHG assessment and design refinement will be carried out during detailed design to identify opportunities to minimise GHG emissions during operation. Opportunities for consideration will include: • designing and implementing energy-efficient transmission infrastructure to minimise energy losses during operation and lower GHG emissions • investigating the use of non-SF6 technologies for transformers and switchgear. If SF6 is required, leak detection systems will be considered, and regular inspections and maintenance undertaken to reduce the risk of SF6 leaks • incorporating solar energy technologies, such as installing solar panels, at energy hubs and switching stations to reduce energy consumption within the National Electricity Market which still includes fossil fuel generated electricity • transitioning to zero-emission vehicles for operation and maintenance equipment, such as battery electric vehicles or hydrogen fuel cell vehicles • implementing advanced monitoring and control systems for transmission infrastructure to optimise energy efficiency and reduce energy losses • implementing **project** demand-side management strategies to actively manage electricity consumption, reduce energy demand and associated GHG emissions.	Detailed design, operation	All locations
CC1	Climate change	A detailed climate change risk assessment will be carried out during detailed design in accordance with AS5334-2013.	Detailed design	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
CC2	Climate change	Following the detailed climate change risk assessment under mitigation measure CC1, adaptation measures will be developed to address climate change risks associated with bushfire, extreme heat, drought and increased rainfall intensity.	Detailed design	All locations

E1.5 Summary of mitigation measures

The updated list of measures proposed to mitigate and manage the potential impacts of the amended project is provided in Table E-2.

The amended project would be undertaken in accordance with the conditions of approval and the updated list of mitigation measures. In the event of any inconsistencies between the mitigation measures presented in Table E-2 and the associated technical papers, the measures presented below would take precedence.

Table E-2 Updated mitigation measures

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
Land use and property				
LP1	Land use	The design will continue to be refined to minimise potential impacts on existing land uses and properties as far as practicable.	Detailed design	All locations
LP2	Land requirements	Prior to the commencement of construction, land for the energy hubs will be acquired in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW).	Detailed design	Energy hubs
LP3	Impacts to land use	Pre-condition assessments of the construction area will be undertaken to determine the existing condition of assets, infrastructure, utilities and the general condition of the land. This will inform requirements for rehabilitation within Property Management Plans established with landowners.	Pre-construction and construction	Construction area – transmission lines
LP4	Impacts to utilities and services	The location of all services and utilities within the construction area will be confirmed during detailed design, and any required protection or relocation will be designed in consultation with utility providers.	Detailed design	All locations
LP5	Indirect impacts on State forests	EnergyCo will consult with Forestry Corporation of NSW and any relevant stakeholders with regards to access limitations.	Pre-construction	Locations where the project intersects State Forests
LP6	Impacts to travelling stock reserves (TSRs)	Local Land Services will continue to be consulted during detailed design to confirm how impacts on travelling stock reserves will be managed during construction and operation. Alternative access arrangements will be made as required.	Detailed design	Barneys Reef TSR

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
LP7	Impacts to mine operations	To minimise disruption to mining activities, mine operators will be consulted on construction methodologies and activities as part of continued design development and prior to and during construction activities. This will include consultation relating to: • any adjustments to existing mining-related infrastructure (fences, tracks, mine roads, access tracks etc) • the timing and location of construction works, especially where there are some restrictions on vehicle or construction equipment movements • the timing and location of construction works which have the potential to impact mine operations, such as the stringing of transmission lines over existing mine infrastructure or active mining areas.	Pre-construction and construction	Mining areas
LP8	Impacts to existing biodiversity offset sites	EnergyCo will, in consultation with applicable regulatory authorities, Glencore, YanCoal and Peabody, identify and secure biodiversity offsets for impacts to existing biodiversity offset sites (associated with the Wilpinjong, Moolarben and Ulan coal mines approvals).	Pre-construction and construction	Existing biodiversity offset areas
LP9	Land disturbance	Areas disturbed by construction will be stabilised and appropriately rehabilitated in consultation with the relevant landowner and as per any relevant requirements in Property Management Plans.	Construction	Construction area
LP10	Land requirements	The acquisition of land for the switching stations will be carried out by EnergyCo in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW).	Detailed design	Switching stations
LP11	Land requirements	Easements will be established for transmission lines by EnergyCo in consultation with landowners and in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991* (NSW) and *Crown Lands Management Act 2016* (NSW) (as relevant) at the completion of construction.	Detailed design	Transmission lines
Agriculture				
AG1	Access impacts – construction	The location of any additional access tracks (temporary and permanent) will be confirmed in consultation with landholders to minimise impacts on agricultural activities. Where permanent tracks are required, a single access track will be designed to serve both temporary and permanent purposes, where practicable.	Detailed design and construction	All locations
AG2	Impact of structures	Where the positioning of transmission line structures and other associated permanent structures will impact: • cropping land • areas used for set up and pack up of agricultural equipment, entry points and turning areas • farm dams, or • locations of high biosecurity risk;. Consultation will be undertaken with the affected landowner to identify opportunities to avoid or minimise these impacts, where practicable, prior to the commencement of relevant works which will impact the applicable area, equipment and/or property infrastructure.	Detailed design and construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AG3	Disruption Impacts – Property Management Plans	Individual Property Management Plans will be developed in consultation with each landowner directly affected by construction activities. The intent of the plans is to provide a flexible approach which balances the needs of existing agricultural operations and construction activities. The plans will address relevant matters including: • pre- and post-condition surveys • access arrangements and protocols • proposed timing and location of construction works, particularly where some restriction on vehicular, equipment, grazing or livestock movements will be necessary • grazing and cropping activities on and adjacent to the construction area during the construction period • farm infrastructure arrangements • any required adjustments to property infrastructure (fences, access tracks, etc) • noise intensive activities during sensitive periods of the livestock production cycle (e.g. lambing/calving) • vehicle movements and other activities within the vicinity of livestock • movement of stock away from potential stressors created by construction activities • details of any access tracks or other infrastructure provided for temporary construction activities that are to be retained and not restored to the pre-existing condition (where requested by the landholder prior to the completion of construction within the applicable area) • biosecurity requirements. • contact details for the person who will liaise with landowner to provide direct avenues of enquiry for information and issues management. Property Management Plans will be developed prior to the commencement of relevant works which will impact the applicable property, activity, equipment and/or property infrastructure. The requirements of the plans will be adhered to/implemented throughout the construction period.	Detailed design, pre-construction and construction	All relevant properties within the construction area
AG4	Disruption Impacts – General	To minimise disruption to agricultural activities: • property infrastructure (such as gates) will be managed in accordance with landowner requirements • any damage to property infrastructure caused by construction will be repaired in a timely manner in consultation with the landowner • use of existing roads, tracks and other existing disturbed areas will be prioritised over the construction of new access tracks where practicable • where access is required across open spaces, either within the easement or to the easement, care will be exercised to ensure that surface disturbance is minimised by confining vehicular and plant movements, as far as possible, to a single route.	Detailed design and construction	All relevant properties within the construction area

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AG5	Biosecurity - construction	Biosecurity controls will be implemented during construction to minimise the risk of transport or spread of disease, pests or weeds. A Biosecurity Management Plan will be developed addressing the following protocols/matters including: • review of the latest publicly available weed data including relevant Regional Strategic Weed Management Plans • consideration of information on weeds identified in biodiversity studies undertaken for the project • weed management controls, including inspection and cleaning of plant and equipment, and management of earthworks and clearing activities • development of specific controls where high biosecurity risks are identified. For example appropriate measures will be implemented with respect to foot and mouth disease to control any risk of introduction of the pathogen as a result of project activities • a monitoring program to track the effectiveness of the controls identified in the Biosecurity Management Plan • consultation with the owners of organic certified properties will be carried out to identify the specific risks and controls required to be implemented • notification of relevant councils of new infestations of priority weeds listed in the relevant Regional Strategic Weed Management Plans if identified. The specific controls applicable to a property will be consistent with approved Property Biosecurity Plans where they are in place. Property-specific protocols will be documented in the relevant Property Management Plans. The Biosecurity Management Plan will be prepared in consultation with relevant local council biosecurity officers in relation to the distribution of important weeds and the location of high biosecurity risk areas.	Construction	All locations
AG6	New weed infestations	In the event of new infestations of State priority weeds as a result of construction activities, the relevant control authority will be notified in accordance with the requirements of the *Biosecurity Act 2015* and Biosecurity Regulation 2017.	Construction	All locations
AG7	Access impacts – operation	Fencing and access arrangements, such as locked gates and requirements for opening and closing of gates, will be determined in consultation with landowners. Any damage caused by maintenance activities will be repaired promptly.	Operation	Transmission line
AG8	GPS impacts	In the event that nuisance impacts on agricultural precision farming GPS signals arises due to operation of the project, the cause of any such interference will be investigated. Any disruption due to operation of the project will be addressed in consultation with the affected landowner and may include measures such as signal boosting equipment or antenna enhancements (where applicable).	Operation	Transmission line

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AG9	Biosecurity – Operation	The Biosecurity Management Plan will be updated for the operational phase and implemented during operation to minimise the risk of transport or spread of disease, pests or weeds during operation and maintenance activities.	Operation	All locations
AG10	Weed management	Where present within the transmission line easement and associated areas for permanent infrastructure, weeds will be managed in accordance with the *Biosecurity Act 2015*.	Operation	All locations
Landscape character and visual amenity				
LV1	Vegetation retention	Vegetation clearance for the project will be limited to the minimum extent necessary for construction and operation to maximise existing visual screening and retention of the existing landscape character. Retained vegetation will be clearly demarcated on site as 'no-go zones' prior to the commencement of construction. Construction personnel will be made aware of no-go zones as part of environmental site induction(s).	Pre-construction, Construction, Operation	Whole of project
LV2	Lighting control	Lighting at construction compounds and workforce accommodation camp(s) will be designed and operated in accordance with Australian and New Zealand Standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting*.	Pre-construction and construction	Construction compound and workforce accommodation camp(s)
LV3	Private dwellings with a moderate or high visual impact	For private dwellings on non-host properties where the project is predicted to have a moderate or high visual impact, reasonable and feasible opportunities to reduce the visual impact (including the provision of screening vegetation) will be investigated. Appropriate visual screening or other options will be confirmed in consultation with the affected landowner (supported by detailed landscape plans where appropriate) and implemented either before or during construction. Maintenance of vegetative screening provided on privately owned land outside of the operation area will be the responsibility of the landowner.	Pre-construction, Construction	Private dwellings on non-host properties with a moderate or high visual impact
LV4	Lighting control	Lighting at the Energy Hubs and switching stations will be designed and operated in accordance with: • Australian and New Zealand Standard *AS/NZS 4282:2019 Control of the obtrusive effects of outdoor lighting* • the design guidelines contained in the Siding Springs Dark Sky Planning Guideline (DPE 2016). This will include: — eliminating upward spill light — ensuring lighting is directed downwards — using shielded fittings — avoiding overlighting — switching lights off when not required, such as with the use of sensor lights — using energy efficient bulbs — using asymmetric beams if floodlighting is required — ensuring lights are not directed towards reflective surfaces — using warm white colours.	Pre-construction, Construction, Operation	Merotherie Energy Hub, Elong Elong Energy Hub, and switching stations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
Biodiversity				
B1	Avoidance of threatened species and threatened ecological communities	The locations of threatened ecological communities and habitat for threatened species will be considered and potential impacts avoided or minimised to the greatest extent practicable during finalisation of the detailed design and construction methodology. This will include: • micro siting of transmission line infrastructure within the biodiversity study area • prioritising disturbance in areas with a Vegetation Integrity score <17 as per section 9 of the Biodiversity Assessment Method (2020). Sensitive areas to be avoided during detailed design and sensitive areas (including species polygons, buffered threatened species locations and areas of Threatened Ecological Communities) will be identified on sensitive area plans using spatial data.	Detailed design Pre-construction	Identified sensitive areas
B2	Avoidance of threatened species and threatened ecological communities	Prior to construction activities taking place within the Little Eagle nest buffer and during the breeding season (from Spring until after young and fledged in early Summer), an ecologist will be engaged to determine if the species is present. If present, an impact assessment of proposed activities will be completed to determine what, if any, activities can take place within the buffer area, and what mitigation measures need to be implemented. Measures may include cessation of certain activities, amending the construction methodology including selecting alternative plant or equipment.	Detailed design Pre-construction	Within Little Eagle tree nest buffer area(s)
B3	Avoidance of threatened species and threatened ecological communities	Prior to construction activities taking place within 100 m of rocky areas containing caves, overhangs or crevices, cliffs or escarpments and during the breeding season for the Large-eared Pied Bat, Eastern Cave Bat, Large Bent-winged Bat (November to February), an ecologist will be engaged to determine if the species are present. If present, an impact assessment of proposed activities will be completed to determine what, if any, activities can take place within the 100 m and what mitigation measures need to be implemented. Measures may include cessation of certain activities, amending the construction methodology including selecting alternative plant or equipment.	Detailed design Pre-construction	Within 100 metres of rocky areas containing caves, or overhangs or crevices, cliffs or escarpments as mapped by Technical paper 4 – Biodiversity Development Assessment Report
B4	Micro-siting of associated works and access tracks	Micro-siting of temporary construction infrastructure (including site offices, compounds and access tracks) will be undertaken to minimise vegetation clearing and disturbance of watercourses. This will include: • prioritising areas of low biodiversity value • utilising existing access tracks, where feasible • locating waterway crossings at narrow width locations • minimising the quantity of cut and fill activities.	Pre-construction Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B5	Connectivity corridors	Connectivity corridors, in the form of installation of under-transmission line glider poles (in accordance with clearance requirements for transmission lines and infrastructure) where the construction area will impact habitat connectivity for arboreal species (see Appendix J of Technical paper 4 – Biodiversity Development Assessment Report for an examination of regional and terrestrial habitat connectivity and target species for mitigation), are to be investigated and installed in appropriate locations. The exact location and design of under-transmission line glider poles and/or rope bridges will be nominated as part of a Connectivity Strategy guided by the locations of habitat connectivity outlined in Figure 14-14 and 14-15 of Technical paper 4 – Biodiversity Development Assessment Report. Where poles are proposed to be installed on land adjacent to the easement, they will be subject to landowner agreement and captured in the property management plan. This strategy will require ongoing management of connectivity corridors.	Pre-construction (Connectivity Strategy) Construction Operation (Corridor Management)	Relevant locations
B6	Impacts on availability of nesting hollows	A Supplementary Hollow and Nest Strategy will be developed and implemented for the creation of nest boxes or other hollow creation method to provide alternative roosting and/or nesting habitat for threatened fauna displaced during clearing. Nest box/hollows are to be installed prior to commencement of clearing works where practicable in each construction area. Where supplementary hollows are proposed to be established on land adjacent to the easement, these will be subject to landowner agreement and captured in any property management plan.	Pre-construction Construction	Relevant locations
B7	Biosecurity impacts	A Biosecurity Management Plan will be prepared in accordance with mitigation measure AG5.	Pre-construction Construction	All locations
B8	Biodiversity impacts	A Biodiversity Management Plan will be prepared and implemented for the duration of construction. The plan is to include (as a minimum): • a protocol for identifying and demarcating, prior to clearing commencement at each location, the location and extent of areas of vegetation clearance and habitat disturbance, and how these will be suitably demarcated on site • a protocol for identifying and demarcating, prior to clearing commencement at each location, the location and extent of areas to be protected (e.g. retained vegetation, hollow-bearing trees, nests, burrows and other habitat features), including applicable buffers to habitat features • measures to be implemented on site to clearly demarcate areas to be retained as 'no go areas'.	Pre-construction Construction	All locations
B9	Tree protection measures	Tree protection measures are to be installed and maintained as necessary for trees to be retained within and in the vicinity of energy hubs, construction compounds and accommodation camps, in accordance with *AS 4970-2009 – Protection of Trees in Development Sites* throughout construction.	Pre-construction	Applicable trees within and in the vicinity of the energy hubs, construction compounds and accommodation camps

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B10	Pre-clearing surveys	Pre-clearing surveys are to be completed prior to clearing at each location by a suitability qualified ecologist. The proposed clearing extents will be marked out on site prior to the pre-clearing surveys. Pre-clearing surveys are to be carried out prior to the commencement of clearing works in each construction area. During the surveys, the ecologist will: • survey areas of 'Assumed Habitat' for SAII entities and confirm clearing extent of habitat • survey the proposed clearing extent • within 48 hours prior to clearing, identify any fauna that will require relocation prior to clearing, including inspection of any built structures and wooden fence posts to be demolished • confirm that biodiversity exclusion zones are physically demarcated • confirm that hollow-bearing trees within and adjacent to the clearing extents are prominently marked/tagged; and • confirm that nest boxes are in place (where required) in suitable locations adjacent to areas to be cleared, or suitable locations for installation have been identified.	Pre-construction Construction	All locations
B11	Ecology inductions, toolbox talks, targeted training	All relevant project personnel, including relevant sub-contractors are to be trained on biodiversity management protocols and requirements for the project, through inductions, toolbox talks and targeted training, and provided with sensitive area maps (showing clearing boundaries and exclusion zones) and updates as required. Inductions and training must be completed prior to commencement of work for all relevant personnel.	Construction	All locations
B12	Retention of understorey vegetation in riparian areas	Understorey vegetation is to be protected within vegetated riparian zones where reasonable and feasible (within the definition of *Water Management Act 2000*). Vegetation clearing will be limited to the tree stratum and shrubs above two metres in height only, with root systems and trunk bases being retained in-situ.	Construction	Riparian environments disturbed as part of construction
B13	Rehabilitation of riparian areas	A Riparian Vegetation Management Plan (RVMP) will be developed and implemented for the project to manage activities within vegetated riparian zones to minimise impacts to aquatic environments. The plan will be prepared prior to and implemented during any disturbance to a riparian area. The plan will identify the measures to be implemented to minimise impacts from construction activities (such as temporary and permanent waterway crossings) within riparian and aquatic environments. Riparian areas subject to disturbance will be progressively stabilised and rehabilitated.	Pre-construction Construction	Riparian environments disturbed as part of construction

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
B14	Installation of bird diverters	Bird diverters will be installed on transmission lines within one kilometre (at a minimum) of wetland/riverine habitats to reduce impacts on aerial fauna species from collision with transmission lines and infrastructure. The exact position and diverter model will be finalised during detailed design. Installation of the bird diverters will occur within two weeks of transmission line installation or as soon as practical, and will remain in place and/or replaced as required.	Construction	Relevant locations
B15	Vegetation offsets requirements	The predicted clearing of native vegetation by the project identified in Chapter 8 of the updated Biodiversity Development Assessment Report (in Appendix G of the Amendment Report) will be monitored against the recorded clearing. A revised Biodiversity Assessment Method (BAM-C) calculation on the project's final disturbance to biodiversity post construction will be completed. Any additional credit liability identified will be met as part of the biodiversity offset requirements within the biodiversity offset package.	Construction Operation	Construction area
B16	Unexpected finds	A species unexpected finds protocol will be implemented if threatened ecological communities or flora and fauna species, not assessed in the biodiversity assessment, are identified in the disturbance area.	Construction	Construction area
B17	Water quality, watercourse geomor-phology and aquatic habitat	Watercourse crossings will be designed to minimise disturbance and harm within riparian corridors and rehabilitate aquatic habitat to achieve a 'no net loss' of habitat within the affected area and catchment as a whole, in accordance with the following guidelines: • *Guidelines for controlled activities on waterfront land* (DPE, 2018) • *Why do fish need to cross the road? Fish passage requirements for waterway crossings* (Fairfull & Witheridge, 2003) • *Policy and guidelines for fish habitat conservation and management* (DPI, 2013).	Pre-construction and construction	All locations
B18	Operational guidelines and procedures	Develop and implement guidelines and procedures for maintenance of the project during operation as part of the OEMP or equivalent. These guidelines and procedures will cover the following: • vegetation clearing and maintenance commitments in the Biodiversity Development Assessment Report and Environmental Impact Statement • avoiding access and disturbance in areas of high biodiversity conservation significance; outside of the areas required for construction and • avoiding maintenance of vegetation that does not need to be maintained during operation.	Prior to operation Operation	Operation area
B19	Minimise indirect impacts from light spill	Lighting designs to be in accordance with the *National Light Pollution Guidelines for Wildlife* (DCCEEW, 2023).	Detailed design	Operation area

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
Aboriginal heritage				
AH1	Impact avoidance and minimisation	The project will avoid impacts to the following identified Aboriginal objects and/or sites within the construction area: • the proposed workforce accommodation camps and construction activities at the Merotherie Energy Hub will establish a heritage protection zone to avoid SNI-GG02 to SNI-GG09 inclusive • the proposed workforce accommodation camps and construction activities at Neeleys Lane will establish a heritage protection zone to avoid SNI-AS65 • the proposed construction activities at brake and winch sites near the Talbragar River will establish a heritage protection zone to avoid direct impacts to Argyll No.3 (#36-3-0111) • a protection zone will also be implemented at the Elong Elong energy hub to protect cultural material within 150 m of Laheys Creek (excluding the unavoidable impacts associated with the crossing of Laheys Creek by the transmission corridor, which will be minimised and ground disturbance associated with upgrades and maintenance along Spring Ridge Road and Dapper Road). Some guiding principles for consideration of avoidance are presented in Appendix E of the Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix H of the Amendment Report). Any site-specific avoidance measures developed to address this commitment would be integrated into AH4.	Pre-construction Construction	SNI-GG02 – GG09 inclusive, SNI-AS65; Argyll No.3 (#36-3-0111), and 150 m of Laheys Creek
AH2	Impact avoidance and minimisation	The project will investigate the micro-siting of project infrastructure and construction activities in consultation with an Aboriginal heritage specialist to avoid or minimise impacts to: • rockshelters (#36-3-3794, #36-3-0449, #36-3-0570, #36-3-3790, SNI-RS01 – RS04 inclusive) • grinding groove sites (SNI-GG01, SNI-GG15 and SNI-GG16-17 inclusive) • a culturally modified tree (SNI-CMT02) following validation (AH7) • high-density and/or significant stone artefact sites (#36 3 1140, #36 3 1141, SNI-FA02, SNI-FA05/SNI-AS80, SNI-FA12, SNI-IF104) • within 150 m of Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek (north crossing), Copes Creek and Laheys Creek. Some guiding principles for consideration of avoidance and/or impact minimisation are presented in Appendix E of the Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix H of the Amendment Report). Management and any site-specific mitigation measures developed to address this commitment would be integrated into AH4.	Pre-construction Construction	#36-3-3794, #36-3-0449, #36-3-0570, #36-3-3790, SNI-RS01 – RS04 inclusive, SNI-GG01, SNI-GG15, SNI-GG16-17 inclusive, SNI-CMT02, SNI-AS101 (#36-3-1140, #36-3-1141), SNI-FA02, SNI-FA05/ SNI-AS80, SNI-FA12, SNI-IF104, and areas within 150 m of Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek (north crossing), Copes Creek and Laheys Creek.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH3	Impact avoidance and minimisation	On-Country meetings will be undertaken with participating Elders and key knowledge-holders of the project to discuss efforts to conserve and communicate appropriate important information about places of cultural value intersected by the project. If identified, feasible and reasonable measures would be developed in consultation with the Elders and key-knowledge-holders and integrated into AH4.	Pre-construction Construction	SNI-CS4 – CS6 inclusive, and travelling routes #1 and #5 where they intersect the construction area.
AH4	Cultural heritage management	An Aboriginal Cultural Heritage Management Plan (ACHMP) will be jointly prepared by the proponent and a suitably qualified heritage professional, with the latter providing archaeological and cultural heritage inputs and requirements, and final endorsement of the document. The ACHMP would be developed in consultation with the Registered Aboriginal Parties (RAPs) and Heritage NSW. The contents and guiding principles for the management of identified site types for the ACHMP are presented in Appendix E of Technical paper 5 (Aboriginal cultural heritage assessment report), and include: • processes, timing, communication methods and project involvement for maintaining Aboriginal community consultation and participation through the remainder of the project • inputs and content of a cultural heritage induction package for all construction personnel and subcontractors • descriptions and methods for archaeological test/salvage excavations of rockshelters, stone artefact scatters, potential archaeological deposits, and cultural deposits that will be adversely affected by the project • descriptions and methods for surface collection of identified isolated objects and stone artefact scatters that will be adversely affected by the project • descriptions and method for mitigation and/or recovery of grinding grooves and culturally modified trees that will be adversely affected by the project • delineating and protecting Aboriginal and cultural sites within or in close proximity to the construction area, including clear marking, appropriate screen for any gender-specific areas, surface protection, etc • procedures for managing the unexpected discovery of Aboriginal objects, sites and/or human remains during the project • procedures for the curation and long-term management of recovered cultural materials • methods of post-excavation analysis and reporting of the archaeological investigations, including suitable collection and processing of stone artefacts, palaeo-environmental, chronological and other soils from archaeological activities; and • a monitoring regime for implementing the above measures.	Pre-construction Construction	Construction area, and all identified Aboriginal objects, sites and deposits in Chapter 5 of the Addendum ACHAR that will be adversely impacted by the project.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH5	Cultural heritage management	An inspection will be undertaken by a qualified arboriculturist of all tentatively identified culturally modified trees to confirm whether they have formed through anthropogenic or natural processes. The findings from this inspection and subsequent management of the trees confirmed as being culturally modified will be integrated into the ACHMP (AH04) as required.	Pre-construction	#36-3-3918, SNI-CMT02, SNI-CMT04, SNI-CMT16, SNI-CMT19
AH6	Cultural heritage management	Archival recording will be undertaken of all rockshelters, grinding grooves, and culturally modified trees that may be adversely impacted by the project. Archival recording will be undertaken in accordance with relevant Heritage NSW guidelines and submitted to the Heritage NSW AHIMS database.	Pre-construction	#36-3-3794, #36-3-0449, #36-3-0570, #36-3-3790, SNI-RS01 – RS04 inclusive, SNI-RS-06, SNI-GG01-GG09 inclusive, SNI-GG15 -GG17 inclusive, Argyll No.3 (#36-3-0111) SNI-AS65; and as required for the following: AH05: #36-3-3918, SNI-CMT02, SNI-CMT04, SNI-CMT16, SNI-CMT19
AH7	Heritage interpretation	An Aboriginal heritage-interpretation strategy and plan will be developed by an Aboriginal heritage specialist, in consultation with Registered Aboriginal Parties, which will identify the interpretive values of the construction area (and specifically Aboriginal heritage values) and provide direction for interpretive installations and devices. The contents and guiding principles for the management of the strategy and plan are presented in Appendix E of Technical paper 5 and include the need to incorporate Registered Aboriginal Parties' views on traditional and contemporary values, local ethnographic and post-Contact information, and archaeological data developed for the project.	Construction Post-construction	Construction area
AH8	Aboriginal engagement	Consultation will be maintained with the Registered Aboriginal Parties where cultural heritage requires management.	Pre-construction Construction	All Aboriginal objects, sites and places
AH9	Administra-tive	A copy of the Aboriginal cultural heritage assessment report (and Addendum ACHAR) and all relevant AHIMS site recording forms and information for the project will be lodged with Heritage NSW and provided to each of the RAPs.	Pre-construction Construction	All Aboriginal objects, sites and places described in Chapter 5 of the Addendum ACHAR.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AH10	Cultural heritage management	Where ground disturbance activities are unable to avoid areas within 150 m of Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek (north crossing), Copes Creek and Laheys Creek (excluding areas already disturbed during construction of existing access tracks and access roads), archaeological excavations will be undertaken. Where sub-surface artefacts or cultural materials are uncovered, archaeological excavations will be followed immediately by salvage mitigation requirements in locations where ground disturbance activities would occur, following the methods outlined in Appendix E of the Addendum Aboriginal Cultural Heritage Assessment Report (ACHAR) (Appendix H of the Amendment Report) and described in the ACHMP (AH4).	Construction	The construction area, where it is located within 150 m of Deadmans Creek, Bora Creek, Cumbo Creek, Wilpinjong Creek, Tallawang Creek (north crossing), Copes Creek and Laheys Creek
Non-Aboriginal heritage				
HH1	Avoidance of direct impacts to Tallawang Creek Archaeological Site 02	Prior to construction, an exclusion barrier (e.g. fencing or suitable alternative) will be installed to prevent construction activities or access into the portion of CWO-22-HH11 which extends into the construction area. The barrier would be maintained for the duration of construction.	Pre-construction Construction	CWO-22-HH011
HH2	Minimisation of direct impacts	Construction methodologies will be refined to avoid and/or minimise direct impacts to listed and potential historic heritage items where reasonable and feasible.	Pre-construction Construction	CWO-22-HH03 CWO-22-HH05a CWO-22-HH05b CWO-22-HH08 CWO-22-HH09a CWO-22-HH09b[‡] CWO-22-HH09c[‡] CWO-22-HH10 CWO-22-HH13 CWO-22-HH16 CWO-22-HH18 CWO-22-HH19 CWO-22-HH20 CWO-22-HH21 CWO-22-HH14 CWO-23-H01 CWO-23-H02
HH3	Minimisation and management of indirect impacts	Construction methodologies will be refined to avoid and/or minimise indirect impacts to listed and potential historic heritage items where reasonable and feasible.	Pre-construction Construction	CWO-22-HH06 CWO-22-HH22 CWO-22-HH23
HH4	Cultural heritage management	Cultural Heritage Sensitivity Assessment If sites CWO-23-HH01 and CWO-23-HH02 cannot be avoided through detailed design, a site inspection assessment will be completed in accordance with NSW guidelines for items to determine their cultural heritage sensitivity.	Pre-construction	CWO-23-HH01 CWO-23-HH02

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH5	Cultural heritage management	Archival recording If avoidance of sensitive sites cannot be established during the detailed design stage, where determined to have state or local significance in accordance with HH4, an archival recording will be completed in accordance with NSW guidelines and be lodged with the Heritage NSW and local councils for access to researchers.	Pre-construction	CWO-22-HH08 CWO-22-HH10 CWO-22-HH18 CWO-22-HH19 CWO-22-HH14
HH6	Cultural heritage management	Archaeological test excavation If direct impacts to a heritage item cannot be reasonably and feasibly avoided during the detailed design stage, a program of archaeological test excavation will be undertaken (where the extent of the archaeological deposit is not known). This will include development of: • a detailed archaeological research design • consultation with Heritage NSW • systematic test excavation of historical archaeological sites that meet the 'relics' threshold identified for impact • where archaeological deposits are uncovered, sampled recovery of historic heritage relics will occur prior to disturbance. Once recorded and analysed artefacts will be offered to local heritage society/museum. A detailed excavation method and research design for this process will be included in the Historic Heritage Management Plan (HHMP).	Pre-construction Construction	CWO-22-HH03 CWO-22-HH05a CWO-22-HH13 CWO-22-HH16
HH7	Cultural heritage management	Archaeological salvage excavation Salvage excavation will be undertaken on archaeological sites subject to direct impacts where the extent of the archaeological deposit is known. This will include development of: • a detailed archaeological research design • consultation with Heritage NSW • systematic salvage excavation of historical archaeological sites. Once recorded and analysed, salvaged artefacts will be offered to local heritage society/museum. A detailed excavation method and research design for this process will be included in the HHMP.	Pre-construction	CWO-22-HH03 CWO-22-HH05a CWO-22-HH09a CWO-22-HH09b CWO-22-HH09c CWO-22-HH13 CWO-22-HH16

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH8	Cultural heritage management	Unexpected finds procedure Any items of potential heritage conservation significance or human remains discovered during construction and operation will be managed in accordance with an Unexpected Finds Procedure. A description of the types of finds that will stop works within the vicinity of the finds will be determined prior to construction as part of the HHMP and staff involved in excavation work will be informed about how to apply it. Finds would include objects such as bonded bricks, timber or stones appearing in formation indicating a wall or floor for instance are found or excavated soil with artefact concentrations. The unexpected finds procedure will include actions such as: • stop work procedures and exclusion buffers • utilising the advice of a technical specialist • consultation with Heritage NSW • protocols for continuing work in the area after assessment.	Pre-construction Construction	Construction area
HH9	Avoidance of impacts to Laheys Creek Cemetery	A structural assessment of the standing headstones will be undertaken to determine if additional conservation works may be required to mitigate nearby construction works. Prior to and during any activities with the potential to generate vibration levels that exceed tolerance levels identified by the structural assessment, a vibration monitor will be installed within the cemetery at the closest point to construction works to confirm that vibration levels are compliant with applicable criteria. Vibration monitoring would be discontinued if it indicates that the risk exceeding the tolerance levels is negligible.	Pre-construction Construction	CWO-22-HH06
HH10	Avoidance of impacts to Laheys Creek Cemetery	Prior to construction in the vicinity of CWO-22-HH06 (Laheys Creek Cemetery), an exclusion area of a suitable minimum width, as confirmed by a vibration assessment, will be installed to ensure impacts to the cemetery are avoided. The initial nominated exclusion buffer for CWO-22-HH06 will be determined on the following basis: • a report from a structural engineer assesses the stability of the headstones in the cemetery and identify vibration tolerance levels to avoid damage; and • the report must certify that the proposed exclusion buffer is sufficient to avoid damage to the items. If a reduction in the initial exclusion area is required: • a structural engineer must certify that the proposed revised exclusion buffer is sufficient to avoid damage to the items. • if vibration-generating works are unavoidable within the exclusion buffer, headstones identified as being at risk of collapse will be stabilised and conserved. • the report can provide and certify vibration criteria, vibration monitoring equipment is installed and vibration criteria are not exceeded; and • any damage sustained to the cemetery during construction or in the succeeding 12-month period will be repaired and rectified by the proponent.	Pre-construction Construction	CWO-22-HH06

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
HH11	Avoidance of impacts to Upper Tallawang Catholic Church and Union Church Cemeteries	To avoid harm to any relics present, Restricted Zones will be established around the suspected graves and buried architecture within specific areas of the Tallawang Catholic Church lots. To implement this recommendation: • The detailed design and construction methodology will be developed to avoid excavation and ground disturbance within the Restricted Zones to the greatest extent practicable. • Subsurface anomaly confidence locations identified in the Ground Penetrating Radar Interpretation Report (EMM 2024) will be marked out within the construction area using non-intrusive (i.e. non-ground-penetrating) methods prior to project-related activities commencing in the vicinity. • Heavy vehicle access within the Restricted Zones will be limited to only essential movements to support other construction activities required within the zones. • A clearing approach will be developed and implemented within the Restricted Zones to avoid accessing the subsurface anomaly confidence locations and minimise ground/subsurface disturbance generally during the clearing process, where feasible and reasonable. • If surface activities in the immediate vicinity of the subsurface anomaly confidence locations are unavoidable, implementing protective measures (for example using road plates) to prevent ground disturbance and minimise potential compaction. • Heritage specialist surveillance of any excavations required in the immediate vicinity of the Moderate High subsurface anomaly confidence locations.	Pre-construction Construction	CWO-22-HH09b CWO-22-HH09c
Social				
SI1	Property acquisition	A Landowner Engagement Strategy will be developed and implemented for the project which will include the following: • appointment of a dedicated Land Acquisition Manager to oversee the implementation of the strategy • ensure personnel appointed to engage with landowners have been suitably trained to undertake engagement with vulnerable people and those potentially affected by mental health issues.	Pre-construction, Construction	Properties hosting infrastructure

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI2	Workforce management	A Workforce Management Plan will include: • a code of conduct for workers, which will include a zero-tolerance policy relating to anti-social behaviour • cultural awareness training for the workforce • measures for the workforce residing at the workforce accommodation camps including recreation areas, internet connections etc. The plan will include strategies to promote wellbeing of the workforce and a positive interaction with local community, which may include promoting workforce participation in community life (sports, events, volunteering), providing healthy food options, implementing health and safety assessments, among others. The plan will be reviewed every six months to identify and manage any unanticipated impacts.	Pre-construction/ Construction	Regional social locality
SI3	Local workforce participation	A Local Workforce Participation Strategy will be prepared in accordance with the Renewable Energy Sector Board Plan (Office of Energy and Climate Change, 2022) and implemented. It will include the following initiatives: • identification of local skills gaps and potential workforce skills and training requirements • investigate 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 council, communication of employment opportunity via relevant local mediums of information, contract workers through existing local businesses, etc.	Pre-construction	Regional social locality
SI4	Industry participation	An Industry Participation Plan will be prepared in accordance with the Renewable Energy Sector Board Plan (Office of Energy and Climate Change, 2022) and implemented which will: • identify services and goods that could be sourced locally (quarry materials, catering, transport, cleaning, stationery) • identify the capacity of local and Indigenous businesses and suppliers to be ready for potential additional demand • provide local and Indigenous procurement targets • identify tailored 'meet-the-contractor' events for local and Aboriginal businesses to learn about potential opportunities associated with the delivery of the project • monitor the availability of key goods and services to the local community when procured locally.	Pre-construction/ Construction	Regional social locality

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI5	Community engagement	A pre-construction and construction Communication and Engagement Plan will be prepared to ensure: • landowners, businesses and local residents with the potential to be affected by construction activities are notified in a timely manner about the timing of activities and potential for impacts, and the measures that will be implemented to minimise the potential for impacts on individual properties • include proactive methods of communication with affected parties and strategies to reach vulnerable members of the community such as doorknocking, text messages, newsletters and or phone calls • ensure receivers identified as eligible for noise mitigation treatments in Appendix I (Noise and Vibration Impact Assessment) of the Amendment Report are supported and engaged through the delivery process • provide further information in the local social locality about the regional energy strategy, including about community energy schemes, power purchasing agreements and other initiatives • enquiries and complaints are managed, and a timely response is provided for concerns raised and information about how solutions are being investigated is provided to the community • consultation with local health and emergency services to establish processes for managing potential increased demands due to non-resident workforce.	Pre-construction/ Construction	Local social locality
SI6	First Nations liaison	A First Nations liaison group will be established. It will focus on identifying and implementing strategies to enhance and maximise opportunities for employment, procurement, education and other potential project related benefits. Members of the First Nations liaison group will be identified through collaboration with the existing Central-West Orana REZ Aboriginal Working Group, and will include local and regional members including: • Local Aboriginal Land Councils • Aboriginal Representative Organisations • relevant Aboriginal social, health and support services • educational organisations and services • employment agencies • Aboriginal business organisations/groups.	Pre-construction/ Construction	Regional social locality

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI7	Complaints management	A complaints management system will be maintained throughout the construction period and for a minimum of 12 months after the completion of construction. The complaints management system will include the following (at a minimum): • contact details for a 24-hour response line and email address for ongoing stakeholder contact throughout the project • details of all complaints received will be recorded • target timeframe for responding to complaints • verbal and written responses describing what action will be taken will be provided to the complainant (or as otherwise agreed by the complainant) • an avenue for escalating unresolved complaints.	Construction Initial 12 months of operation	Regional social locality
SI8	Social impact	A Social Impact Management Plan (SIMP) will be prepared that will: • describe the social impact mitigation measures to be implemented and the impacts that they are intended to address • set out how the community and stakeholders can provide feedback on the mitigation measures and the effectiveness of their implementation. Monitoring findings will be presented to the project's Community Reference Groups meetings (if active) and to the broader local community. Feedback will be sought on the monitoring program and whether actions or targets require revision. EnergyCo will track implementation of the SIMP and review performance measures quarterly, to facilitate continual improvement. The SIMP will be reviewed annually and updated based on monitoring data and community and stakeholder feedback. In addition to the monitoring review, proposed mitigation measures will also be reviewed to assess whether they are still applicable and on track to meet the residual risk rating applied in the EIS. Any new issues or initiatives that have emerged and that should be included in ongoing mitigations and/or monitoring will be addressed. The results of SIMP reviews will be published on the EnergyCo website.	Pre-construction/ Construction	Regional social locality
SI9	Operational communica-tions	An Operational Communication Plan will be developed and implemented, which will address the following: • maintaining communications with those located in close proximity to the transmission line to provide updated information and monitor experience and concerns. The Operational Communication Plan will be reviewed and updated on an annual basis.	Operation	Local social locality

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SI10	Mental Health Strategy	A mental health support telephone service as already established by EnergyCo will be maintained to assist landowners whose properties are subject to acquisition for the transmission line. A broader mental health strategy will be developed and implemented by the EnergyCo to identify other initiatives that could be implemented to provide additional mental health support.	Pre-construction Construction Operation	Local social locality
Noise and vibration				
NV1	Construction noise (source controls)	As part of development of the detailed design and construction methodology, all reasonable and feasible mitigation measures will be considered, confirmed and implemented to minimise construction noise impacts and to avoid exceedances of the applicable noise goals at adjacent sensitive receivers where practicable. Measures that may achieve this outcome may include, but are not limited to the following: • portable temporary noise screens will be erected adjacent to stationary or long-term static noise sources, or noise generating items, where reasonable and feasible • spotters, "smart" reversing alarms, or broadband reversing alarms will be used in place of traditional tonal beeper reversing alarms, particularly on equipment where reversing alarms are frequently in use such as rollers, loaders or compactors • noise source controls, such as the use of residential class mufflers, will be used reduce noise from all plant including cranes, excavators and trucks • the offset distance between noisy plant items and sensitive receivers will be maximised, where reasonable and feasible • machinery will be operated in a manner which reduces maximum noise level events such as reduce shaking of excavator buckets, dropping materials into trucks from height or steel on steel contact • construction plant and equipment will be turned off when not in use • helicopters will not be operated during evening and night-time periods. Where the use of drones is proposed during evening and/or night-time periods, an additional assessment(s) will be undertaken to identify appropriate operational limits to ensure that noise impacts to nearby sensitive receivers are acceptable.	Detailed design Pre-construction Construction	All locations where exceedances of the applicable construction noise criteria are predicted at sensitive receivers

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
NV2	Construction noise (administrative controls)	Opportunities to reduce exceedances of the applicable construction noise goals through the implementation of administrative controls will be examined, confirmed and implemented where reasonable and feasible. Controls to be considered will include, but not limited to the following: • environmental awareness training and inductions for site personnel will include noise mitigation techniques/measures to be implemented when on site and accessing the site • the avoidance of simultaneous construction activities during transmission line construction in the vicinity of the Energy Hubs will be investigated to minimise potential cumulative noise impacts • plant and equipment will be selected with noise emission levels being a consideration for selection. This will include the consideration of alternative stringing methods, such as the use of drones instead of helicopters • noise-intensive works will be limited to less sensitive construction hours (i.e. away from early morning and late afternoon periods) as far as practicable, when working in the vicinity of sensitive receivers • plant and equipment will be well maintained to ensure that excessive noise is not generated • the provision of respite periods for helicopter take off/landing will be considered at the construction compounds • a blasting vibration and overpressure assessment will be required as part of any potential blast design. This assessment will determine the Maximum Instantaneous Charge to achieve the recommended ground vibration and overpressure limits. In addition, a Blast Management Strategy will be prepared in accordance with Section 4 of AS 2187.2-2006 for inclusion in the CNVMP • any works undertaken outside standard working hours will be further assessed in accordance with the ICNG and the CNVG during detailed design and an Out of hours works protocol will be developed and implemented to mitigate any identified impacts.	Detailed design Pre-construction Construction	All locations where exceedances of the applicable construction noise criteria are predicted at sensitive receivers.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
NV3	Construction noise	Opportunities to reduce the impacts associated with construction noise levels through the implementation of proactive community consultation will be examined, confirmed and implemented where reasonable and feasible. Controls to be considered will include, but not limited to the following: • sensitive receivers potentially affected by the works will be notified of the commencement of construction activities at least five days prior to works starting. The notification will inform potentially impacted sensitive receivers of the nature of and duration of works, expected noise levels and contact details of where sensitive receivers can contact can project representatives • the community will be kept regularly informed of noise intensive activities in the immediate area • if noise complaints are received, the complainant will be offered the opportunity for noise monitoring to be carried out to confirm the noise level at the receiver. Where the noise monitoring confirms that the applicable noise predictions are being exceeded, the construction methodology will be reviewed and changes implemented to reduce construction noise levels to be compliant with noise predictions where reasonable and feasible. Additional mitigation measures such as respite periods have been outlined in Table 15-29 of Chapter 15 (Noise and Vibration) of the EIS.	Pre-construction	All locations where exceedances of the applicable construction noise criteria are predicted at sensitive receivers.
NV4	Construction vibration	Where construction is likely to result in vibration levels that exceed relevant criteria at sensitive receivers, mitigation and management will be implemented where practicable and appropriate. Measures that will be considered and implemented where feasible and reasonable include (but are not limited to): • avoid the use of vibration-intensive plant at distances where human discomfort will result • substitute lower vibration-intensive plant and methods (for example use a smaller machine, lower power settings or alternative equipment) • sequence operations to avoid or minimise concurrent vibration intensive activities • schedule the use of vibration-sensitive equipment during the least sensitive times of the day • confirm any vibration-sensitive heritage structures that could be impacted by the proposal works • inform and consult with potentially affected receivers about upcoming vibration-intensive activities • pre and post condition surveys.	Detailed design Pre-construction	All locations where exceedances of the applicable construction vibration criteria are predicted at sensitive receivers.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
NV5	Heritage vibration impacts	Vibration sensitive Aboriginal and non-Aboriginal heritage items which have potential to be impacted by the project works will be confirmed prior to the commencement of vibration generating works in proximity to relevant structures. Suitable, item specific criteria will be developed for heritage items and vibration impacts at these locations will be managed before commencement of construction. This may include the use of alternative construction methods which generate lower levels of ground vibration and the installation of vibration monitors while vibration intensive activities are conducted.	Detailed design	All heritage items where exceedances of the applicable construction vibration criteria are predicted.
NV6	Operational noise	An Operational Noise Review will be prepared to confirm the predicted noise impacts from the project (based on the final infrastructure locations). Where necessary, the operational mitigation measures to be implemented below will be revised so operational noise impacts are compliant with the project noise trigger levels, where feasible and reasonable. Where exceedances of the project specific noise trigger levels are predicted (i.e. transmission lines audible noise), feasible and reasonable operational noise mitigation measures will be further investigated, in consultation with the affected receivers. This will include: • Transmission lines — Scheduling of maintenance activities during less sensitive times of day. — Noise control at the receiver, such as 'at property' treatment to upgrade aspects of the dwellings including the façade or ventilation systems. — Monitoring after the commissioning of the project to be conducted at each residence where potential operational noise levels are predicted to exceed project trigger levels. — If additional measures are found to be required during the compliance monitoring, these will be implemented as soon as practicable. • Energy hubs and switching stations — Adoption of lower generating noise equipment (where practicable). — Site layout designed to minimise noise impacts. — Restriction of operational parameters such as cooling fans where meteorological conditions are favourable. — Noise control at the receiver, such as 'at property' treatment to upgrade aspects of the dwellings including the façade or ventilation systems. Identified measures will be implemented prior to operation of the relevant infrastructure.	Pre-construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		In addition, the following will be undertaken: — Monitoring after the commissioning of the project to be conducted at each residence where potential operational noise levels are predicted to exceed project trigger levels to compare operational noise levels to predictions. — If additional measures are found to be required during the compliance monitoring, these will be implemented as soon as practicable.		
Hazard and risk				
BF1	Exposure of energy assets to radiant heat beyond the design tolerance of the asset	Asset Protection Zones (APZs) for appropriate components of switching stations, energy hubs (including the maintenance facility), construction compounds and workforce accommodation camps will be established in accordance with the requirements of the NSW Rural Fire Service's documents Planning for Bushfire Protection 2019 (Appendix 4) and Standards for asset protection zones. The final design and associated APZs of appropriate components of switching stations and energy hubs (including the maintenance facility), will be developed in consultation with RFS.	Pre-construction Construction	Key project assets in the operational area that require protection from the impact of radiant heat and direct flame contact associated with a bushfire
BF2	Exposure of energy assets to radiant heat beyond the design tolerance of the asset	Energy hubs, and switching stations, will be designed and constructed in accordance with bushfire attack level 29 in accordance with *AS3959-2018 Construction of Buildings in Bushfire Prone Areas*.	Pre-construction Construction	Operation area
BF3	Insufficient access to the construction and operation area for fire fighting	Access for firefighting appliances will be provided in accordance with Section 2 of the *NSW Rural Fire Service Fire Trails Standards*.	Pre-construction Construction Operation	All locations
BF4	Bushfire risk from construction	Hot work (activities involving high temperatures) and fire risk work (activities involving heat or with the potential to generate sparks) will be undertaken with appropriate safeguards to minimise the risk of ignition and spread of fire from construction activities. This may include suspension of hot work and fire risk work or implementation of additional controls for such work on days of elevated fire danger.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
BF5	Bushfire risk from construction	Firefighting equipment will be maintained and made available for use during the construction phase in accordance with Planning for Bushfire Protection 2019 (NSW RFS 2019) including the following: • static water supply tanks with a minimum volume of 20,000 litres (each) will be provided at the construction compounds and workforce accommodation camps for firefighting purposes • 38 millimetre metal Storz outlets with a gate or ball valve will be provided as an outlet on each of the tanks • non-combustible water tanks and fittings will be used • firefighting equipment (inclusive of a slip on unit) will be maintained at and/or accessible to all active construction site personnel during the declared bushfire danger season and site personnel trained in its use.	Construction	All locations
BF6	Bushfire risk during operation	The APZs will be established at construction sites and managed during operation in accordance with Appendix 4 of *Planning for Bushfire Protection 2019* and the NSW Rural Fire Service's document *Standards for asset protection zones*.	Operation	Energy hubs, switching stations and maintenance facility
HR1	Mine subsidence risk	Detailed design for areas of the transmission alignment that traverse the Mudgee Mine Subsidence District will be undertaken in accordance with approvals issued by Subsidence Advisory NSW.	Detailed design Pre-construction	Mining areas
HR2	Impacts on underground utilities	The location of all services and utilities within the construction area will be confirmed prior to the commencement of construction (using Before-You-Dig searches, non-destructive digging and/or other appropriate methods). Any required protection or relocation will be designed in consultation with utility providers.	Detailed design Pre-construction	Construction area
AS1	Safety of aircraft movements	The final design of the project with transmission line and tower coordinates and elevations will be provided to the following stakeholders prior to construction: • Air Services Australia • Commonwealth Department of Defence • owners of Dalkeith, Tongy and Merotherie aircraft landing areas • NSW National Parks and Wildlife Service • property owners/occupiers within 5.5 km the transmission easement. Additional notification(s) will be undertaken if the final detailed design of the project alters the details previously supplied to these stakeholders, prior to the construction of the modified design elements.	Detailed design	Operation area
AS2	Aerial farming operations	At locations where the transmission lines will impact existing aerial farming operations, consultation will be undertaken with relevant landowners to identify appropriate mitigation arrangements such as the installation of aerial warning markers on the transmission lines (where feasible).	Detailed design	Operation area

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
AS3	Safety of aircraft movements	The following stakeholders will be notified of the scheduling of the use of cranes (for transmission tower erection only), drones and helicopters for the construction of the project, prior to the commencement of relevant works: • Air Services Australia • Commonwealth Department of Defence • property owners/occupiers within 5.5 km the transmission easement • owners at Dalkeith, Tongy and Merotherie aircraft landing areas • NSW Parks and Wildlife Service.	Pre-construction	Operation area
HA1	Storage and use of Dangerous Goods	Dangerous goods will be stored in accordance with suppliers' instructions and relevant legislation, Australian Standards, and applicable guidelines; and may include bulk storage tanks, chemical storage cabinets/containers or impervious bunds. Any storage areas will be designed in accordance with Australian Standard *AS1940: The storage and handling of flammable and combustible liquids* where applicable. All personnel required to work with Dangerous Goods and other hazardous material will be trained in their safe use and handling.	Construction Operation	All locations
HA2	Management of hazardous materials (design)	Further assessment of hazardous materials and dangerous goods will be undertaken during detailed design, when detailed information on material quantities and types, transport movements are known, to ensure the thresholds in Applying SEPP 33 are not exceeded. Safety in design will be considered and implemented in operational design in accordance with a Safety Management System (SMS) based on applicable Australian Standard and guidelines for the Lithium-ion packed batteries and Class 9 Dangerous Goods.	Detailed design	Energy hubs and switching stations
Traffic and transport				
T1	Intersection upgrades	As part of the detailed design process, an evaluation of the potential need for upgrades to the following intersections will be undertaken as detailed below: • intersection of Ulan Road/Neeleys Lane: Investigate and confirm if short channelised right and/or auxiliary left turn treatments (or suitable alternative) are required for safe access to the workforce accommodation camp • intersection of Golden Highway/Ulan Road: Investigate and confirm if a new short channelised right turn treatment (or suitable alternative) is required to provide safer intersection operation and to accommodate additional increases in traffic demand during construction. • Intersection of Golden Highway / Blue Springs Road: Investigate option to restrict construction vehicle volumes to levels which avoid the need for implementation of intersection upgrades. Where construction vehicle volumes cannot be limited to provide safe intersection operation, the required turning treatment upgrades (new short channelised right turn treatment or suitable alternative) will be implemented.	Detailed design	Intersection of Ulan Road/Neeleys Lane Intersection of Golden Highway/ Ulan Road Intersection of Golden Highway / Blue Springs Road Typical access gate locations off Ulan Road (near Ulan township) Typical access gate locations off Ulan Road (north of Ulan-Wollar Road)

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		• Typical access gates off Cope Road: Construction vehicle movements turning right into access gates on the northern side of Cope Road will be limited to vehicles 25 per hour during the AM peak hour period to ensure safe and efficient traffic movements compatible with a Basic right turn (BAR) treatment. If higher construction vehicle movements are required and are incompatible with a BAR treatment, the required turning treatment upgrades will be implemented. • Typical access gate locations off Ulan Road (near Ulan township): Construction vehicle movements turning into the northwest and southeast access gates will be limited to the following during the AM peak hour period: — left turning vehicles — 18 vehicles per hour (southeast access gates) — 5 vehicles per hour (northwest access gates) — Right turning vehicles – 5 vehicles per hour (all access gates) Turn warrant assessments will be conducted for each hour outside of the AM peak period to determine the maximum number of vehicle movements allowed to ensure safe and efficient traffic movements compatible with a Basic right turn (BAR) and Basic left turn (BAL) treatments. If higher construction vehicle movements are required and are incompatible with BAR / BAL treatments, the required turning treatment upgrades will be implemented. • Typical access gate locations off Ulan Road (north of Ulan-Wollar Road): Construction vehicle movements turning into the northwest and southeast access gates will be limited to during the AM peak hour period: — left turning vehicles - 25 vehicles per hour — right turning vehicles - 5 vehicles per hour Turn warrant assessments will be conducted for each hour outside of the AM peak period to determine the maximum number of vehicle movements allowed to ensure safe and efficient traffic movements compatible with a Basic right turn (BAR) and Basic left turn (BAL) treatments. If higher construction vehicle movement volumes are required and are incompatible with BAR / BAL treatments, the required turning treatment upgrades will be implemented. Where the intersection upgrades are required, these will be designed and constructed in accordance with Austroads Guidelines, relevant applicable standards and consider the appropriate design vehicles.		

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
T2	Road and traffic management	Traffic control plans will be prepared in for locations where construction-related traffic enters and leaves the public road network for project construction related purposes. The plans will be implemented by licensed traffic management contractors. Necessary road occupancy licences and road related work approvals will be obtained prior to the commencement of relevant works (including site access and access tracks).	Construction	Construction routes, access tracks, construction compound and workforce accommodation camp accesses
T3	Road safety – design related	All accesses will be designed to accommodate the required construction vehicle(s) requiring access, and in accordance with relevant Austroads guidelines (where applicable) in consultation with the relevant roads authority. Appropriate traffic management and controls may be adopted to facilitate safe site access and egress for vehicles prior to access point installation and upgrading. Routine inspections will be completed on a regular basis.	Construction Operation	Construction routes, access tracks, construction compound and workforce accommodation camp accesses
T4	Road safety – driver related	The following road safety measures will be implemented with regard to driver management during construction: • a Driver Code of Conduct will be developed and implemented for the entire workforce. The code will define acceptable driver behaviour for proposal personnel to promote road safety and ensure that the impacts of construction-related vehicle movements on local roads and the local community are minimised • a Driver Fatigue Management Plan will be developed and implemented as part of the Construction Environmental Management Plan, and will incorporate appropriate measures to manage driver fatigue risks, including, but not limited to: — planning of regular breaks — mapping locations of driver rest areas along the proposed construction routes.	Construction	Construction routes, access tracks, construction compound and workforce accommodation camp accesses
T5	Rail safety	Early and ongoing consultation with the ARTC will be undertaken for works which will cross over existing rail lines. Relevant works will only proceed following receipt of applicable approvals/permits, including accreditations for workers requiring access within the rail corridor to undertake construction activities.	Construction	Where the transmission line requires access to rail corridor over railway tracks on select railway lines
T6	Access track condition	Access tracks used for construction sites, construction compounds and workforce accommodation camps will be maintained to safe standard.	Construction	All areas affected by construction including construction routes, access tracks, construction compounds and workforce accommodation camp accesses

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
T7	Road condition	Pre-construction road dilapidation surveys and routine inspections will be completed along all nominated construction routes on local roads. Where rectification works are required due to project impacts, consultation with the appropriate road authority will be undertaken to confirm the scope of the work required.	Pre-construction Construction	Local roads
T8	Temporary lane closures or temporary road closures	Road Occupancy Licence(s) will be sought for all temporary lane closures (as required by the relevant roads authority). Where road closures are likely to result in a significant traffic impact (e.g. short-term full road closure and long-term temporary lane/ road closures), prior consultation will be undertaken with potentially affected stakeholders (e.g. landowners, emergency services, transport services) and relevant approval(s) obtained from the relevant roads authority. Where feasible, temporary road closures will be planned to occur outside of the traffic peak periods to minimise impacts to the road network.	Construction	All locations where project works will occur within the public road network
T9	Access to properties	Access to properties will be maintained throughout construction where feasible. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected landowners and in accordance with the requirements of the pre-construction and construction Communication and Engagement Plan (as detailed in mitigation measure SI5). Disruptions to property access and traffic will be notified to landowners at least five days prior and in accordance with the relevant community consultation processes outlined in the Construction Environmental Management Plan.	Construction	All areas affected by construction
T10	Pedestrian and cyclist access	The project will actively consult with local bicycle groups, such as Central West Cycle (CWC) during construction, particularly regarding construction routes proposed on CWC's cycling route between Gulgong to Dunedoo. Safe pedestrian and cyclist access will be maintained where the project interacts with existing pedestrian or bicycle facilities. Where this is not feasible, temporary alternative access arrangements will be provided following consultation with affected stakeholders and the relevant roads authority.	Construction	All areas affected by construction.
T11	Heavy vehicles using road network	A Vehicle Movement Plan will be prepared which identifies the construction vehicle route(s) (including OSOM routes) to be used during construction. The Vehicle Movement Plan will also include details of activities of adjoining land uses and awareness of public safety measures (e.g. entering urban areas from the highways) to provide guidance to drivers of construction vehicles travelling to and from project locations. Ongoing consultation will be undertaken with Transport for NSW regarding the use of State roads for OSOM vehicle routes.	Pre-construction Construction	Construction routes.

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
T12	Access tracks maintenance and safety	The following maintenance and safety measures will be implemented at relevant locations along each of the access tracks, construction compounds and workforce accommodation camp accesses: • appropriate line marking and signage at access points • wheel cleaning facility as required at access points/intersections • signage to indicate trucks turning • potential use of road plates, propping (or similar) over culverts where required • improvements to existing roads at new access points which may include importing or stabilising material if required.	Construction	Access tracks, construction compound and workforce accommodation camp accesses
T13	Access points	Access points on the public road network will be confirmed and implemented in consultation with the relevant roads authority. Establishment of access points will occur in accordance with road occupancy licences (or similar) where issued by the relevant roads authority. For access points that are deficient in Safe Intersection Sight Distance, temporary speed limits would be implemented at these intersections and access gates. This is to ensure sufficient sight distance for road users during construction. Temporary speed limits will be agreed with the relevant road authorities.	Pre-construction Construction	Access point on the public road network
Waste				
WM1	Waste generation	Measures to minimise spoil generation, off-site disposal and reuse of material on-site will be investigated and adopted as part of the continued development of the project's design and construction methodology.	Pre-construction	All locations
WM2	Waste disposal	EnergyCo will explore further opportunities with Mid-Western Regional, Dubbo Regional, Warrumbungle Shire and Upper Hunter Shire councils to reduce landfill demand placed on local waste management facilities as a result of the project.	Pre-construction	All locations
WM3	Waste generation	Where practicable, opportunities to re-use or recycle waste and wastewater generated during construction and operation will be investigated and adopted during continued development of the project's design and construction methodology, as well as during operation, subject to meeting water reuse quality requirements.	Pre-construction Construction Operation	All locations
WM4	Waste generation	All waste generated by the project will be assessed, classified, managed and disposed of in accordance with the *Waste Classification Guidelines* (NSW EPA, 2014a) and the relevant requirements of the Protection of the Environment Operations (Waste) Regulation 2014.	Construction and operation	All locations
WM5	Waste generation	Waste streams will be segregated to avoid cross contamination of materials and maximise reuse and recycling opportunities.	Construction and operation	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
WM6	Waste generation	All waste generated and surplus spoil to be removed from the construction and operation of the project will be transported to appropriately licensed waste disposal or transfer facilities or other facilities lawfully able to accept materials.	Construction and operation	All locations
WM7	Waste water generation	Wastewater volumes and management processes would be confirmed prior to construction and the relevant council will be consulted if transfer to a local wastewater treatment facility is proposed.	Pre-construction Construction Operation	All locations
Hydrology, flooding and water quality				
WA1	Construction water supply	Construction water supply arrangements will be confirmed during continued design development and detailed construction planning, based on further investigations that include ongoing consultation with water suppliers to access the local reticulated network, use of treated mine water, and use of water tanks within construction compounds.	Detailed design and pre-construction	All locations
WA2	Construction water supply	Opportunities to minimise water demand will be further explored during detailed design and construction planning and adopted where practicable, including: • capture and use rainwater at construction compounds and/or workforce accommodation camps • use of treated mine water, subject to any onsite reuse requirements • reuse/recycling of construction water (for example, water could be reused onsite for dust suppression, to assist with compaction) • treated wastewater and/or groundwater inflows • the use of additives in concrete mixtures to reduce the amount of water required • identification of alternative construction techniques which will reduce water use (where practicable).	Detailed design and pre-construction	All locations
WA3	Watercourse geomor-phology	Where relevant, permanent surface water control measures will be designed and implemented at relevant energy hubs, switching stations and transmission line towers to minimise potential scour and erosion risks associated with surface water runoff during operation.	Detailed design, construction and Operation	Energy hubs, switching stations and transmission line towers
WA4	Dispersion of sediment into the environment	Areas disturbed as a result of construction activities will be managed in accordance with the requirements of *Managing Urban Stormwater Soils and Construction* (4th Edition) (Landcom, 2004). This will include the implementation of a range of erosion and sediment control measures which may include: • drainage control measures, e.g. flow diversion banks, straw bale berms and rock-lined chutes • sediment control measures, e.g. sediment fences, traps and basins and impervious covers • erosion control measures, e.g. covering of stockpiles, erosion control blankets, dust suppression measures (e.g. water trucks) and revegetation • progressive and timely stabilisation of disturbed surfaces with the potential to generate sediment.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
WA5	Water quality	A water quality monitoring program for construction will be prepared and implemented to monitor water quality conditions at perennial watercourses that the transmission lines will cross, and to facilitate monitoring of any changes in water quality that could be attributable to the project during construction. The program will detail: • water quality objectives and criteria for the project, in accordance with the *Murray–Darling Basin Plan 2012* (Murray–Darling Basin Authority, 2012) and *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2000* (ANZECC/ARMCANZ, 2000) • frequency, location and duration of sampling, as minimum will include at least two monitoring locations located downstream and upstream of the project on the Talbragar River at Elong Elong (412042), Cudgegong River at Yamble Bridge (421019) and Wollar Creek • monitoring for total dissolved solids, dissolved oxygen, electrical conductivity, total suspended solids, total nitrogen and total phosphorus. In the event of exceedances of the project water quality criteria, soil and water management measures adopted as part of the Construction Environmental Management Plan will be reviewed and revised accordingly.	Pre-construction and construction	Talbragar River at Elong Elong (412042), Cudgegong River at Yamble Bridge (421019) and Wollar Creek
FL1	Flooding	Detailed construction planning will consider flood risk at construction sites and support facilities, including: • reviewing construction work area layouts and staging construction activities in order to avoid or minimise obstruction of overland flow paths and limiting the extent of flow diversion required • designing the layout of construction facilities and implementing stormwater management controls during their establishment in order to manage the impact of flooding on construction personnel, equipment and materials • identifying and applying measures to not worsen flood impacts on the community and on other property and infrastructure during construction up to and including the 1% AEP flood event where practicable. Where warranted by the scale and nature of the proposed works this will include flood modelling and assessment to assess the extent of potential impacts and therefore the scope of mitigation measures that may be required • measures to mitigate alterations to local runoff conditions due to construction activities.	Detailed design	All locations
FL2	Flood behaviour (construction)	Stockpiles will be located in areas which are not subject to frequent inundation by floodwater, ideally outside the 10% AEP flood extent. The exact level of flood risk accepted at stockpile sites will depend on the duration of stockpiling operations, the type of material stored, the nature of the receiving drainage lines and also the extent to which it will impact flooding conditions in adjacent development.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
FL3	Flood safety	Construction compounds and workforce accommodation will be located outside high flood hazard areas based on a 1% AEP flood event.	Detailed design	Construction compounds and workforce accommodation camps
FL4	Emergency management	Flood emergency management measures for construction of the project will be prepared and incorporated into relevant environmental and/or safety management documentation. This will include: • contingency planning for construction facilities that are located in areas that are inundated by mainstream flooding during a 1% AEP event • for construction facilities located within the floodplain the identification of how flood related risks to personal safety and damage to construction facilities and equipment will be managed • procedures to monitor accurate and timely weather data, and disseminate warnings to construction personnel of impending flood producing rain.	Pre-construction	All locations
FL5	Climate change adaptation	The impact of the project on flood behaviour will be confirmed during detailed design. This will include consideration of future climate change.	Detailed design	All locations
FL6	Impacts to existing flooding regime	The project will be designed to minimise adverse flood related impacts on: • surrounding development for storms up to 1% AEP in intensity • critical infrastructure, vulnerable development or increases in risk to life due to a significant increase in flood hazard for floods up to the PMF.	Detailed design	All locations
FL7	Flood impacts	The energy hubs and switching stations will be designed to manage adverse impacts on the receiving drainage lines as a result of changes in the depth, velocity, extent and duration of flow during storms up to 1% AEP in intensity.	Detailed design	Energy hubs and switching stations
FL8	Flood impacts	The energy hubs and switching stations, including their access road connections to existing roads, will be designed to ensure that the existing level of flood immunity of the road network is maintained and increases in flood depths and hazards along the road network are minimised.	Detailed design	Energy hubs and switching stations
FL9	Waterway impacts	Localised increases in flow velocities at drainage outlets and waterway crossings will be mitigated through the provision of scour protection and energy dissipation measures.	Detailed design and construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
FL10	Flood impacts	Detailed construction planning would consider flood risk associated with the construction of the new bridges over the Talbragar River and Laheys Creek, including the following: • Flood emergency management procedures for the construction of the new bridges would be prepared and incorporated into the relevant environmental and/or safety management documentation that would include: — procedures to monitor accurate and timely weather data, and disseminate warnings to construction personnel of impending flood producing rain, and — procedures for the safe evacuation of construction personnel and machinery following the dissemination of flood warnings. • Temporary working platforms that would be required to construct the new bridges would be constructed using clean rock fill and installed in a manner that minimises their impact on the inbank area of the watercourses. • The layout of temporary access roads, working platforms and other temporary works required to construct the bridges will be designed and staged in order to manage their impact on flood behaviour.	Detailed design and construction	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
FL11	Waterway impacts	Localised increases in flow velocities at the new bridges over the Talbragar River and Laheys Creek would be mitigated through the provision of scour protection measures.	Detailed design and construction	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
FL12	Flood impacts	The upgrades to the local roads that service the Merotherie and Elong Elong Energy Hubs would be designed such that: • the existing level of flood immunity of the road is maintained or improved, and • during storm events that result in overtopping of the road, there is no significant increase in the depth and hazardous nature of flooding.	Detailed design	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
FL13	Flood impacts	A detailed flood assessment would be carried out of the upgrades to the local roads that service the Merotherie and Elong Elong Energy Hubs to inform the scope of drainage measures to be incorporated into their design in order manage any adverse impacts on the depth, velocity and duration of inundation external to the road corridors.	Detailed design	Upgrade of local roads that service the Merotherie and Elong Elong Energy Hubs
Soils and contamination				
SC1	Mobilisation of saline soils	Prior to ground disturbance, a visual inspection will be undertaken in areas identified as potentially containing saline soils will be undertaken to look for the presence of saline soils. Areas where evidence of salting has been observed or recorded will be subject to further testing as required. If salinity is confirmed, excavated soils will be managed in accordance with *Book 4 Dryland Salinity: Productive use of Saline Land and Water* (NSW DECC 2008) to prevent impacts from salinity.	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SC2	Impacts due to spontaneous combustion	Disturbance of areas of active (and previously active) surface mining, underground mine access and process routes will be avoided where practicable. Where this cannot be avoided, testing of the material(s) will be undertaken to confirm if High Carbon Material will be disturbed and/or exposed, and appropriate safeguards implemented to ensure the risk of spontaneous combustion is adequately controlled (in accordance with the *MDG Spontaneous Combustion Management Guideline* (Industry and Investment NSW, 2011)).	Detailed design, pre-construction and construction	Wilpinjong Coal Mine
SC3	Contamination exposure to human health and/or the environment	Disturbance to areas of medium to high risk of contamination will be avoided or minimised where practicable during construction. Management of contamination and any resulting remediation will be carried out in accordance with the relevant legislation, standards and guidelines, including but not limited to the National Environment Protection (Assessment of Contamination) Measure 1999, as amended 2013, and all relevant guidelines made or approved under the *Contaminated Land Management Act 1997* and the *Protection of the Environment Operations Act 1997*.	Detailed design and pre-construction	Areas of medium to high contamination risk
SC4	Contamination exposure to human health and/or the environment	Prior to construction activities within the Wilpinjong Coal Mine lease, areas subject to disturbance will be tested to confirm the presence/absence of contaminants of concern identified in Technical paper 16 – Contamination.	Detailed design and pre-construction	Wilpinjong Coal Mine site
SC5	Contamination exposure to human health and/or the environment	Additional intrusive investigations will be undertaken to confirm the presence/absence of the contaminants of concern prior to commencing ground disturbance within 50 metres of farm structures or farm dams (if applicable).	Detailed design and pre-construction	All locations
SC6	Impacts due to spontaneous combustion	Remediation areas disturbed during construction of the project will be capped in accordance with the Peabody Energy Wilpinjong Capping of Tailings Storage Facilities TD5 Procedure (WI-MIN-PRO-0119).	Construction	Wilpinjong Coal Mine site
SC7	Contamination impact to human health and/or the environment	An unexpected finds protocol will be developed and implemented to manage the discovery of previously unidentified contaminated material (including the discovery of high carbon material within mining lease areas outside of areas indicated by mine operators where this occurs).	Construction	All locations
SC8	Soil and/or water pollution	Construction materials, spoil and waste will be stored/ managed in accordance with applicable EPA requirements to minimise the potential for the project to result in the contamination of soil, groundwater, and/or surface water quality.	Construction	All locations
SC9	Soil and/or water pollution	All chemicals, fuels or other hazardous substances will be stored in accordance with the supplier's instructions and relevant legislation, Australian Standards, and applicable guidelines. The capacity of any bunded area will be at least 130 per cent of the largest chemical volume contained within the bunded area. The location of the bunded enclosure/s will be shown on site plans.	Construction Operation	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
SC10	Soil and/or water pollution	Incident response procedures will be implemented to avoid and manage accidental spillages of fuels, chemicals or fluids during operation and maintenance activities. Environmental spill kits will be provided at strategic, accessible locations, and staff will be trained in spill response procedures (as a minimum, spill kits will be located at the energy hubs and New Wollar Switching Station).	Operation	All
Groundwater				
GW1	Lowering of groundwater levels due to interception and take of water	In the event that groundwater is encountered during excavations and dewatering is required, any dewatering volumes will be recorded and managed in accordance with the *Water Management Act 2000*.	Construction	Areas of intercepted groundwater
GW2	Lowering of groundwater levels due to water extraction	Monitoring and recording of extraction volumes from water supply bores will be undertaken and regular analysis of extracted volumes will be completed against predicted volumes in Technical paper 17 (refer to Table 6-5), applicable water access licence and approval requirements.	Construction	Water supply bores at energy hubs
GW3	Impacts due to blasting	Control measures will be identified prior to blasting activities in relevant areas to avoid adverse impacts to sensitive groundwater receivers.	Construction	Finalised blasting locations if within 50 metres of high potential groundwater dependent ecosystems or existing bores
GW4	Damage to bore infrastructure	Direct impacts to registered bores will be avoided, where practicable. If the bores are not required to be removed during construction, then they will be clearly demarcated to protect the infrastructure. Where impact is unavoidable and a bore will require decommissioning, it will be replaced in a similar nearby location in consultation with landowner.	Construction	All locations
Air quality				
AQ1	Dust generation – general	Management measures to prevent or minimise dust generation and impacts to the local community and environment will include (but not be limited to): • use of water sprays or dust suppression surfactants as required for dust suppression where required and appropriate • adjusting the intensity of activities based on observed dust levels and weather forecasts • minimising the amount of material stockpiled and position stockpiles away from surrounding receivers • project construction vehicle movements are to adhere to designated entry/exit routes and parking areas • implementation of measures to minimise the tracking of material onto sealed roads (e.g., wheel wash) • covering of loads	Construction	All locations

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
		• stabilising disturbed areas as soon as practicable, including new access routes • minimising the extent of disturbance as far as practicable • regularly conducting visual inspections of dust emissions and applying additional controls as required • where practicable minimise concurrent construction activities near sensitive receivers that have a greater potential of the risk of dust impact.		
AQ2	Vehicle and plant emissions	Where feasible, construction vehicles and machinery will be fitted with appropriate emission control equipment and maintained in a proper and efficient manner.	Construction	All locations
AQ3	Dust emissions from concrete batching plants	Measures will be implemented at concrete batching plants to minimise emissions to air as far as practicable. The measures will be regularly inspected with additional controls implemented as required. Measures to minimise emissions to air from concrete batching plants may include: • all aggregate and sand will be stored appropriately in storage bins or bays to minimise dust generation, and material will not exceed the height of the bay • cement silos and hoppers will be fitted with dust filters • all inspection points and hatches will be fully sealed • all dry raw materials to be transferred into the bowl of an agitator via front end loaders by maintaining adequate moisture levels and/or an enclosed conveyor • cement silos will be fitted with fitted with an emergency pressure alert and automatic cut off protection to prevent overfill • transfer of cement from storage to batching will occur via sealed steel augers.	Construction	Concrete batching plant(s)
AQ4	Dust emissions from crushing and screening plant	To minimise dust emissions associated with the proposed crushing and screening activities, the following measures will be implemented: • ensure screen covers are fitted to the screening operations • control dust emissions from screening operations using water sprinklers, where required and appropriate • inspect the water sprinklers on a regular basis to ensure operational efficiency • where practicable, install wind breaks in appropriate locations adjacent to the dust generating equipment and processes • prior to screening, dampen the rocks during dry weather conditions.	Construction	Crushing and screening
AQ5	Dust emissions along construction routes	During high wind conditions (wind speeds greater than 8 metres per second), reduced speed limits for project heavy vehicles on unsealed roads will be implemented in the vicinity of sensitive receivers.	Construction	Construction routes

Reference	Impact	Mitigation measures	Timing	Applicable location(s)
Climate change and greenhouse gas				
GHG1	Greenhouse gas emissions	A greenhouse gas (GHG) assessment and design refinement will be carried out during detailed design to identify opportunities to minimise GHG emissions during construction. Opportunities for consideration will include: • using low carbon concrete and steel in transmission line towers and civil infrastructure • giving preference to environmentally labelled products and materials, such as those with Environmental Product Declarations • implementing product stewardship schemes to take back, reuse or recycle materials/products used during construction to minimise waste and associated emissions • minimising vegetation clearing during construction to preserve carbon sinks • implementing efficient construction practices, such as modular construction and off-site fabrication to minimise construction time and associated emissions.	Detailed design	All locations
GHG2	Greenhouse gas emissions	A GHG assessment and design refinement will be carried out during detailed design to identify opportunities to minimise GHG emissions during operation. Opportunities for consideration will include: • designing and implementing energy-efficient transmission infrastructure to minimise energy losses during operation and lower GHG emissions • investigating the use of non-SF6 technologies for transformers and switchgear. If SF6 is required, leak detection systems will be considered, and regular inspections and maintenance undertaken to reduce the risk of SF6 leaks • incorporating solar energy technologies, such as installing solar panels, at energy hubs and switching stations to reduce energy consumption within the National Electricity Market which still includes fossil fuel generated electricity • transitioning to zero-emission vehicles for operation and maintenance equipment, such as battery electric vehicles or hydrogen fuel cell vehicles • implementing advanced monitoring and control systems for transmission infrastructure to optimise energy efficiency and reduce energy losses • implementing project demand-side management strategies to actively manage electricity consumption, reduce energy demand and associated GHG emissions.	Detailed design, operation	All locations
CC1	Climate change	A detailed climate change risk assessment will be carried out during detailed design in accordance with AS5334-2013.	Detailed design	All locations
CC2	Climate change	Following the detailed climate change risk assessment under mitigation measure CC1, adaptation measures will be developed to address climate change risks associated with bushfire, extreme heat, drought and increased rainfall intensity.	Detailed design	All locations