suncable.energy

SUN CABLE AUSTRALIA-ASIA PowerLink

Appendix 1.1 – NT EPA Direction Response

suncable.energy

SUN CABLE AUSTRALIA-ASIA PowerLink

NT EPA Direction Response

AAP01-000-GEG-GGEN-00002

Appendix 1.1 – NT EPA Direction Response

Table 1 provides breakdown of the NT EPA Direction received on 28 September 2022 for the Project (EPA reference EP2020/002).

The far-right column in Table 1 indicates where, within the SEIS, each of the matters raised within the Direction has been addressed.

Table 2 sets out the sections of the NT EPA's Direction which deal with survey requirements under regulation 136(1)(b). Again, the far-right column of Table 2 indicates where, within the SEIS, these matters have been dealt with further.

Table 1: Attachment A – Additional Information to be included in the Supplement to the Draft EIS

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
SCOPE – Proposal description				
1	General	The TOR includes matters to be addressed in the EIS including a description and maps of the proposed action. The NT EPA acknowledges that some components of the proposal are options, may not be required, or are subject to further consideration/assessment/design/access and the like. However, uncertainties about options must be resolved in the Supplement. It must be clear what the proposed action is (including a selected subsea cable corridor, overhead transmission line route, trenching options etc.), the limitations and extent of the proposed action and environment protection measures proposed. The TOR includes matters to be addressed in the EIS, however the draft EIS deferred provision of some key information to the Supplement.	Provide an updated proposal description including a selected subsea cable corridor, overhead transmission line route, electrode areas etc. See below	Section 2.9.1.2 Chapter 5 Chapter 7 Chapter 9 Chapter 3

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
		In general, further assessment and supporting information is required including (but not limited to): • Terrestrial ecosystem environmental values (including matters considered under the *EPBC Act*) • Water use and interference with a waterway • Marine ecosystems • Outcomes of stakeholder engagement, including how the information gaps identified in the draft EIS have been addressed.		
2	Solar Precinct access roads Glossary of terms (page 2) 2.4.3.2	Land clearing of 269 ha outside the Solar Precinct is proposed for construction of an airstrip and two roads. The two roads comprise: • An unsealed 30 km access track / all-weather access road for scoping and preliminary works • A sealed 42 km main access road. It is not clear why the access track and access road cannot be the same route to avoid or mitigate potential impacts (e.g., on terrestrial environmental quality, ecosystem values and hydrological processes) by having one road only.	Provide further information to: 1. Advise if one road only is feasible and if so, which one 2. If not feasible to have only one road, provide justification for the construction of two roads to access the solar precinct 3. Describe how the environmental decision-making hierarchy (Part 2 of the *EP Act*) has been addressed.	Section 2.9.2.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
3	Sections 2.4.3 to 2.4.3.6 Proposal description	Table 2 of the TOR outlines the information requirements relating to the proposal description, including the requirements for site layout maps and design. The location of additional infrastructure associated with the Solar Precinct is not provided on the maps and components are not adequately described in the scope of the proposal.	Provide further information to address Table 2 of the TOR including, but not limited to: • Show the location of additional infrastructure at the Solar Precinct as listed in sections 2.4.3.3 to 2.4.6 of the draft EIS • Ensure that maps are provided at a scale relevant to all components • Provide multiple maps for large and fine scale detail as necessary.	Section 2.9.3.2
4	Solar Precinct infrastructure 2.4 and 2.4.3.2 – Airstrip facilities 2.4.3.4 – Dangerous goods and hazardous chemicals storage 2.4.3.3 – Services/ concrete batching/ water supply	Table 2 of the TOR outlines the information requirements relating to the proposal description and justification of alternatives to project design. Section 2.4 of the Draft EIS includes a list of infrastructure at the Solar Precinct, with some components requiring further information for environmental assessment as follows. Airstrip with terminal and helipad (adjacent the Solar Precinct). Section 2.4.3.2 notes that the final location of the proposed airstrip will be subject to agreement with the Civil Aviation Safety Authority, pastoralists and other relevant parties. The airstrip will include fuel storage and firefighting storage areas. Section 2.4.3.4 mentions installation of bulk storage tanks for aviation fuel then describes the establishment of temporary self-bunded fuel storage for a list of dangerous goods/hazardous chemicals including aviation turbine fuel. It is not clear whether potential environmental impacts from fuel storage and bird strike have been considered in the location of	Provide further information addressing Table 2 of the TOR about Solar Precinct infrastructure including, but not limited to: 1. Alternative location(s) considered for airstrip and dangerous goods/hazardous chemicals storage 2. Justification of the preferred location including consideration of Part 2 of the *EP Act* 3. The location, size and water requirements of concrete batching activities 4. An estimate of the waste volume associated with the Solar Precinct and ancillary infrastructure during construction 5. Clarify what is meant by a temporary landfill and what type and volume of material is intended to be landfilled 6. Confirm whether the landfill is part of the proposed action 7. For all infrastructure that is part of the proposed action address the relevant matters of the TOR including:	Section 2.9.4.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
	2.4 and 2.4.3.5 – Landfill 2.6.3.7 Waste Management	the airstrip within the 0.2% AEP zone on the boundary closest to Lake Woods. Alternative location(s) of the airstrip and associated fuel storage are not provided. Concrete batching and water supply. Section 2.4.3.3 identifies services required for the Solar Precinct including groundwater extraction for concrete batching and to service the construction camp. Water demand is estimated up to 1500 ML per annum. The draft EIS identifies that finalisation of water source is reliant on the completion of a detailed water balance. Temporary landfill during construction. Section 2.4.3.5 mentions the landfill option is subject to further studies and may not be required. It is not clear if the landfill is part of the proposed action, what is meant by a temporary landfill (is it short-term use during construction phase and all waste will then be removed from site and the landfill remediated), what site options are being considered and the potential environmental impacts of the landfill.	• Maps of the proposed location • Assessment of potential environmental impacts • Consideration of Part 2 of the *EP Act.*	

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
5	Solar Precinct infrastructure - Borrow area 2.4 2.4.4.5 Figure 2-15	Section 2.4 lists borrow pits (outside the Solar Precinct) will be required for construction. Section 2.4.4.5 indicates 1.5 million cubic metres of crushed rock will be extracted. Figure 2-15 shows an indicative borrow adjacent to the Stuart Highway. It is not clear what the footprint of the proposed borrow pit area is compared to previous borrow activities or how many borrow pits will be used. It is not clear what measures are proposed to prevent dust if rock crushing is occurring at the borrow pit area adjacent to the Stuart Highway. It is noted that borrow material for remaining proposal components will be sourced from local suppliers.	Describe the materials extraction activities including, but not limited to: 1. A map of the indicative borrow pit/s and environmental values at an appropriate scale to view previous and proposed clearing 2. An estimate of the total material requirement, total area and footprint in hectares 3. Assessment of all borrow pit areas and potential significant impacts from materials extraction including avoidance and mitigation measures and rehabilitation actions 4. An outline the proposed rehabilitation criteria and timing.	Section 2.9.5.2
6	2.4.5	Section 2.4.5 identifies that some electronic components at the solar precinct, including batteries and solar panels, will reach the end of their usable life prior to project closure. The Referral identifies reuse in non-commercial settings, or recycling as potential disposal options for these components, however, the proponent has not provided any assessment of the availability or economic feasibility of these options. It is the NT EPA's expectation that e-waste will not go to landfill and implementation of recycling will be available near commencement of the proposed action.	Describe the options investigated for reuse and recycling of sub optimal solar panels. Identify potential third party solar panel reuse options with consideration of how panel degradation would affect the feasibility of such options. Identify a hierarchy of preferred options to deal with sub-optimal solar panels consistent with the waste management hierarchy and describe how the identified options would be investigated.	Section 2.9.6.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
7	Electrodes for the Solar Precinct and Darwin Converter Site Section 2.5.3.4– Electrodes Figures 2-27 and 2- 28 – Area of interest Figure 2-30 – Electrode site	It is not clear if the electrode area of interest forms part of the proposed action: • The Executive Summary mentions that the electrode area is under investigation. • Section 2.5.3.4 mentions that a ground electrode located more than 8 km from each converter location is an alternative to a dedicated metallic earth return. • An electrode area of interest at Darwin and west of the Solar Precinct is shown on each of Figures 2-27 and 2-28: however, it is not on many of the EIS maps or discussed in many of the environmental factor sections. Section 2.5.3.4 indicates each electrode site will be 2 ha; however, in Figure 2-27 and Figure 2-28, the areas of interest appears to be greater than 2000 ha and 20 000 ha respectively. It is not clear why the area of interest is much larger than the electrode site. The depth of ground electrodes is described as shallow in remote areas near or below the water table. Given the future development of Gunn Point area and water depth in arid environments, further information on location, extent and future land use for both electrode and power line connections is required. No detail of ground electrodes has been provided. Section 2.5.3.4 provides a list of attributes that will be considered during site selection; however, uncertainty remains about potential environmental impacts in the absence of additional information.	Provide further information relating to the electrodes and the areas of interest: 1. Confirm whether the electrode areas of interest are part of the proposed action 2. Advise/confirm the spatial extent of the electrode area 3. Advise/confirm the total disturbance footprint within the electrode area including access to the electrode sites 4. Details of ground electrodes and any potential impacts from construction, installation and operation of ground electrodes including avoidance and mitigation measures.	Section 2.3.7.1 Chapter 12

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
8	Concrete batching for the OHTL and Darwin Converter Site 2.4.4.4 and 2.6.4.2	Section 2.5.4.4 identifies that it is possible that mobile concrete batching plants will be established at intermediate work bases to supply concrete for power pole foundations. Section 2.6.4.2 identifies that a concrete batching plant may be required or may be sourced from external suppliers for the Darwin Converter Site.	Provide details about the location, size and water requirements for concrete batching along the length of the OHTL, Darwin Converter Site and Cable Transition Facilities	Section 2.9.7.2
9	Trenching activities along the OHTL Table 2-1 Appendix F – Stakeholder consultation report	Table 2 of the TOR outlines the information requirements relating to the proposal description and justification of alternatives to project design. The draft EIS notes two options for installation of an optic cable, via suspension with OHTL or underground via a 1.2 m trench; however, no further detail is provided in the draft EIS. DITT's Industry Development submission notes that in Appendix F to the draft EIS the proponent considers that burial of the OHTL is not an option for the proposed action. The draft EIS does not provide any justification nor supporting evidence about why the proposed action does not include underground power cables and what significant environmental impacts are avoided by the preferred option of using overhead power cables.	Provide further information addressing Table 2 of the TOR for trenching works, along the railway corridor and alternative routes/deviations of the OHTL, including but not limited to: 1. Scope of trenching works for the optic cable along the length of the OHTL 2. Clarification of whether and/or where the OHTL may be installed underground in areas to avoid sensitive receptors 3. Proposed timing, methods and area of impact for trenching activities 4. Justification for alternatives proposed and criteria for selecting a preferred option, in particular why transmission lines cannot be buried for their entire length 5. Evidence based assessment of any potentially significant impacts on environmental values not described in the draft EIS.	Section 2.9.8.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
10	2.2.3.2 OHTL 2.5.2.1 Route options Figure 2-23 Katherine Figure 2-24 Pine Creek Figure 2-25 Adelaide River	The draft EIS has not assessed potentially significant impacts within the broad areas that are being considered for alternative routes/deviations from the railway corridor at Katherine, Pine Creek and Adelaide River.	Provide further information about the OHTL where it deviates from the railway corridor, including but not limited to: 1. The preferred route/deviation including consideration of Part 2 of the *EP Act* 2. Justification and criteria used to select the preferred route 3. Construction and rehabilitation requirements in proximity to Adelaide River and Katherine River 4. Avoidance and mitigation measures with regard to PFAS and the proposal footprint in the vicinity of Katherine 5. Assessment of potential significant impacts on environmental values not described in the draft EIS particularly regarding terrestrial ecosystems and community values.	Section 2.9.9.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
11	Cable transition facilities section 2.7 Table 2-1 Table 2-2 Figure 2-39	The draft EIS describes the Cable Transition Facilities as three separate components to transfer power from onshore to offshore: • Underground Cable Corridor (2.7 km x 70 m wide = 19 ha) • Land Sea Joint Station (1.5 ha fenced compound) • Shore Crossing Site (temporary 500 x 500 m = 25 ha area) where offshore cables are laid across and then buried through the intertidal zone and beach. Figure 2-39 indicates horizontal directional drilling (HDD) as an option in the legend; however, no corresponding text/justification is provided in the draft EIS. The TOR for Marine Environmental Quality require description of potential impacts associated with proposed construction including direct impacts to seabed from cable laying, anchors, HDD at shore crossing, trenching and rock armouring. The NT EPA recognises the important of HDD to mitigate disturbance to sensitive coastal vegetation at the shore crossing site. Access to Tree Point Family Outstation – Durdugu and Tree Point Conservation Area managed by DEPWS is via the access road proposed to be altered during construction of cable transition facilities for up to 30 months.	Provide site layout and design information as required by the TOR for construction of the cable transition facilities, including but not limited to the: 1. Use and extent of HDD to avoid sensitive vegetation 2. Alternatives considered and the preferred method, include consideration of Part 2 of the *EP Act* 3. Justification and trade-offs for the preferred site, design and method 4. Timing of works 5. 5pplication of NT Land Clearing Guidelines, specifically buffers to sensitive and significant habitat under the Planning Act 1999 6. Mitigation and management measures proposed to address any potentially significant impacts on terrestrial and marine ecosystem values and community access and use during construction 7. Detail about reinstatement actions and outcomes proposed for the shore crossing site 8. Residential and public access during construction.	Section 2.9.10.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
12	Corrosion protection system Chapter 2 Section 2.8.3	It is unclear whether there is potential for marine impacts arising from corrosion protection using a bipole with metallic return as this has not been discussed in the draft EIS.	Provide further information on how the subsea corrosion protection system works including, but not limited to: 1. Whether any harmful chemical products would be produced in seawater 2. Any associated impacts, particularly in sensitive areas such as marine parks and Shoal Bay 3. Measures for avoidance and mitigation	Section 2.9.11.2
13	Location and footprint Chapter 2 Section 2.8 Pages 2-75 to 2-78	The Subsea Cable System route, including two inshore route options, was selected based on review of available geophysical data. The proponent advised that further surveys of the near-shore route options A and B were planned for early 2022 to confirm this approach. DIPL's submission notes that the location of current route option A coincides with the location of potential, long term, dredged material disposal grounds. DIPL has engaged with the proponent in this regard and understands its preferred route is option B. However, if option A is to be considered, the proponent must demonstrate that these sites can still be used in the future, as dredge material disposal sites after the subsea cables have been installed (i.e. that the installation of subsea cables does not preclude the use of these areas for a long term dredged material disposal ground). The proponent is encouraged to continue to engage with DIPL if it intends to pursue option A.	Specify which subsea cable route option has been selected. Provide confirmation about the preferred route of the subsea cable including but not limited to: 1. Any locational changes to the proposed route based on survey results 2. Addressing environmental impact assessment information requirements in the TOR about marine environmental quality and marine ecosystem values (and see below in Sea section).	Section 2.9.12.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
14	Cable laying, pre sweeping and dredging spoil Chapter 2 Section 2.8.4.1	Tables 9 and 10 of the TOR required assessment of potential impacts on Marine environmental quality and Marine ecosystems factors including description of potential impacts associated with proposed construction including direct impacts to seabed from cable laying, anchors, HDD shore crossing, trenching and rock armouring. Information has not been provided regarding the location, amount and disposal options for dredge/pre-sweeping spoil.	Address tables 9 and 10 of the TOR. Provide information required in a dredge and dredge spoil placement plan including: • Expected location of dredging/pre-sweeping • Predicted zone of impact and zone of influence • Expected volume of dredge/pre-sweeping spoil • Location of spoil disposal • Assessment of potential impacts of dredging and spoil disposal including avoidance and mitigation measures.	Section 2.9.13.2
LAND				
Terrestrial ecosystems				
15	Threatened ecological community (TEC) - Arnhem Plateau Sandstone Scrubland	In relation to DCCEEW comment no. 4 with respect to Arnhem Plateau Sandstone Shrubland Complex TEC.	Provide an assessment of the likelihood of occurrence of the Arnhem Plateau Sandstone Shrubland Complex TEC based on additional evidence including, but not limited to geological mapping combined with the land systems.	Section 5.13.2.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
16	Chapter 5	The TOR listed a range of potential impacts and risks from the proposed action on terrestrial ecosystem values that have not been addressed by the draft EIS. Additionally there are areas in the scope of the draft EIS that have not been assessed or surveyed, including but not limited to: • Ground electrode area of 2 ha within a greater area of interest comprising: – 2500 ha of coastal area at the mouth of the Adelaide River – 22 500 ha west of the Solar Precinct • Railway corridor, 722 km (except for aerial survey of Bilby habitat in the southern 150 km) • Route options deviating from the railway corridor at three locations • Any clearing for ancillary infrastructure.	Provide further information about vegetation, habitat, flora and fauna values and justification of alternative and final location and extent of ground electrodes sites and other ancillary infrastructure. Identify the location of sensitive and significant vegetation and threatened species along the railway corridor based on ground truthing and survey results. Provide an assessment of terrestrial ecosystem values and application of Part 2 of *EP Act* in locating final OHTL route.	Section 5.13.3.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
17	Optic cable trench option Table 2.1 and page 2.2	The draft EIS talks about the option of burying the optic cable in a 1.2 m deep trench along the OHTL; however, no detail is provided in the draft EIS. Excavation of a trench has the potential to act as a pitfall trap for fauna with direct mortality and indirect stressors on affected fauna.	Provide further information and impact assessment on any threatened fauna species from installation of the fibre optic cable, including, but not limited to: 1. The proposed location, installation methods and timing of trenching 2. The duration and distance of open trenches 3. Proposed impact avoidance and mitigation measures 4. Proposed monitoring such as procedure for daily and general inspections and reporting.	Section 5.12.2.9
18	Collisions with OHTL Chapter 5 5.4.3.2 – Significant waterbird areas Figure 5-13	The draft EIS suggests that both birds and bats can be impacted through collisions with suspended wires, with earth wires accounting for the majority of collisions involving transmission lines. Risk may be mitigated if earth wires are not used. The draft EIS states the requirement to 'evaluate the need for markers in the Flora and Fauna Management Plan' as part of an adaptive monitoring and mitigation and to install markers/bird diverters on wires to reduce collisions in high risk areas, for example wetlands near Gunn Point. The draft EIS provides an example of where bird and bat collision markers could occur with a focus on known wetlands in the northern section of the OHTL only – no detail is provided for potential bird and bat strikes outside the Litchfield municipality.	Provide information and assessment of the potential impacts to birds and bats from power line collisions, including but not limited to: 1. Evidence based information about macro- and micro-bat movements and collision risk, including risk in the vicinity of the Kohinoor Adit (near Pine Creek) 2. Location(s) of high potential collision with OHTL by birds and bats 3. Proposed location and type of collision avoidance markers for birds and bats throughout the length of the OHTL and within the Solar Precinct	Section 5.13.5.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
		The DEPWS submission (Flora and Fauna, and Parks Divisions) identify bird species at particular risk: include migratory, threatened and recreationally important species within Shoal Bay Coastal Reserve and associated with Adelaide River wetlands near Gunn Point and Lake Woods near the Solar Precinct. The draft EIS considers the risk of collision from the movements of large colonies of macro bats, black and little red flying foxes in the context that mitigation measures useful for reducing bird collisions will also benefit flying foxes. The draft EIS notes that the location of colonies is not well documented and that colonies may occur near towns.	4. Justification of impact avoidance and mitigation measures.	
19	Collisions with equipment, including solar panels Listed threatened and migratory birds 5.4.1.2 area of influence, 5.4.3.2 mortality	The TOR states that the 'lake effect' should be assessed as a potential impact. In the draft EIS, section 5.4.1.2 states that because the usual extent of Lake Woods is over 10 km away, it is not considered to be within the area of influence. The DEPWS Flora and Fauna Division submission provides context to the draft EIS statement and recommended that Lake Woods is incorporated into the Area of Influence. Lake Woods is frequently referred to as an internationally important wetland. It is recognised under *EPBC Act* as a globally important wetland for waterbird migration, breeding and populations. Lake Woods is listed as a Nationally important wetland in the Directory of Important Wetlands in Australia (DIWA).	Provide further information to adequately address the TOR including but not limited to: 1. The assessment of the area surrounding the footprint that has potential to be impacted by the proposed action including the 'lake effect' on threatened and migratory birds caused by solar panels 2. Relevant evidence and justification for any changes or commitments required.	Section 5.12.2.14

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
20	Chapter 5 and Appendix Q – Weed Management Plan (WMP)	Indirect impacts from introduction or spread of invasive flora, noting that not all invasive flora are classified as weeds under the Weed Management Act 2001. The NT EPA is assessing the proposed action under an accredited process with the Australian Government, as such the Weed Management Plan must be consistent with the actions identified in the relevant Threat Abatement Plans. The DEPWS Weed Management Branch submission provides comment about ongoing weed control, successes and requirements around Lake Woods and Longreach Waterhole as relevant to the proposed action.	Provide further information relating to the potential for significant impact from invasive flora on biodiversity values, including but not limited to: 1. Assessment of relevant Terrestrial ecosystem values accounting for the five listed grasses 2. Australian Government Threat Abatement Plan to reduce the impacts on northern Australia's biodiversity by the five listed grasses 3. The timing and implementation of weed monitoring of tracks and roads that intersect creeks and drainage lines within the area of influence on Lake Woods in the context of: • DEPWS comments • Lakes Woods as a globally important wetland for waterbird migration, breeding and populations • Existing weed control plan actions under NT agreement and Australian Government funding.	Section 5.13.7.2
21	Threatened fauna (terrestrial) Section 5.5 Migratory species	The TOR required that the known, likely and potential presence of threatened species under the *EPBC Act* and the TPWC Act be described. Appendices O and P provide a synopsis of desktop assessments of threatened species that are not further described in Chapter 5 of the draft EIS. The likelihood of occurrence of the following species has been assessed in the draft EIS as shown in brackets, the potential for impact on these	Provide information to address the TOR requirements: 1. For the nine species listed in this direction including individual impact assessments	Section 5.13.8.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
	Section 5.5.5.4 Appendix P Appendix O Table 5-10	species should be assessed in more detail in the supplement to the draft EIS: 1. Masked owl (northern mainland) (Medium OHTL) 2. Red goshawk (Medium OHTL) 3. Partridge pigeon (eastern) (Medium OHTL) 4. Crested shrike-tit (northern) (Medium OHTL) 5. Black-footed tree-rat (Kimberley and mainland Northern Territory) (Medium OHTL) 6. Fawn antechinus (High OHTL) 7. Arnhem Land gorges skink (egernia) (not addressed in the draft EIS) 8. Plains death adder (High OHTL) 9. Atlas moth (None OHTL). Appendix P of the draft EIS notes that the Atlas moth is not within the footprint of the proposal. However, the proposal may impact on this threatened species due to the close proximity of the cable transition facilities to its primary habitat. DEPWS records the Atlas moth from Tree Point Conservation Area adjacent to the proposal footprint. Habitat restoration is conducted by Larrakia Rangers due to the importance of the sensitive monsoon vine thicket habitat that occurs approximately 500 m south of the cable transition facilities.	2. In accordance with submissions on the draft EIS and the NT EPA direction based on: • Existing relevant information where noted in submissions • Additional surveys in accordance with Table 2 of this direction. All species should be assessed against the impact criteria in the Significant Impact Guidelines 1.1 – Matters of National Environmental Significance and relevant current literature.	

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
21	Scope – Solar Precinct Sections 2.4.3.3 to Section 2.4.3.6	Additional infrastructure associated with the Solar Precinct (identified in sections 2.4.3.3 to 2.4.3.6) are not adequately defined in the scope of the proposal such that limits assessment of potential impacts on biodiversity.	Conduct impact assessment for relevant threatened species based on the location of additional infrastructure as directed at items #2 to #6.	Section 5.13.9.2
22	Sensitive and significant vegetation Section 5.3.3.2 Significant vegetation along the OHTL Appendix P Table 17-5 Key mitigation and monitoring of Inland water environmental quality	The draft EIS identifies significant vegetation in the proposal footprint comprising: rainforest, sand sheet heath, riparian, (coastal) vine thicket, mangroves and large trees with hollows suitable for fauna. The location within the area of influence of some sensitive and significant vegetation has not been addressed in the draft EIS, these include, but are not limited to: • Sand sheet heath south of the mapped area towards Edith River. • Coastal vine thicket at the Cable Transition Facilities • Riparian vegetation along waterways of stream order 3 and below. The draft EIS provides a land clearing commitment within boundaries approved under relevant permits, in accordance with the NT and Pastoral Land Clearing Guidelines. The Table 17-5 identifies avoidance and mitigation measures for the crossing of large rivers; however, does not include how clearing of riparian vegetation will be consistent or inconsistent with relevant land clearing guidelines.	Provide detailed information about the location and extent of sensitive and significant vegetation in all areas proposed for land clearing including, but not limited to: 1. Works required for power pole pads, access tracks and any underground works 2. Additional areas as defined in the scope 3. Demonstrate consistency with the NT and Pastoral Land Clearing Guidelines, including all buffers for land clearing 4. Where inconsistent with the land clearing guidelines demonstrate how the environment decision making hierarchy has been applied 5. Reinstatement works required to improve the environmental condition of the utilities corridor following work undertaken at or near sensitive and significant vegetation.	Section 5.13.10.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
23	Offsets Exec Summary 5.9 Offsets	The TOR require offsets to be identified and demonstrated to be consistent with the NT Offset framework and the *EPBC Act* environmental offsets policy where residual impact remains. The draft EIS recognises the restricted range species and those with localised core habitat which are known or have potential to occur in the OHTL corridor or surrounding areas and provides a commitment to survey these species to inform micro-siting of poles avoidance of features such as isolated patches of threatened plants, significant vegetation or active nests. Further, the draft EIS identifies that adoption of the precautionary principle, the impact of the proposed action to threatened species biodiversity values, and any requirement for offsets. Results of surveys being conducted during the preparation of the draft EIS will be used to re-assess residual impacts from the proposed action before making any final conclusions in relation to meeting the NT EPA's objective for Terrestrial ecosystems and any offset requirements.	Provide the results of surveys and impact assessment regarding threatened species and land clearing of sensitive or significant vegetation with justification of residual impact. Identify any requirements for offsets with consideration the NT Offset framework and EPBC Act environmental offsets policy.	Section 5.13.11.2
WATER				
Hydrological processes, inland water environmental quality and aquatic ecosystems				
24	Groundwater Chapter 2 2.4.3.3 – water supply Table 17-5 IWEQ key mitigation	The draft EIS identifies that water is to be sourced from groundwater at the Solar Precinct and Darwin Converter Site and finalisation of the water source is reliant on the completion of a detailed water balance. Impact on nearby receptors at the Darwin Convertor Site considered low due to no nearby receptors; however, this may	Provide a detailed water balance for the proposed action that includes but is not limited to: 1. Modelling to be included in hydrogeological investigations at the Solar Precinct and the Darwin Converter Site 2. Demonstrate that groundwater extraction for water supply will have no impact on	Section 6.11.3

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
	measures and monitoring	change during the 5 year construction period and subsequent years post construction required for groundwater to recharge. The draft EIS (Chapter 7) recognises that poly-fluoroalkyl substances (PFAS) occurs near Katherine without assessing the potential for impacts arising from sourcing water, land clearing and construction activities where PFAS may occur. Relevant material to be considered when addressing potential for PFAS contamination includes: ANZECC (2000) Australian and New Zealand Guidelines for Fresh and Marine Water Quality – superseded by the revised Water Quality Guidelines ANZG (2019) National Environmental Protection (NEPC, as amended 2013) Assessment of Site contamination NHMRC (2011) Australian Drinking Water Guidelines PFAS National Environmental Management Plan (HEPA 2018) health based guidelines for drinking water and recreational water	groundwater levels at nearby receptors including future land use during the construction and operation stages as relevant 3. Groundwater monitoring programs for construction and operational stages of the proposed action. Provide further information to inform avoidance and mitigation measures as well as contamination management of water and soil disturbing activities in areas where PFAS may occur, including but not limited to: 4. Previous contaminating activities in the railway corridor and alternative routes about Katherine 5. Describe existing levels in context of guideline values 6. Source and quality of water and land fill to avoid PFAS 7. Extent and location of excavation works 8. Assessment of potential impacts.	

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
25	Surface water Section 6.4.3.1 Changes to surface water flows Table 6-9 Hydrological processes commitments	Section 6.3.1 of the draft EIS identifies that watershed changes from infrastructure at the Solar Precinct, due to land clearing and installation of solar panels, would not impact surface water flow regimes due to the design criteria for the Solar Precinct drainage network. These criteria provide for discharge at similar rates to preconstruction condition with no expected reduction in water volumes to the alluvial and flood plains surrounding Lake Woods. The draft EIS states that construction activity and changes during operation (access tracks and pole pads) may cause changes to the structure of minor waterways and wetlands with residual changes to surface water flows. Commitments are made in the draft EIS to: • Locate pole pads to avoid watercourses and wetlands; • Avoid access tracks on major waterways; • Stormwater discharges being similar to pre-development conditions; and • Consider avoidance measures about riparian vegetation and semi-permanent and permanent pools. The draft EIS does not provide ground truthed location and extent of land clearing required of riparian vegetation nor information about any trenching works near minor waterways and wetlands.	Provide information consistent with the scope of the action to address the Environmental decision making hierarchy (Part 2 of *EP Act*) for road, infrastructure, drainage structures and trench construction, include measures and commitments to protect: 1. Flow regimes of surface water 2. Quality of surface water 3. Aquatic ecosystems.	Section 7.11.3
SEA				

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
Marine ecosystems				
26	Noise and lighting Section 10.4.2.3	Changes to marine fauna behaviours as a result of noise or lighting from proposal areas are described in the draft EIS. The draft EIS considers the impact from lighting to be low based on the absence of important turtle breeding habitat on Gunn Point and within 20 km from the proposed action using criteria from the National Light Pollution Guidelines for Wildlife Including Marine turtles, Seabirds and Migratory Shorebirds (Commonwealth of Australia 2020). Based on threatened species data held on NR Maps, turtle species (flatback and green turtles) are recorded within the intertidal zone and less than 200 m from the shore crossing site. The DEPWS Flora and Fauna Division submission notes the low topography of the Darwin convertor site and cable transition facilities and recommends that infrastructure design follows National Light Pollution Guidelines. The draft EIS concludes that noise impacts as a result of cable laying and burial are likely to have a short-term deterrent impact on marine animals, but are unlikely to result in any significant impacts to the marine ecosystem. The impact from noise from construction of the shore crossing facilities has not been assessed.	Provide information about noise and lighting impacts during construction and operational stages of the Darwin Converter Site and Cable Transition Facilities, based on referenced literature and ecological project reports as relevant.	Section 9.11.3
27	Benthic habitats and communities	The proponent used a predictive benthic habitat mapping tool developed by the DEPWS in 20191 to determine the potential impacts of the action on physical and biological benthic habitats	Provide the following information: 1. Provide details of the proposed timing and methods of baseline benthic habitat surveys to:	Section 9.11.6

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
	Risk assessment of TSS, SSC and benthic habitats Chapter 10 Pages 10 to 27	within a local and regional context, including seagrass, hard corals, macroalgae, filter feeder and bare seafloor habitats. Site specific mapping of benthic habitats and communities was not undertaken for the draft EIS. Therefore, a comparison of modelled results against field based survey results within the predicted zone of influence has not been undertake to validate (ground truth) the modelled predictions. The proponent has committed to undertake additional benthic surveys for the chosen alternative and the NT EPA considers that benthic habitat survey and mapping is required to increase the level of confidence in predicting the potential significant impacts of the proposed action. The draft EIS concluded that the residual impact to benthic habitats from direct disturbance or loss of benthic habitat is minor and refers to WAMSI (2019). The DEPWS Flora and Fauna Division considers combining benthic habitat into a single category is not appropriate. The potential impacts of cable laying on benthic species depend on seasonal biological processes and environmental conditions the drivers of which are different for each community group. The draft EIS correctly concludes that the dry season period is important for maintaining health of benthic primary producer habitats. DEPWS identifies that the early wet (September – December) is also important biologically due to coral reproduction (elevated TSS up to 3.2 mg/L may cause decline of coral health through bleaching and tissue damage). Confining cable laying to the late wet could mitigate impacts due to timing activity when nearshore waters generally have elevated total suspended sediments and seagrass habitats	• Collect underwater video transect data at a sufficient density to accurately map the extent of benthic habitats within the cable corridor and the zone of influence at an appropriate scale (see point 2 below). • Identify and describe the type and spatial extent (with consideration of temporal/seasonal variation) of benthic substrates and biota within the zone of impact and zone of influence • Provide sufficient ground-truth data to assess the accuracy of the DEPWS predictive benthic habitat model. 2. Confirm that benthic habitat survey and classification would be undertaken in accordance with the following guidance: • National Environmental Science Program Field Manuals for Marine Sampling to Monitor Australian Field Manuals for Marine Sampling to Monitor Australian Waters • National Intertidal/Subtidal Benthic (NISB) Habitat Classification Scheme • Collaborative and Annotation Tools for Analysis of Marine Imagery and Video (CATAMI) classification scheme. 3. The timing of works requires consideration of each community group (corals, macro-algae seagrass and filter feeder communities). benthic	

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
		remain dormant until light availability at the seafloor improves at the start of the dry and triggers seagrass regeneration. During nearshore disposal of dredge spoil (1 month), benthic communities within the zone of influence would be exposed to increased suspended sediment concentrations and reduced light availability and quality, potentially leading to stress and mortality. Therefore, there is a need to understand the TSS (mg/L)/turbidity (NTU) – light intensity relationship at the seafloor to assist with setting appropriate turbidity triggers for benthic communities and primary productivity.	survey and mapping would be taken into account for timing of cable laying works. Demonstrate how the environmental decision making hierarchy will be applied to avoid and mitigate impacts by the timing of works. Include feasibility assessment of confining cable laying in nearshore waters to the late wet season. 4. Include detail about how potential impacts (related to sediment deposition, suspended sediment, turbidity and benthic light levels) on benthic communities and habitats (corals, seagrass, macro algae and filter feeders) would be managed. 5. Include detail about how benthic impacts from dredge spoil disposal would be monitored and measured, and the expected duration of recovery periods where impacts are predicted or observed. Use the information obtained from surveys to inform revised triggers for TSS and site selection for WQ monitoring sites to monitor TSS / SSC and light availability at the seafloor during and post cable lying activities within NT waters.	
28	Hydrodynamic 'plume' modelling Appendix R – Section 5	The proponent conducted two-dimensional (depth-averaged) hydrodynamic modelling in the 'Eulerian' Delft3D modelling package, using Delft3D-FLOW (current), Delft3D-WAVE (wave) and Delft3D- WAQ (water quality for suspended sediments). Three dimensional (3D) modelling is considered best practice in most marine environments in order to predict dredging impacts to hydrodynamics, plume and sediment transport	Provide additional information to improve confidence in the hydrodynamic model outputs, results, and impact predictions, and to assess the significance of potential impacts of suspended, deposited and remobilised sediments on the marine environment. 1. Provide a detailed justification with information to support the use of a 2D hydrodynamic model	This matter is dealt with throughout Chapter 9

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
	Water quality (WQ) Appendix S Part 4	modelling. The Western Australian Marine Science Institution (WAMSI) Dredge Science Node Guideline on dredge plume modelling for environmental impact assessment discusses 2D vs 3D hydrodynamic modelling to allow for accuracy and certainty in the assessment of impacts of changes in current strength to benthic communities; sediment transport along the seafloor, and plume density within the water column. Further justification should be provided to support use of the 2D model for the prediction of sediment plume, transport and deposition impacts from the proposed dredging. The justification should provide information to support the decision not to use a 3D model. The justification should describe how sediment transport within ambient settings and after sediment is deposited from dredge spoil or sediment plumes is addressed by the modelling. Further information should be provided to describe how: • The transport and fate of sediments (course and fine) has been quantified and modelled • Sedimentation rates and implications for water quality (TSS and turbidity) and benthic communities / habitats has been assessed. Describe how the modelling allows for determination of the susceptibility of marine and benthic values and sensitivities to sedimentation and the suitability of the proposed water quality trigger levels that would be applied during dredging to avoid significant impacts.	for the prediction of dredging impacts from the proposal. 2. Provide details and justification of the baseline data (including from field observations) used in the development, calibration and validation of the model. Describe how the baseline and model input data used are consistent with the requirements of the WAMSI Dredge Science Node Guideline on dredge plume modelling for environmental impact assessment (specifically sections 3, 4 and 5 of the guideline). 3. Confirm that the timing of baseline data collection corresponds to the time of year that dredging is proposed to occur. As a guide, if dredging is proposed in the dry season/build-up, data should be provided for a minimum of 28 days. If in the wet season, data should be provided for 6-8 weeks (i.e. to capture at least two monsoonal events). Provide the baseline data as part of the information response to this Direction (either from existing or new site specific monitoring). 4. Describe how the following has been considered in development of the model and the prediction of impacts: • The composition of TSS • How TSS concentration data correlates to turbidity (NTU) level data at the proposed monitoring locations • The relationship between suspended and light availability and quality at the seafloor.	

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
		The models should be calibrated and verified by comparing modelled results against field-based measurements collected at selected areas where receptors occur. The revised modelling and setting of trigger values should be informed by the outcomes of the benthic survey and mapping (refer to item above).	1. Revise the monitoring program to include further water quality monitoring at selected areas where receptors occur based on benthic habitat mapping; these sites should be established before cable laying occurs to enable site specific trigger values and post cable laying activities within NT waters. 2. Review trigger values that would initiate a management response during nearshore spoil disposal and include triggers for time duration of exceedances for specific benthic communities including corals, seagrass, macro algae and filter feeders (where presence is confirmed during field survey). Interim triggers should be established from baseline TSS, turbidity and benthic light level data with consideration of the WAMSI Dredge Science Node research reports on ecological thresholds and environmental windows As an example, in the case that only dry season site-specific data is available, this should be cross reference with established guideline values (for the benthic communities present) in the WAMSI data, to establish interim guideline values for the wet season, which could be used until sufficient site-specific wet season monitoring data is available. In the case that existing site-specific seasonal baseline monitoring data is not currently available, the proponent should first obtain data for the season in which the initial dredging works are proposed to be undertaken.	

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
29	Dust emissions Chapter 2 and 11 Figure 11-2 emissions at Solar Precinct Table 11-13 Distance from AAPowerLink construction works affected by air quality impacts	Dust will be generated during clearing, construction, and operation with the area of influence for each component of the proposal footprint modelled in the draft EIS as described in the Air Quality Impact Assessment (Appendix U). The draft EIS indicates the locations likely to experience greatest impacts are the Darwin Converter Site during 30 month to 4 year construction phase and the Solar Precinct during construction and operation. The draft EIS describes avoidance measures (locating site access roads, laydown areas and stationary equipment (e.g., generators) as far away as possible from sensitive receivers). Mitigation measures to minimise and manage impacts to air quality are described in Chapter 17 Environmental Management, summarised in Section 11.5 and largely rely on water suppression and other suppressants if water is ineffective for all components and vegetation management at the Solar Precinct. The draft EIS states that vegetation management will be used to control dust at the Solar Precinct as detailed in Chapter 2 Proposal Description. However, the vegetation management described in Chapter 2 relates only to vegetation management as an ongoing operations activity within the Solar Precinct to prevent shading of the panels and/or fire risk.	Provide further information relating to dust management including, but not limited to detail about: 1. Dust management measures, including their expected efficiency and an assessment of the residual impact on air quality for the Darwin Converter Site and Solar Precinct during construction phase 2. Land clearing program/staging at the solar precinct including maximum cleared area at any time 3. Vegetation management as it relates to dust management at the solar precinct including timing, water requirements and success criteria 4. Monitoring and management measures at sensitive receptors, particularly in the vicinity of the Darwin Converter Site.	Section 14.10.3

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
30	Dust emissions along alternative routes – OHTL Chapter 11	There is potential for dust emissions caused by wind erosion of exposed surfaces and traffic movements on unsealed roads/tracks during construction. The draft EIS notes that some of the sensitive receptors presented in Chapter 11 will be avoided by the alternative routes near Katherine, Pine Creek and Adelaide River. However, any new sensitive receptors likely to be impacted and proposed avoidance and mitigation measures in the alternative routes are not presented in the proponent's draft EIS.	Provide information and additional assessment of impacts from dust emissions, if necessary, about the proposed alternative location of the OHTL where it deviates from the railway corridor, as required by the previous item above.	Section 14.10.6
31	Combustion and dust emissions at the Darwin Converter	Construction will occur over 30 months to four years. The draft EIS provides modelling results of emissions at the Darwin Converter Site showing that PM2.5 and NO2 pollutants could be elevated above	1. Avoidance, mitigation and management measures to not exceed criteria at the site boundary 2. Monitoring and reporting of emissions during construction and operation phases.	Sections 10.11.9 Section 14.10.9
PEOPLE				
Community ad economy				
32	Visual amenity Table 2.1 Page 2.2	Public consultation comments identified that the OHTL would present a visual amenity problem for residents it the Litchfield municipality. Government authority comments from DITT identified that the OHTL (788 km) may also present a visual amenity issue for visitors travelling along the Stuart Highway or using the railway on the Ghan. The size of the transmission line poles is substantially larger than regular power poles.	Provide more detailed information about how community concerns would be addressed and any alternatives to the proposed design to avoid or mitigate potentially significant impacts from visual amenity of the power line from road and railway users, residents and the tourism industry.	Section 10.11.12

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
		Given the extensive length of the OHTL it has potential to impact the visual amenity of a large expanse of outback. The draft EIS provides limited information about visual amenity concerns in its stakeholder engagement.		
33	Section 13.6.8 Cumulative impacts Appendix J Social impact management plan	The DIPL submission notes that cumulative impacts to marine users from the combined impact of the project and the future port development in the Gunn Point Mapping the Futures project have not been included. The draft EIS identifies potential cumulative impacts on community and economy arising from the: • Competition for skilled labour, cumulative pressures on accommodation and community resistance to changed land use in the Barkly • Cumulative impacts with a number of major projects progressing in the Barkly and Katherine/Big Rivers regions on similar timelines • Opposing views of the proposed development at Murrumujuk.	Provide further information on cumulative impacts as they relate to community and economy and future development along the proposal footprint from the Barkly to Katherine, Gunn Point and offshore.	Section 3.8.6.1 Section 3.7 Also refer to Chapter 12 Section 12.11.9 and Chapter 2 Section 2.5.2 for a more detailed response on this matter
34	Section 13.7 Avoidance, mitigation and monitoring of impacts on Community and economy	The draft EIS identifies the proponent's assurance to report against its commitments throughout the AA PowerLink life cycle through eight action plans, including: • Providing renewable energy the support the NT 's goal of net zero emissions by 2050	Provide further information on action plans identified in the SIMP.	Section 3.7 Appendix 3.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
	Appendix J	• Bolstering the renewable energy section and supporting communities • Cumulative impacts on community and economy • Maintaining housing affordability and availability, particularly in the Barkly, where most construction activity will take place.		
35	Stakeholder engagement Chapter 13 Appendix F – Stakeholder consultant report Appendix I – Social impact assessment Appendix J – Social Impact Management Plan Appendix F Section 2.1.2	Stakeholder consultation has occurred as part of the draft EIS with identified gaps in consultation and therefore reporting as recognised in Appendix F of the draft EIS, some examples include: • Consultation period followed shortly after municipal elections and some meetings have been deferred until 2022, including consultation with Litchfield Shire • Wider briefings with businesses and renewable energy stakeholders clashed with COVID-19 travel ….and the briefings will be scheduled progressively in 2022 as design and procurement planning progresses • Compounded complexity introduced by the variation to the cable transition facilities with regard to the significant increase in the number and diversity of affected people and communities It is unclear the extent of public consultation undertaken and whether this was consistent with dates on the flyers provided at attachment to Appendix F.	Provide additional information about ongoing stakeholder engagement including, but not limited to: 1. Consultation gaps as identified in the drat EIS (Litchfield Shire Council, business and renewable energy stakeholders, community consultation along the new route to Murrumujuk) 2. Clarify consultation undertaken 3. Demonstrated consideration of issues raised 4. Consistency with NT EPA stakeholder guidance.	Section 3.7 Appendix 3.1 Appendix 3.2

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
36	Traffic and transport Chapters 2 and 13 - Proposal description Community and economy	The draft EIS identifies substantial sea, rail and road transport of infrastructure for the Solar Precinct and OHTL including transport along the full length of the Stuart Highway from the north (Port Darwin) and south (Port Adelaide) of the proposal footprint. The increased road traffic may cause delays, road safety and/or road damage over a four to five year continuous period. The draft EIS determined that based on current estimates of trip generation, traffic numbers associated with the project are not expected to exceed the previously recorded peak annual average daily traffic, for 2017 along proposed routes. As such, the project is not expected to create any worsening of traffic volumes or levels of service due to capacity issues. Construction and associated traffic is proposed 24 hours for some construction activities and standard day shift for most construction works. Where the OHTL exits the Railway Corridor and enters the Utilities corridor, a construction approach that mitigates the impact to the rural residential areas will be developed accordingly, which may include a staging and laydown area proximate to Gunn Point Road. The draft EIS does not identify the location and land clearing requirements for this construction approach.	Provide further information about: 1. Traffic management during construction, particularly for the utilities corridor works in the Litchfield Municipality during weekend and peak work traffic in built up areas (utilities corridor) 2. Location of staging and laydown areas near Gunn Point Road to minimise traffic impacts and other community impacts.	Section 12.11.3

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
37	Chapters 2 and 3 - Proposal description Community and economy	The draft EIS identifies that six mobile fly camps are proposed to be established at 100 km intervals locations between Elliott and Darwin for the 460 construction workforce over 30 months. Expected 4 work fronts operating at any time. Workforce will use existing accommodation providers where local facilities allow. Temporary camps to be established in remote areas will be used for 6 months each, housing up to 20 people. Cleared pads of 1 ha areas for camps will be reinstated using the cleared materials following removal of camp infrastructure. Laydown areas will use existing cleared areas where possible. The proponent is currently developing the staging for the OHTL including accommodation and laydown areas.	Provide the location of temporary accommodation, within or external to the railway corridor and in the Litchfield municipality utilities corridor, Darwin converter site and cable transition station.	Section 2.9.14.2
Culture and Heritage				
38	Chapter 14 Appendix V to X Table 14-12 Avoidance, mitigation, monitoring and reporting commitments	The Heritage Branch submission identified that the draft EIS and Appendices V-X are very thorough and detailed. The proponent is compiling reports containing further information about maritime surveys and other areas that have yet to be completed in consultation with Heritage Branch. The draft EIS has identified that measures for managing the inadvertent discovery of heritage features will be provided in relevant Culture and Heritage Management Plans. Table 14-12 mentions that, “where further impacts to archaeological heritage features are unavoidable, obtain an approval to carry out work on a heritage place or object (work) under the Heritage Act.”	Provide further information about methods to avoid or minimise impacts to heritage sites and objects, including maritime including, but not limited to justification for not changing the OHTL or subsea cable route in accordance with the environmental decision making hierarchy for undetected heritage features.	Section 13.10.3

Item No #	Section of Draft EIS	Comment	Information Required in the Supplement	Where Addressed in SEIS
Matters of national environmental significance		**Refer to terrestrial ecosystems and marine ecosystems above**		
39	Management Plans Various sections	The TOR includes matters that were required to be addressed in the EIS including safeguards, avoidance, mitigation, management and offset measures. Appendix B of the TOR includes matters to be addressed under the EPBC Regulations. Section 4.01(d) requires an outline of an environmental management plan that sets out the framework for continuing management, mitigation and monitoring programs for the relevant impacts of the action, including any provisions for independent environmental auditing. Throughout the draft EIS various commitments are made to provide avoidance/mitigation/management/offset measures in management plans. Hence, DCCEEW's submission to the NT EPA requires 11 sub-plans to be included in the Construction Environmental Management Plan (CEMP) and respective Operations Environmental Management Plans (OEMPs) to be provided in the Supplement to the draft EIS. The adequacy assessment of the above management measures is important in the assessment to determine the acceptability of the project's impacts to the whole of the environment, including the EPBC Act threatened, migratory species and their habitat.	The Supplement to the draft EIS must include safeguards, avoidance, mitigation management and offset measures for the proposed action. The information can be provided in the body of the Supplement or in appended management plans as indicated in the drat EIS. The measures must be expressed as clear commitments.	Section 15.11.3 Chapter 17

Table 2 Additional Information to be included in the Supplement to the draft EIS in accordance with regulation 136(1)(b) – Survey requirements

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
Flora			
1.	*Cycas armstrongii*	DEPWS modelling for high density cycad stands is available for Gunn Point. Areas south of this study area have not been modelled and the presence of high density stands (>400 stems/ha) should be clarified by the proponent through modelling or survey of the clearing footprint. If high density stands are identified within the clearing footprint, additional surveys are required to clarify the significance of the stand from a local and regional context.	Section 5.6.4.6
2.	*Ptychosperma macarthurii*	This species is confined to spring-fed rainforests and has been well surveyed in the NT. Surveys are not required and impacts to known sites containing the species should be avoided.	Section 5.6.3.4
3.	*Typhonium praetermissum*	The Draft EIS mentions "a total of 75 *Typhonium praetermissum* plants (~6.8% of the sub-population) are within the DCS and Cable Transition Facilities direct disturbance footprints and will be lost during construction; and that there may be some capacity to modify the design locally to minimise this loss." Clarify whether the project design will be modified to avoid the loss of Typhonium plants (75 individuals) and proposed mitigation actions if the plants are impacted. The draft EIS mentions that *T. praetermissum* surveys of the OHTL footprint were conducted at a time the species was not detectable and so relied on the modelling information and experience for its assessment. The draft EIS provided a commitment to a follow-up targeted flora survey to verify presence/absence of *T. praetermissum* and inform the Supplement to the draft EIS. Targeted surveys to assess and contextualise the potential significant impacts on the *T. praetermissum* at the subpopulation and species level. These surveys must be undertaken at the appropriate time of year to optimise detection	Section 5.6.4.19
4.	*Acacia praetermissa*	Records and potential habitat for *Acacia praetermissa* are found in the Pine Creek route deviation options and targeted survey is required in those areas.	Section 5.6.4.1

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
5.	*Cleome insolata*	Targeted surveys are required for *Cleome insolata* in the appropriate fruiting/seeding season (i.e., March-April).	Section 5.6.4.4
6.	*Utricularia dunstaniae*	The NT EPA requires reassessment of the likelihood of *Utricularia dunstaniae* presence in the OHTL Corridor. If suitable habitat (sand sheet heath) for the species is found to occur within the OHTL Corridor then surveys at an appropriate time of year are required to confirm if the species is present.	Section 5.6.4.20
7.	*Typhonium taylori*	Records of *Typhonium taylori* are found within 7km of the project footprint and potential habitat is likely to exist in the Howard Sand Plains. The NT EPA requires reassessment of the likelihood of *T. taylori* presence in the OHTL Corridor. If suitable habitat for the species is found to occur within the OHTL Corridor, then surveys are required to confirm if the species is present.	Section 5.6.3.13
8.	*Stylidium ensatum*	DEPWS has undertaken surveys for this species and identified patches of *Stylidium ensatum* within the OHTL route at Gunn Point. The area south of Arnhem Highway contains areas modelled at having a high-moderate likelihood of supporting the species. The model shows high-moderate likelihood habitat within the deviations at Adelaide River. Furthermore, the DCCEEW database (SPRAT) shows that the species distribution is likely to occur south of Darwin to Hayes Creek. Surveys for this species are required (June to August) where the deviation overlaps with DEPWS modelling and DCCEEW species distribution information. The Katherine and Pine Creek deviations are not modelled as having a high-moderate likelihood of supporting the species and surveys are not required in these areas.	Section 5.6.3.12
9.	*Helicteres macrothrix*	The model shows high likelihood habitat for *Helicteres macrothrix* within the deviations at Adelaide River. Surveys for this species are required where the deviation overlaps with DEPWS high likelihood habitat modelling and the species distribution shown in the DCCEEW database (SPRAT). The Katherine and Pine Creek deviations are not modelled as being “highly likely” to support the species and surveys are not required in these areas.	Section 5.6.3.7

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
Fauna			
10.	Howard River Toadlet (*Uperoleia daviesae*)	The NT EPA requires reassessment of the likelihood of *Uperoleia daviesae* presence in the OHTL Corridor. If suitable habitat (sand sheet heath) for the species is found to occur within the OHTL Corridor, then surveys are required to confirm if the species is present. Surveys need to be conducted at the appropriate time when conditions are suitable at the site, indicated by presence of the species at a known local reference site for species detection.	Section 5.6.4.10
11.	Plains death adder *(Acanthophis hawkei)*	DEPWS does not have likelihood modelling for this species. Habitat for this species in the Top End is associated with black soil floodplains with cracking clay soils. Suitable habitat for the species occurs east of the OHTL alignment north of Goode Road, Wak. The OHTL alignment is located approximately 1.8km from the nearest area of habitat within Black Jungle Conservation Reserve. As habitat for this species is not expected to occur within the alignment, surveys are not required. However, the DCCEEW database shows that known distribution for this species occurs east and west of the OHTL Corridor on its north portion and overlaps with the OHTL Corridor in the Manton Dam recreation area. A suitable habitat and species likelihood assessment in those areas are required to determine whether important population or habitat critical for the species will be impacted by the project.	Section 5.6.4.16
12.	Gouldian finch (*Erythrura gouldiae*)	The NT EPA requires that the assessment of significant impact for Gouldian finches is undertaken to incorporate all potential Gouldian finch habitat, including core foraging and breeding habitat within 20 km of the proposal. This should include the size (e.g., hectares) of Gouldian finch habitat that will be directly impacted by the project. The assessment results are to inform whether suitable foraging and nesting habitat is likely to be present or absent and whether surveys of hollow bearing trees in those areas of habitat are required. Significant impact assessments under the EPBC Act must be in accordance with the EPBC Act Significant Impact Guidelines 1.1, while surveys should be in accordance with Survey guidelines for Australia's threatened birds: Guidelines for detecting birds listed as threatened under the EPBC Act.	Section 5.6.3.6

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
13.	Grey falcon (*Falco hypoleucos*)	Grey falcon will nest on tall infrastructure. Identify nests through surveys, report the locations in the Supplement, realign infrastructure to > 300m from active nests and avoid activities within 300m if the nest has activity. If avoidance is not proposed, demonstrate how the environment decision-making hierarchy has been addressed and assess the potential impact.	Section 5.6.4.9
14.	Red goshawk (*Erythrotriorchis radiatus*)	Red goshawks will nest in large trees close to water. If clearing is required in riparian vegetation near water, surveys are required to identify nests, report the locations in the Supplement, realign infrastructure to > 100m from active nests and avoid activities within 100m if the nest has activity. If avoidance is not proposed, demonstrate the environment decision-making hierarchy has been addressed and assess the potential impact.	Section 5.6.4.18
15.	Masked owl (northern mainland) (*Tyto novaehollandiae kimberli*)	Masked owls nest in large trees in *Eucalyptus miniata/E. tetrodonta* open woodland and rainforest vegetation. If clearing is required in suitable habitat (woodland with large hollow bearing trees, rainforest and riparian vegetation), surveys are required to inform micro siting structures avoids to large trees and active nests. If avoidance is not proposed, demonstrate the environment decision-making hierarchy has been addressed and assess the potential impact.	Section 5.6.4.11
16.	Crested shrike-tit (*Falcunculus frontatus whitei*)	The TOR required the known, likely, and potential presence of this species to be described in the draft EIS. The assessment should inform whether suitable nesting habitat is likely to be present and whether surveys of large trees in those areas of habitat are required (most likely around Katherine and Sturt Plateau). The presence of suitable habitat (extensive patches of woodland with bigger trees and healthier canopy) may be determined by desktop or require ground surveys depending on data availability. If the proponent determines surveys are required, discuss the survey method with Flora and Fauna Division and DCCEEW prior to commencement.	Section 5.6.4.5

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
17.	Bare-rumped sheath-tailed bat (*Saccolaimus nudicluniatus*)	DCCEEW's database shows the Bare-rumped sheath-tailed bat (vulnerable species under the EPBC Act) is likely to occur in the north portion of the OHTL from Gunn point to Adelaide River. Surveys are not required but avoidance and mitigation measures for the species should be provided. For instance, pre-clearance surveys of active roost trees (large trees with hollows) should be carried out prior to clearing to avoid eliminating such trees and no-go zones should be implemented around those trees to avoid disruption during breeding. Surveys are not required for the Partridge pigeon as these species occur in low densities in woodland habitats. The clearing will remove some habitat but does not require extensive areas of habitat to be removed or fragmented significantly. DCCEEW's database shows the Northern brushtail possum (vulnerable species under the EPBC Act) is likely to occur in the north portion of the OHTL from Gunn point to Elsey Creek and known distribution of the species overlaps the OHTL in the Black Jungle deviation. Surveys are not required but avoidance and mitigation measures for the species must be provided. The Northern brushtail possum depends on large hollow-bearing trees for nesting. Therefore, pre-clearance surveys for suitable trees should be undertaken before clearing to avoid destruction of nesting habitat. DCCEEW's database shows the Black-footed tree-rat (endangered species under the EPBC Act) is likely and known to occur in the north portion of the OHTL from Gunn point to Katherine. A suitable habitat assessment for the species is required. Surveys are to be conducted where suitable habitat is identified, to determine whether the OHTL, or associated infrastructure will clear areas of occupancy of the species and to inform how much of this area will be directly impacted by the clearing. DCCEEW's database shows that the Fawn antechinus (vulnerable species under the EPBC Act) is likely to occur in the north portion of the OHTL from Gunn point to Katherine. Surveys of this species are required to confirm whether an important population of this species will be impacted by the project.	Section 5.6.4.3
18.	Partridge pigeon (eastern subspecies) (*Geophaps smithii smithii*)		Section 5.6.4.15
19.	Northern brushtail possum (*Trichosurus vulpecula arnhemensis*)		Section 5.6.4.13
20.	Black-footed tree-rat (*Mesembriomys gouldii gouldii*)		Section 5.6.3.3
21.	Fawn antechinus (*Antechinus bellus*)		Section 5.6.3.5

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
22.	Northern quoll (*Dasyurus hallucatus*)	Northern quolls have been recently recorded near the OHTL and there is a high likelihood individuals will move through the corridor. The proposal, however poses a low risk to the species as it does not exacerbate existing threats (cane toads). DCCEEW's database shows that the Northern quoll (endangered species under the EPBC Act) is likely and known to occur in the north portion of the OHTL from Gunn point to Elsey Creek. While northern quolls do not have highly specific habitat requirements, the National Recovery Plan for the Northern Quoll notes habitat critical to survival is that where northern quolls are least exposed to threats or least likely to be in the future. Therefore, surveys of the species are required to determine whether: • The OHTL will clear area of occupancy of the species and how much of this area will be directly impacted by the clearing, and • Habitat critical for the species overlaps with the OHTL and associated infrastructure.	Section 5.6.3.11
23.	Greater bilby (*Macrotis lagotis*)	The electrode area of interest contains suitable habitat for the greater bilby and requires assessment by the proponent. Surveys of the electrode area (and any other areas in the potentially suitable habitat that are proposed to be cleared such as construction camps that haven't been surveyed) are required to confirm presence/absence and measures to avoid impacts on individuals. The NT EPA requires surveys for this species in areas where potential suitable habitat intersects with OTHL structures and associated infrastructure to determine whether the OHTL will directly impact on an important Greater bilby population or habitat critical for the species. Pre-clearance surveys of the solar precinct and electrode area may also be required to determine if individuals are using the area prior to any works commencing. The supplement must include protocols and measures in the case greater bilbies are found during pre-clearance surveys.	Section 5.6.4.8
24.	Nabarlek (*Petrogale concinna canescens*)	This closest population of this species is restricted to east Arnhem Land. The DCCEEW database shows that the likely distribution of the species overlaps with the OHTL between Hughes and Fergusson River. A suitable habitat assessment and likely surveys of the species are	Section 5.6.3.8

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
		suggested to determine whether the OHTL and associated infrastructure will clear areas of occupancy of the species and, if so, the area impacted.	
25.	Arnhem Land gorges skink (*Bellatorias obiri*)	Table 5 of the TOR required the known, likely, and potential presence of this species to be described in the draft EIS. The draft EIS does not mention this species at all. The closest known population of this species is restricted to the sandstone gorges of Nitmiluk National Park. The OHTL and deviations will not impact any habitat for this species. No surveys are required.	Section 5.6.3.1
26.	Atlas moth *Atticus wardi*)	Table 5 of the TOR required the known, likely, and potential presence of this species to be described in the draft EIS. The draft EIS identified 'none' likelihood of occurrence in proposal footprint; however, the species is known to occur in the sensitive and significant vegetation, vine thicket, identified by the draft EIS as occurring ~350 m from the cable transition facility at Gunn Point Beach. Key threats are fire and incursions of grassy weeds. No surveys are required.	Section 5.6.4.2
Sensitive or significant vegetation			
27.	Rainforest	Relevant mapping was used to identify and avoid mapped rainforest patches. No surveys are required.	Noted.
28.	Sand sheet heath	Mapped sand sheet heath occurs within and downstream of the utilities corridor and extends south beyond the range of mapping towards Edith River and may occur in the proposal footprint along the railway corridor. Surveys of this vegetation are required along the railway corridor near Edith River and any proposed deviations, to inform the location and extent of vegetation, avoidance and minimisation measures and minimisation measures to avoid or justify any land clearing required.	Subsequent correspondence with DEPWS clarified that their concern was that mapping in the Draft EIS did not show the entire extent of sandsheet heath mapping to near 'Elizabeth River' (i.e., not 'Edith River', which is near Katherine and well beyond the

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
			distribution of sandsheet heath). The full extent of sandsheet heath mapping – and its relevance to the project footprint – has been included in Appendix 5.1.
29.	Riparian vegetation	The draft EIS identifies 154 watercourse crossings (Table 6-2) and significant riparian vegetation at 14 crossings (Table 5-4). The draft EIS identifies land clearing of a 22 m services corridor along the majority of the OHTL (s2.5.3.3) and survey requirements for the avoidance measure of micro-siting OHTL structures to avoid significant vegetation where possible (2.5.2.3) and mitigation through conducting land clearing within boundaries approved under relevant permits. The NT Land Clearing Guidelines have riparian buffer requirements for all stream orders ranging from 25 m to 250 m. Riparian vegetation occurs along the OHTL associated with perennial and ephemeral waterways and the draft EIS has not identified how land clearing buffers would be applied to construction of the services corridor. Surveys are required to determine the extent of riparian vegetation along the OHTL, including any proposed deviations. Survey results should inform measures to avoid, minimise or offset potential impacts.	Section 5.5.3.2
30.	Vine thicket	Coastal vine thicket occurs within and adjacent to the proposed shore crossing footprint. The draft EIS includes results of surveys of the area proposed to be cleared. No surveys are required.	Noted.
31.	Mangroves	Mangroves occur adjacent to the area of interest for ground electrodes. The NT Land Clearing Guidelines specify a buffer to mangroves. The draft EIS does not discuss whether the electrode footprint avoids mangroves and the recommended buffer. Confirm that impacts to mangroves and the recommended buffer are avoided, or if it cannot be avoided, demonstrate the environment decision-making hierarchy has been considered and discuss the residual impact.	The DCS Electrode Site avoids disturbing mangroves and is beyond the recommended buffer.

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
32.	Vegetation containing large trees with hollows suitable for fauna	A number of threatened fauna identified above require large trees with hollows, the NT Land Clearing Guidelines recognise "that the development of hollows and the size of trees which are suitable for use by fauna will be dependent on the climate and species of tree and fauna using hollows". As stated in the terms of reference, all clearing of native vegetation should complete the NT Land Clearing Guidelines. Assess the potential impacts of the proposed action against section 4.4.6 of the NT Land Clearing Guidelines. Surveys may be required to determine the extent of vegetation containing large trees with hollows suitable for fauna in the proposal footprint OHTL, including any proposed deviations. Survey results should inform measures to avoid, minimise or offset potential impacts.	Measures to minimise impacts to trees containing large hollows are summarised in Section 5.5.3.2 and discussed in detail in Appendix 4.1 Constraint Planning and Field Development Procedure.
Marine ecosystems			
33.	Benthic communities and habitats (seagrass, hard corals, macroalgae, filter feeder and bare seafloor habitats)	• The proponent's modelling by predictive benthic habitat mapping tool requires site-specific mapping to ground truth benthic communities and habitat to validate the modelled predictions. The proponent has committed to undertake benthic surveys for the proposed cable route (either option A or B) to verify predicted modelling outputs. Include the details of the timing, method and benthic habitat surveys results in the Supplement. Ensure the survey and assessment: • Includes collection of underwater video transect data at a sufficient density to accurately map the extent of benthic habitats within the cable corridor, the predicted zone of impact and the zone of influence at an appropriate scale (see guidance below). • Identifies and describes the type and spatial extent of benthic substrates and biota within the zone of impact and zone of influence • Provides sufficient ground-truth data to assess the accuracy of the DEPWS predictive benthic habitat model. • Is undertaken in accordance with the following guidance:	These are addressed above under Chapter 9 - Marine Ecosystems

Item No #	Species	Advice and clarification about whether surveys are required for the Supplement to draft EIS. Note that pre-clearance surveys may also be required pending the environmental assessment.	Response
		– National Environmental Science Program Field Manuals for Marine Sampling to Monitor Australian Waters – National Intertidal/Subtidal Benthic (NISB) Habitat Classification Scheme – Collaborative and Annotation Tools for Analysis of Marine Imagery and Video (CATAMI) classification scheme. • Includes feasibility assessment of confining cable laying in nearshore waters to the late wet season.	

suncable.energy

SUN CABLE AUSTRALIA-ASIA PowerLink

Singapore

61 Robinson Road
#09-04
Singapore 068893

Jakarta

The South Quarter Building, Tower C,
Mezzanine Level, Jl RA Kartini Kav 8,
Cilandak, Jakarta Selatan 12430

Darwin

Suite 3, Level 17
19 The Mall
Darwin NT 0800

Sydney

Level 31,
85 Castelreagh Street
Sydney NSW 2000

Brisbane

Level 3,
900 Ann Street
Fortitude Valley QLD 4006

info.nt@suncable.energy