EIS Volume 2 Appendix O

Impact Event Uncertainty Evaluation

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project energy connect

Appendix O Impact Event Uncertainty Evaluation

This appendix provides a summary of the evaluation of uncertainty for all potential impact events that have been identified for the Project EnergyConnect EIS.

The evaluation follows the method outlined in Chapter 8 Impact Assessment Methodology.

For each impact event, Table 1 below outlines:

- the predicted level of impact, as presented in the relevant impact assessment chapter in the EIS
- the level of certainty in the assessment of predicted impact (classified using the factors outlined in Table 8-3 in Chapter 8)
- an evaluation of uncertainty using the risk assessment process outlined in Table 8-4 and Table 8-5 in Chapter 8, for impact events with a 'Low' or 'Medium' level of certainty.

Where the level of certainty in assessment of predicted impacts is 'High', uncertainty is not evaluated further.

Table 1: Evaluation of uncertainty for potential impact events

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Chapter 9 Land Use and Tenure						
Construction activities disrupt day-to-day operations of land holders	Minor	Medium	Location (e.g. camps/access) and timing	Minor	Unlikely	Low
Construction activities results in the loss of amenity of landholders	Minor	Medium	Camp location(s); implementation of control measures	Minor	Unlikely	Low
Construction activities results in temporary loss of access to sections of properties or damage to access tracks	Minor	Medium	Location and timing of construction / access activities	Minor	Possible	Low

[1] Assessment considers the credible worst-case consequence that could occur (and the likelihood of such a consequence occurring) if assumptions made in the impact assessment were found to be incorrect

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Land disturbance and vegetation clearance impacts landholder operations	Minor	Medium	Final definition of clearance areas; implementation of management measures (e.g. designated clearance areas)	Moderate	Rare	Low
Presence and movement of construction workers, vehicles and equipment in local areas disrupts land use activities	Minor	Medium	Location and timing of activities; implementation of control measures	Minor	Possible	Low
Introduction or spread of weeds, pests and pathogens during construction or operation impacts agricultural land	Negligible	Medium	Weed presence at time of construction; implementation of management measures	Moderate	Rare	Low
Presence of the transmission line impacts landholder operations	Minor	Medium	Final location of infrastructure	Minor	Possible	Low
Presence of the transmission line impacts property values	Negligible	High	-	-	-	-
Presence of the transmission line results in impact on aerial activities and local airfields	Minor	Medium	Final location and design of infrastructure	Moderate	Rare	Low
Presence of the transmission line results in interference to communication network and radio frequencies	Negligible	Medium	Final location of infrastructure and locations / extent of future communication network / radio use	Minor	Possible	Low
Cumulative impacts of other infrastructure projects resulting in loss of land for primary production purposes	Negligible	High	Nature, location and extent of future developments by third parties	Minor	Unlikely	Low
Chapter 10 Physical Environment						
Disturbance of soil for construction results in erosion of soils within and outside the construction area	Negligible to Minor	Medium	Extreme weather events; implementation of sediment and erosion controls; rehabilitation of temporary disturbance	Minor	Possible	Low
Disturbance of soil for construction results in sedimentation of surface water, leading to a decrease in surface water quality	Negligible	Medium	Extreme weather events; implementation of sediment and erosion controls; rehabilitation of temporary disturbance	Minor	Possible	Low
Compaction of soils during construction results in an ongoing reduction in soil fertility	Negligible	Medium	Implementation of management measures (e.g. rehabilitation of temporary disturbance)	Minor	Unlikely	Low

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Incorrect stockpiling of topsoils or poor stockpile stabilisation results in a decline in soil viability or quantity due to mixing with subsoil or wind and water erosion	Negligible	Medium	Implementation of stockpile management measures	Minor	Unlikely	Low
Disturbance of acid sulfate soils during construction results in acidification generation and a decline in soil or water quality	Negligible	Medium	Acid sulfate soil data in eastern end of transmission line corridor	Negligible	Unlikely	Low
Design and placement of infrastructure (including towers, access tracks and the Bundey substation) alters surface water flows, impacting downstream users and environments	Negligible	Medium	Placement of infrastructure outside of design parameters; application of construction methodologies	Minor	Unlikely	Low
Groundwater abstraction (if required) results in drawdown of aquifers and reduction in groundwater availability for flora, fauna and groundwater users	Negligible	Medium	Extent and location of groundwater use by the Project; implementation of management measures	Minor	Unlikely	Low
Wastewater disposal (e.g. camp wastewater, washdown water) results in contamination of soil, surface water or groundwater	Negligible	Medium	Locations for disposal; implementation of management measures	Minor	Unlikely	Low
Dewatering of excavations (i.e. from rainfall or saline groundwater if intersected) and subsequent discharge, leads to a decrease in soil or surface water quality	Negligible	Medium	Groundwater depth data in eastern end of transmission line corridor; implementation of management measures	Minor	Unlikely	Low
Use of saline water for dust suppression	Negligible	Medium	Water salinity and extent of use	Minor	Unlikely	Low
Disturbance of existing contaminated soil results in contamination of soil, surface water or groundwater	Negligible	Medium	Potential for unexpected discovery; implementation of management measures	Minor	Unlikely	Low
Contamination of soil from spills of chemicals or hydrocarbons	No impact	Medium	Unplanned event (e.g. due to accident or implementation of management measures)	Minor	Possible	Low
Contamination of surface water and groundwater from spills of chemicals or hydrocarbons	No impact	Medium	Unplanned event (e.g. due to accident or implementation of management measures)	Moderate	Unlikely	Low

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Chapter 11 Flora and fauna						
Vegetation clearance for construction, operation and maintenance results in removal of remnant vegetation and habitat for flora and fauna	Minor	Medium	Final definition of clearance areas; implementation of management measures (e.g. designated clearance areas)	Moderate	Rare	Low
Vegetation clearance impacts nationally listed flora	Negligible	Medium	Occurrence (occurs where not detected / predicted); implementation of controls (micro-siting and avoidance)	Minor	Unlikely	Low
Vegetation clearance impacts habitat for nationally listed fauna	Minor	Medium	Occurrence (occurs where not detected / predicted); implementation of management measures (e.g. designated clearance areas)	Moderate	Unlikely	Medium
Vegetation clearance impacts habitat for state listed flora and fauna	Minor	Medium	Implementation of management measures (e.g. designated clearance areas)	Minor	Unlikely	Low
Vegetation clearance impacts Critical Habitat for Black-eared Miner	Minor	High	-	-	-	-
Vegetation clearance impacts threatened ecological communities	Negligible	Medium	Occurrence (occurs where not detected / predicted); implementation of controls (micro-siting and avoidance)	Minor	Unlikely	Low
Vegetation clearance impacts designated conservation areas	Negligible to Minor	Medium	Final definition of clearance areas	Minor	Unlikely	Low
Project activities impact the ecological character of the Riverland Wetland Complex Ramsar wetland	Negligible	Medium	Extreme weather events and/or effectiveness of management measures (e.g. sediment and erosion controls)	Minor	Unlikely	Low
Construction and presence of the transmission line and access track leads to the fragmentation of habitat	Minor	Medium	Prediction of fragmentation impacts; implementation of management measures (e.g. designated clearance areas)	Minor	Unlikely	Low
Construction and presence of the transmission line and access track leads to increased hybridisation of Black-eared Miner	Minor	Medium	Prediction of hybrid distribution and hybridisation impacts	Moderate	Rare	Low
Activities including land clearing, vehicle movement and helicopter operation generate dust emissions that reduce vegetation health	Negligible to Minor	Medium	Effectiveness of management measures	Minor	Possible	Low

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Erosion and sedimentation from disturbed areas or alteration of surface water flows impact vegetation and fauna habitats or nearby aquatic environments	Negligible	Medium	Extreme weather events; effectiveness of sediment and erosion controls; poor rehabilitation of temporary disturbance	Minor	Unlikely	Low
Use of saline water for dust control reduces health of adjacent vegetation or impedes regrowth after rehabilitation	Negligible	Medium	Water salinity and extent of use	Minor	Possible	Low
Accidental spills from the transport, storage and handling of hydrocarbons and chemicals impact vegetation or habitats	-	Medium	Unplanned event (e.g. due to accident or poor implementation of management measures)	Minor	Unlikely	Low
Increased public access during operations results in fauna disturbance and habitat degradation	Negligible	Medium	Effectiveness of management measures	Minor	Unlikely	Low
Illumination at night from camp and construction areas displaces nearby fauna	Negligible	Medium	Camp location; implementation of control measures	Minor	Unlikely	Low
Noise generated by surface plant and mobile fleet (including helicopters) during construction and operation activities displaces nearby fauna	Minor	Medium	Occurrence / numbers of fauna present; construction methodology	Minor	Possible	Low
Construction activities result in direct impacts to fauna (including vehicle strike, entrapment in excavations)	Negligible	Medium	Frequency of collision / entrapment; implementation of management measures	Minor	Possible	Low
Presence of transmission line results in bird strike / electrocution resulting in impact to threatened species, listed migratory species or other species	Negligible to Minor	Medium	Frequency of future inundation events and future bird numbers; bird behaviour; external influences on bird movements and populations	Minor	Possible	Low
Project activities and presence of access track result in increase in predatory pest species	Negligible	Medium	Implementation of management measures	Moderate	Unlikely	Low
Introduction or spread of weeds during construction or operation results in habitat degradation	Negligible	Medium	Weed presence at time of construction; implementation of management measures	Moderate	Unlikely	Medium
Introduction or spread of pathogens during construction or operation results in habitat degradation	Negligible	High	-	-	-	-

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Chapter 12 Cultural Heritage						
Inappropriate location of infrastructure resulting in damage, disturbance or interference with sites, objects or remains of Aboriginal heritage significance.	No impact	Medium	Final location of infrastructure; implementation of management measures	Moderate	Rare	Low
Inappropriate location of infrastructure impacting non-Aboriginal cultural heritage	No impact	High	-	-	-	-
Discovery of Aboriginal sites, objects or remains during construction impacts Aboriginal heritage values.	No impact	Medium	Occurrence of Aboriginal sites, objects or remains not detected in pre-construction surveys	Moderate	Rare	Low
Operational activities result in impacts to Aboriginal cultural heritage	No impact	Medium	Implementation of management measures	Moderate	Rare	Low
Operation activities result in impacts to non-Aboriginal cultural heritage	No impact	High	-	-	-	-
Chapter 13 Visual Amenity						
Construction activities result in visual amenity impacts to receptors	Negligible to minor	High	-	-	-	-
Light spill from construction camps results in impacts to receptors	No impact	High	-	-	-	-
Towers and conductors dominate visual field and alter landscape	Negligible	High	-	-	-	-
Towers and associated infrastructure impact views from towns	Minor	High	-	-	-	-
Towers and associated infrastructure impact views from sensitive receptor locations	Minor	High	-	-	-	-
Towers and associated infrastructure impact views from tourism areas	Negligible	High	-	-	-	-
Towers and associated infrastructure impact views from roads	Negligible	High	-	-	-	-

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Ongoing maintenance activities on the transmission line impact visual amenity	Negligible	High	-	-	-	-
Chapter 14 Air Quality						
Dust generation from soil disturbance and exposed areas during construction results in impacts on sensitive receptors.	Negligible	Medium	Extreme weather events; implementation / effectiveness of controls	Minor	Possible	Low
Dust generation from construction vehicle movements and use of helicopters results in impact on sensitive receptors.	Negligible to minor	Medium	Implementation / effectiveness of controls	Minor	Possible	Low
Dust emissions from concrete batching plants results in impact on sensitive receptors.	Negligible	Medium	Final location; implementation / effectiveness of controls	Minor	Possible	Low
Poor rehabilitation of construction areas results in ongoing wind erosion and air quality impacts.	Negligible to minor	Medium	Extreme weather events; rehabilitation of temporary disturbance	Minor	Possible	Low
Maintenance and inspection activities result in dust generation and impact on sensitive receptors	Negligible	Medium	Weather; condition of tracks	Minor	Unlikely	Low
Chapter 15 Noise						
Construction noise during land clearing and towers/substation installation results in impact to amenity of residential receptors	Minor	Medium	Modelling (e.g. noise higher than predicted)	Minor	Possible	Low
Vibration from construction equipment results in impact to amenity of residential receptors	Minor	Medium	Proximity of vibration producers to residential receptors	Minor	Unlikely	Low
Noise from use of vehicles, generators and other equipment at construction camps and laydown areas results in impact to amenity of residential receptors	Minor	Medium	Final camp location(s)	Minor	Possible	Low
Noise from haulage and other large vehicle movements results in impact to amenity of residential receptors	Minor	Medium	Frequency and number of vehicles accessing local roads on a given day	Minor	Possible	Low
Noise from helicopter use during construction results in impact to amenity of nearby receptors	Minor	Medium	Modelling (e.g. noise higher than predicted); location/extent of helicopter use	Moderate	Unlikely	Medium

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Construction noise (including helicopter use) results in threshold shift for local fauna	Minor	Medium	Occurrence / numbers of fauna present; construction methodology	Minor	Unlikely	Low
Noise from helicopter use for operational inspection and maintenance results in impact to amenity of residential receptors	Negligible	High	-	-	-	-
Helicopter use during operation results in threshold shift for local fauna	Negligible	High	-	-	-	-
Operation of the Bundey substation affects the amenity of residential receptors	Negligible	High	-	-	-	-
Noise from corona discharge events results in impact to amenity of residential receptors	Negligible	High	-	-	-	-
Noise from corona discharge events results in impact to fauna	Negligible	High	-	-	-	-
Chapter 16 Traffic and Transport						
Construction traffic disrupts local traffic networks and normal community activities	Minor	Medium	Traffic predictions; implementation / effectiveness of controls	Minor	Possible	Low
Construction traffic causes increased surface wear, resulting in impacts to speed, efficiency and safety of the traffic using the road and/or increased maintenance costs	Minor	Medium	Traffic predictions	Minor	Possible	Low
Construction traffic results in reduced safety and efficiency of the local road network	Minor	Medium	Traffic predictions; implementation / effectiveness of controls	Minor	Possible	Low
Chapter 17 Socio-Economic Environment						
Construction activities negatively impact the availability of labour for existing local businesses, increase wage costs or cause specific skills shortages	Negligible	High	-	-	-	-
Construction and operation activities impact the availability of visitor accommodation or local housing and rental accommodation availability / affordability	Negligible	Medium	Extent of use of local accommodation	Minor	Possible	Low

Potential impact event	Predicted level of impact	Level of certainty in assessment of predicted impact	Evaluation of uncertainty			
			Factors contributing to uncertainty	Consequence (worst case)[1]	Likelihood	Risk rating
Accommodation / presence of construction workers impacts social cohesion in local communities	Negligible	Medium	Extent of use of local accommodation	Moderate	Rare	Low
Prescence of construction workforce places pressure on local services and businesses	Negligible to positive	High	-	-	-	-
Prescence of transmission line and associated infrastructure impacts on visitor activity and subsequent economic input into region	Negligible	High	-	-	-	-