Sun Cable Pty Ltd

Australia – ASEAN Power Link Project

Draft Terms of Reference

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SUN CABLE

coffey

A TETRA TECH COMPANY

Draft terms of reference - Australia-ASEAN Power Link

Prepared for
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1. Introduction

1.1. Overview

This draft terms of reference (TOR) has been prepared by Coffey Services Australia Pty Ltd (Coffey) on behalf of the proponent, Sun Cable Pty Ltd (Sun Cable) to support its Referral of Proposed Action (the EP Referral) for the Australia-ASEAN Power Link (AAPL) project (the proposal). This TOR has been prepared in accordance with the Northern Territory Environment Protection Authority (NT EPA) draft Environmental Impact Assessment Guidance for Proponents: *Preparing a proponent initiated EIS referral* (v0.3 dated 30 June 2020).

As outlined in the EP Referral, it is proposed that the AAPL proposal is assessed through the environmental impact assessment process of an environmental impact statement (EIS), under the newly legislated Environment Protection Act (EP Act) 2019. This draft TOR has been prepared for public exhibition and comment with the EP Referral, following the proponent initiated EIS pathway.

In accordance with regulation 43 of the EP Regulations, this TOR sets out the matters relating to the environment that are to be addressed in the draft EIS for this proposal. It is acknowledged that the draft EIS will also need to address all requirements in the NT EPA General Guidance for Proponents Preparing an EIS (NT EPA 2020).

1.2. Background

Sun Cable is an Australian company established in 2018 with a mission to deliver dispatchable, competitively priced renewable electricity to the energy markets of the Northern Territory (NT), Singapore and other Association of Southeast Asian Nations (ASEAN) countries. The company vision is to establish a high-voltage direct current (HVDC) transmission network supplied by large-scale solar and storage facilities utilising the abundant high-quality solar resource in northern Australia.

The AAPL comprises the construction of the following five main components:

- A solar farm precinct that will occupy up to 12,000 ha of land for a 10 gigawatt (GW) solar farm, battery and ancillary infrastructure. The solar farm will be located in the Barkly region of the NT, approximately 40 km southwest of Elliott;
- A new +/- 525 to +/- 600 kilovolt (kV), 3.2 GW HVDC OHTL that will transfer power from the solar farm to a voltage source converter (VSC) on Channel Island Road at Middle Arm peninsula of Darwin, approximately 750 km to the north. The OHTL is proposed to be located mainly within the existing Alice Springs to Darwin railway corridor;
- A VSC station, with up to two VSCs located at Middle Arm peninsula, Darwin, to convert power from DC to AC for connection to the Darwin-Katherine Integrated System (DKIS). The area occupied by the VSC will be approximately 10 ha. It is proposed that the VSC station will be co-located with the Middle Arm Battery owned by Sun Cable, adjacent to Weddell Power Station;
- A land-sea joint station at Middle Arm peninsula, that will facilitate the transition of the HVDC cables from onshore to offshore; and
- A 2.2 GW, +/- 525 to +/- 600 kV HVDC subsea cable and fibre optic cable that will extend approximately 3,750 km from Darwin to Singapore, via Indonesia.

Within Australia, the AAPL will be located within the NT and Commonwealth jurisdictions. The scope of this TOR relates to the Australian components of the proposal that have the potential to have a significant impact on the environment. This includes all proposed infrastructure and activities within the NT and associated coastal waters (3 nautical miles from the Territorial Baseline) and the Commonwealth marine area (from the Territorial Baseline to the boundary of Australia's exclusive economic zone (EEZ)). Separate assessment and approvals processes will be undertaken in accordance with requirements of relevant international jurisdictions for the proposal components in Singaporean and Indonesian jurisdictions.

1.3. Assessment under an accredited assessment process between the NT and the Commonwealth

Concurrently with the EP Referral, the proposal was referred under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). It is anticipated that the proposal may be determined a controlled action due to the potential for a significant impact on matters of national environmental significance (MNES) that are protected under Part 3 of the EPBC Act.

In anticipation of a controlled action decision, the proponent is seeking an accredited assessment (as referred to in Section 45 of the NT EP Act) between the Commonwealth and the NT governments, to streamline the assessment process and remove any unnecessary duplication. This TOR has been prepared assuming that an accredited assessment process will be adopted and that both government assessment process can be facilitated by the one EIS document. On this basis, the TOR relates to all of the Australian components of the proposed action and includes:

- A description of relevant MNES for the proposal.
- Assessment of the potential impacts on MNES under the relevant key environmental factors.
- Mitigation and management measures to address the potential impacts on MNES under the relevant key environmental factors.

1.4. Assessment timeline

Table 1 provides an outline of indicative proposal assessment timeframes.

Table 1: Indicative proposal assessment timeframes

Key assessment milestone	Proposed completion date
Proponent submits the referral for a proponent initiated EIS with draft TOR and statement of reasons (SOR)	Early October 2020
NT EPA accepts the proponent initiated EIS referral with draft TOR and SOR	October 2020
Consultation period commences on draft referral and TOR	October 2020
Close of public consultation period	November 2020
NT EPA approves TOR	January 2021
TOR published	January 2021
Draft EIS submitted to the NT EPA	May 2021
Public and government authority consultation period	May to July 2021
Direction to prepare supplementary EIS (if required)	August 2021
Supplement submitted	October 2021
Public and government authority consultation period (supplement)	October 2021
Assessment report provided to Minister	December 2021
NT Minister's approval decision	February 2022
Commonwealth Minister's approval decision	March 2022

2. Matters to be addressed in the draft EIS

This section provides a description of the information requirements specific to the proposal, i.e. the AAPL. The draft EIS for the AAPL must address these matters relating to the proposal and the surrounding environment.

This section must be read in conjunction with the NT EPA *General Guidance for Proponents: Preparing an environmental impact statement* (NT EPA 2020).

2.1. Summary report

A summary of the draft EIS is required as part of the EIS documentation. The summary should be written as a stand-alone document, able to be provided on request to interested parties who may not wish to read the full EIS.

The summary should provide the following at a minimum:

- A clear and concise overview of the proposal, including key components and activities, lifespan, closure outcomes and intended future use of the site.
- An explanation of the approvals process and function of the EIS as part of this.
- A summary of the site selection process and alternatives considered.
- An overview of the existing environment including location of the nearest sensitive receptors.
- A summary of the environmental (including social) implications of the proposal.

2.2. Proposal description

Provide a clear description of the proposal and the full scope of works for which approval is sought.

The proposal description should include:

- A summary table listing the key physical components of the proposal and the significant environmental aspects of the proposal.
- Details of the site, tenure, land use, surrounding context, staging, construction, operation, ancillary infrastructure and services, processes, activities, inputs, outputs, material usage, water use, resource consumption, land clearing, waste generation (with consideration of seasonal variability) annual greenhouse gas emissions, details of workforce, demobilisation, rehabilitation, final landform and land use.
- Provide an indication of the number of hours each year that it is expected that the proposal would be in abnormal, unplanned shutdown or emergency shutdown conditions.
- Maps, figures, images, diagrams and flow charts.
- Any variations or modifications to the proposal since the referral information was submitted.
- Where there is uncertainty in the detailed design, footprint, capacity or life of the proposal, the approach to resolving this should be clearly explained and the maximum extent for each parameter provided.

2.3. Objectives of the proposal

Proponents must state the key objectives, or rationale of the proposal and include a description of how the proposal meets these objectives.

This section of the draft EIS should state why the proposal is being proposed and what the benefits are.

The proponent should demonstrate in the draft EIS how the objectives of a proposal address the specific requirements of sections 42 and 43 of the EP Act.

2.4. Key proposal benefits

The EIS should include a summary of the economic value of the proposal to be incorporated into the assessment. Such a summary may include, but is not limited to:

- a summary of the proposal's economic feasibility;
- details of the financial capacity to implement the proposal, the significance of potential risks to project implementation and associated proposed mitigation measures, including the capacity to cost for operation and maintenance activities;
- total contribution to Gross Territory Product and Gross Domestic Product over the economic life of the proposal;
- expected employment during construction and operation phases of the proposal;
- estimated capital and annual operational expenditure;
- value of residual infrastructure following completion of the proposal or life of the proposal; and
- other contributions to local communities, including Traditional Owners.

2.5. Strategic and statutory framework

The EIS must provide information on the statutory framework including a description of any permits, consents, or other approvals that will be required from Territory or Commonwealth agencies and/or authorities. The proposal components within Singaporean and Indonesian jurisdictions are outside of the scope of the EIS. The EIS will, however summarise how these assessment and approval processes will be undertaken.

2.6. Construction and operation

Provide a detailed description of all construction and operation aspects of the proposal. Table 2 below provides an outline of the minimum information requirements to be included as part of the proposal description.

Table 2: Minimum information requirements for the proposal description

Topic	Required information
Site layout maps	The description of the proposal must include, but not be limited to, detailed maps and graphic illustrations of: • The location and dimensions of existing disturbance, infrastructure, roads/tracks and natural and modified landforms (including a depiction of these overlaid on aerial photos or high-resolution satellite imagery) within the proposal area. • The location and approximate dimensions of areas to be disturbed, structures to be built or repurposed, including (as relevant): ▪ all areas to be cleared or disturbed ▪ solar farm and electrical infrastructure, including cables ▪ access roads, rail, airstrip and service infrastructure ▪ water storage, stormwater and drainage infrastructure ▪ buildings, structures and laydown areas ▪ borrow areas ▪ other significant infrastructure. • The proposal layout shall be shown in relation to environmental values and existing infrastructure (e.g. roads, shipping channels, railway and pipeline). • The boundaries of the proposal area in relation to any overlapping or adjacent licenses and permits (mineral, petroleum or other); and any other interests in land including native title (claims or determined), Aboriginal freehold land, and pastoral land.

Topic	Required information
Design	Describe design options considered, reasons for selection and how the proposed design avoids and/or mitigates environmental constraints and potential impacts and risks to the surrounding environment including long-term legacy contamination. Outline any site/route selection processes that have been undertaken, any alternatives considered, and justify why the proposed siting and design was selected. Outline and justify any trade-offs in the design. Describe how the proposal has been designed, or allows for, adaptation to a changing climate e.g. capacity and efficiency of water facilities to allow for potential increase in evaporation and/or large rainfall events.
Construction	Describe all elements of the construction phase including: • Construction methods and any limitations of these in the area of the proposal. Where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts. • Equipment and machinery required. • Construction materials required – major types, quantities, qualities, sources, storage requirements and potential hazards. • Available and potential sources of fill / borrow material. • An overview of water quality of any controlled discharge (including targets in accordance with ANZG (2018) or otherwise), location of the discharge point/s, and schedule for the discharge. • Timeframes. • Any new ancillary infrastructure and upgrades required to service the proposal, including supply of electricity, road access and rail sidings. • Water use and management. • Waste classification and management, including containment and disposal of contaminated wastewater and solids with details of pits, bunds, treatment and recycling. • Noise and vibration management. • Controls to prevent creation of biting insects habitat. • Applicable legislation, guidelines and standards. • Details of how the Proponent intends to address terrestrial and marine environmental management during construction and operations, including: ▪ erosion and sediment control ▪ water capture, use and management including stormwater drainage ▪ biosecurity measures to address weeds, feral animals and other pests ▪ waste management ▪ air quality management ▪ ongoing maintenance of components and servicing infrastructure ▪ noise management (above and underwater).
Traffic and transport	Describe traffic and transport activities during construction and operation, including but not limited to: • Proposed transport methods including rail, marine vessel and road freight. • Forecast vehicle/vessel movements including type, size, volume and frequency of movements. • Details on construction access, routes, vehicle/vessel types, volumes of traffic. • Details on operations access, routes, vehicle types and volumes of traffic. • Designs of any new intersections. • Details of rail use and details of proposed rail siding.

Topic	Required information
Energy	Provide relevant information with respect to energy during construction and operation, including but not limited to: • Energy requirements and sources. • Consideration of renewable sources of energy and justification of selected options. • Estimate of the greenhouse gases emissions and savings. • Measures to maximise energy efficiency and avoid and/or reduce greenhouse gas emissions consistent with the NT Government's aspirational target of achieving net zero greenhouse gas emissions by 2050 (NT Government 2019).
Workforce	Provide a summary, for each phase of the proposal, of the: • Estimated number of people to be employed, including full time equivalent • Skills base required. • Likely sources (local, regional, overseas). • On-site facilities provided (including any accommodation).
Operation	Describe all onshore and offshore elements of the proposed operation including: • Environmental management of all aspects of the proposed operation with detailed maps, diagrams and facility design specifications and standards where relevant, including: ▪ erosion and sediment control ▪ water requirements ▪ water management including stormwater drainage biosecurity measures ▪ waste management, including containment and disposal of contaminated wastewater and solids with details of pits, bunds, treatment and recycling ▪ air quality management, including containment of dust ▪ ongoing maintenance of onshore and offshore components and servicing infrastructure ▪ noise and vibration management (above and underwater) ▪ applicable legislation, guidelines, and standards. • Any feasible operation alternatives (where multiple alternatives exist, the choice of the preferred option(s) should be clearly explained, and a comparison provided against other options in terms of potential environmental impacts.

2.7. Rehabilitation and closure

This section should outline the planned decommissioning of infrastructure and establish decommissioning objectives and goals. It should include:

- An overview of the pre-project environment and land use.
- Proposed project lifespan.
- Procedures for decommissioning and rehabilitation planning including stakeholder engagement.
- The environmental, economic and social viability of options for decommissioning and removal of infrastructure.
- Rehabilitation measures.
- The planned final environment and land use.

2.8. Information requirements for environmental factors

The proposed action comprises five main components that may have potentially significant impacts on the NT EPA's key environmental factors as described in Section 3 of the proposal's NT EPA Referral:

- A solar farm precinct (including energy storage, electrical and ancillary infrastructure) located near Elliott, NT;
- A HVDC overhead transmission line (OHTL) from the solar farm to Darwin;
- Voltage source converters (VSC) and battery in Darwin;
- A land sea joint station in Darwin; and
- A subsea HVDC and fibre optic cable network between Darwin and Singapore.

Table 3 identifies which of the proposal components may have potentially significant impacts on each of the key environmental factors.

Table 3: NT EPA Environmental Factors and the components of the proposal that may have a significant impact

NT EPA Factor	Potential for significant impact of infrastructure components				
	Solar Farm Precinct	OHTL	Voltage Source Converter	Land Sea Joint Station	Subsea Cables
Landforms	No	No*	No	No	No
Terrestrial environmental quality	Yes	Yes	Uncertain	Uncertain	No
Terrestrial ecosystems	Yes	Yes	Yes	Yes	No
Hydrological processes	Uncertain	Uncertain	No	No	No
Inland water environmental quality	Uncertain	Uncertain	No	No	No
Aquatic ecosystems	Uncertain	Uncertain	No	No	No
Coastal processes	No	No	No	No	No
Marine environmental quality	No	No	No	Uncertain	Yes
Marine ecosystems	No	No	No	Uncertain	Yes
Air quality	Uncertain	No	No	No	No
Atmospheric processes	Potential net positive impact				
Communities and economy	Yes				
Culture and heritage	Yes	Yes	No	Yes	Yes
Human health	Uncertain	Uncertain	Uncertain	No	No

*Visual impacts assessed under 'Communities and Economy' EPA Factor

The draft EIS for the proposal should address how each of the above factors may be significantly impacted by the relevant component of the proposal. A proposal footprint (direct disturbance) and zone of influence (indirect disturbance) are to be established to identify the components of the environment (under each environmental factor) and their specific values that could be impacted by implementation of the proposal. Consideration should be given to impacts associated with normal operations, abnormal operations, unplanned shutdowns of part or all of the proposal and emergency shutdowns of part or all of the proposal.

For each of the key environmental factors listed in Table 3, the draft EIS is to provide an assessment of how the NT EPA's environmental objective would be met, as outlined in the NT EPA General Guidance for Proponents Preparing an EIS (NT EPA 2020) and detailed below.

The assessment of potentially significant environmental impacts must consider, where relevant; normal operations, abnormal operations, unplanned shutdowns of part or all of the operations, and emergency shutdowns of part or all of the operations. In this case, it also must address the scenarios with and without the AAPL proposal proceeding.

The following sections and tables outline the information to be addressed for each key environmental factor. The below information requirements should be addressed in an appropriate format within the draft EIS, with technical assessment reports appended to the EIS as applicable.

NT EPA Theme 1: Land

Provide sufficient information to enable assessment of whether the proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined below. These should be addressed in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

NT EPA Factor 1.2: Terrestrial environmental quality

Table 4 provides an outline of the information requirements for the NT EPA's 'Terrestrial environmental quality' key environmental factor.

Table 4: Terrestrial environmental quality

Aspect	Specific information required
Environmental objective: Protect the quality and integrity of land and soils so that environmental values are supported and maintained.	
Environmental values	• Describe the soil/sediment characteristics of the zones of influence for the proposal with consideration of the following aspects as appropriate: ▪ The presence of contamination and/or acid sulfate soils ▪ Physical and chemical properties of the soil (including erosivity, fertility). ▪ Existing erosion and other disturbances. • Provide detailed maps to support these descriptions. • Provide results and interpretation of any geotechnical and soil investigations and surveys of the zone of influence and an assessment of the suitability of sites for each relevant proposal component.
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Direct disturbance of landforms and soils from earthworks during construction. • Indirect disturbance from project construction, such as erosion/topsoil migration. • Direct disturbance to the tidal zone as a result of construction of the land sea joint /shore crossing and potential for disturbance to associated ecological and hydrological values during project construction and operation • Leaks of hazardous materials from batteries, transformers or other infrastructure installed at the solar farm precinct and Darwin VSC, or from vehicles. • Contamination of soils due to the disturbance of acid sulfate soils. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to terrestrial environmental quality utilising outcomes of investigations and other relevant information. As a minimum, the assessment should take into consideration: • Scope, methods, equipment, timing and frequency. • Potential contaminants/pollutants including breakdown products. • Cumulative impacts with other industries or proposals.

Aspect	Specific information required
	• Reversibility of potential impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to terrestrial environmental quality and quantify their significance: • Against relevant guideline thresholds. • Against identified environmental values.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Erosion and sediment control • Stormwater • Acid sulfate soil management (if present). • Emergency/hazard/spill response management. • Compliance with any statutory or policy basis for the proposed measures. Discuss adaptation to a changing climate including design and resultant viability of the proposal, with reference to the NT policy *Northern Territory Climate Change Response: Towards 2050* (DENR 2020). All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks mitigation and management measures. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice including advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 1.3: Terrestrial ecosystems

Table 5 provides an outline of the information requirements for the NT EPA's 'Terrestrial ecosystems' key environmental factor.

Table 5: Terrestrial ecosystems

Aspect	Specific information required
Environmental objective: Protect terrestrial habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning.	
Environmental values	• Describe the terrestrial ecosystems of the proposal's zone of influence with detail on vegetation communities (vegetation mapping to at least NVIS level 4), flora species and fauna species, detailing communities and species of local, regional and national significance and pest and exotic species. • The known and potential presence of the following species (identified as target species in preliminary terrestrial ecology studies for the proposal) under the EPBC Act must be described: ▪ *Acacia praetermissa* ▪ *Atalaya brevialata* ▪ *Helicteres macrothrix*

Aspect	Specific information required
	▪ *Stylidium ensatum* ▪ Painted honeyeater ▪ Princess parrot ▪ Greater bilby ▪ Night parrot ▪ Brush-tailed mulgara • The known and potential presence of the following species (identified as target species in preliminary terrestrial ecology studies for the proposal) under the TPWC Act must be described: ▪ *Acacia praetermissa* ▪ *Cleome insolata* ▪ *Cycas armstrongii* ▪ *Helicteres macrothrix* ▪ *Stylidium ensatum* ▪ *Typhonium praetermissum* ▪ *Ultricularia singeriana* • Existing condition of habitat and vegetation communities should also be described along with any existing threatening processes. • Provide detailed maps to support the above descriptions. • Provide results and interpretation of any terrestrial ecology surveys of the zone of influence.
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Direct loss of flora/ecological communities from vegetation clearing and ongoing maintenance (e.g. fire and vegetation management) including significant and sensitive habitats and potential habitats for threatened species listed under TPWC Act and EPBC Act. Provide an overview of the extent (ha) of the loss in table and map format. • Indirect disturbance or degradation to flora and vegetation, possibly resulting in a long-term decline or loss over time, for example from erosion, dust, weeds/pathogens, disturbance of acid sulfate soils, etc. • Introduction or increase of weed and pest species due to construction, operation or maintenance activities. • Changes in bushfire risk (fire frequency and intensity) due to vegetation clearing and weeds. • Direct disturbance of fauna and fauna habitat as a result of clearing. • Indirect impacts to fauna habitat due to changes to water quality, introduction or spread of weed or pathogens or pest species, fragmentation and edge effects. • Indirect impacts to fauna as a result of reduced habitat availability or fragmentation. • Direct impacts to fauna as a result of collision with overhead transmission lines. • Direct impacts to fauna as a result of collision with vehicles or equipment. • Changes to fauna behaviours as a result of noise or lighting from proposal areas, including potential glare from PV panels. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to terrestrial ecosystems utilising outcomes of investigations and other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • Potential contaminants/pollutants.

Aspect	Specific information required
	• Cumulative impacts with other industries or proposals. • Reversibility of potential impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to terrestrial ecosystems and quantify their significance: • Against relevant guideline thresholds. • Against identified environmental values.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision-making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Clearing of native vegetation. • Fauna relocation and management. • Pest/weed/pathogen control and management. • Compliance with any statutory or policy basis for the proposed measures. Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies. All clearing of native vegetation should comply with the NT Land clearing Guidelines (DENR 2019).
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to terrestrial ecosystems. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy (as published) and/or EPBC Act environmental offsets policy.

NT EPA Theme 2: Water

Provide sufficient information to enable assessment of whether the proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined below. These should be addressed in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

NT EPA Factor 2.1: Hydrological processes

Table 6 provides an outline of the information requirements for the NT EPA's 'Hydrological processes' key environmental factor.

Table 6: Hydrological processes

Aspect	Specific information required
Environmental objective: Protect the hydrological regimes of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.	
Environmental values	Describe the following: • Climate and meteorological conditions of the proposal's zones of influence with reference to hydrological regimes, the frequency and severity of extreme weather conditions, such as storms and cyclones. • Surface water catchment systems of the proposal's zones of influence including detail on any waterways of significance, drainage patterns, flow variations and flooding. • Groundwater systems of relevant proposal areas. • Any relevant water control districts and water allocation plans. • Declared beneficial uses, existing users, water quality objectives and environmental values of water resources in proposal's zones of influence. Provide detailed maps to support the above descriptions. Provide results and interpretation of any hydrological and hydrogeological surveys of the zone of influence.
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Changes to the natural catchment and surface and groundwater hydrology, for example from the creation of hardstand surfaces and other infrastructure through construction and operation of the proposal. • Localised erosion from ground disturbance and surface water flow changes. • Groundwater use Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to hydrological processes utilising outcomes of investigations and other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • Cumulative impacts with other industries or proposals. • Environmental management requirements associated with seasonal weather, extreme weather conditions such as storms and cyclones for the 2, 10 and 100 year average recurrence interval events. • Reversibility of potential impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to hydrological processes and quantify their significance: • Against relevant guideline thresholds. • On the beneficial uses, water quality objectives and identified environmental values including groundwater dependent ecosystems and existing ground and surface water users.

Aspect	Specific information required
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Water management and efficiency, including stormwater and wastewater management. • Water efficiency. • Waste management including a detailed description of management methods for all types of wastes. • Erosion and sediment control. • Compliance with any statutory or policy basis for the proposed measures. Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to hydrological processes. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 2.2: Inland water environmental quality

Table 7 provides an outline of the information requirements for the NT EPA's 'Inland water environmental quality key environmental factor.

Table 7: Inland water environmental quality

Aspect	Specific information required
Environmental objective: Protect the quality of groundwater and surface water so that environmental values including ecological health, land uses and the welfare and amenity of people are maintained.	
Environmental values	Describe the water quality (chemical, physical and biological) of surface water and groundwater in the proposal's zones of influence. Provide detailed maps to support the above descriptions. Provide results and interpretation of any hydrological and hydrogeological surveys of the zone of influence.

Aspect	Specific information required
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Localised erosion from ground disturbance and surface water flow changes. • Groundwater treatment. • Spills of hazardous materials Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to inland water environmental quality utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • Potential contaminants/pollutants. • Cumulative impacts with other industries or proposals. • Environmental management requirements associated with seasonal weather, extreme weather conditions such as storms and cyclones for the 2, 10 and 100 year average recurrence interval events. • The physical and chemical characteristics, volume, timing and location of any discharges. • The reversibility of potential impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to inland water environmental quality and quantify their significance: • Against relevant guideline thresholds including ANZG 2018. • On the beneficial uses, water quality objectives and identified environmental values.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Water management and efficiency, including stormwater and wastewater management. • Waste management including a detailed description of management methods for all types of wastes. • Erosion and sediment control. • Compliance with any statutory or policy basis for the proposed measures. Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts, risks, mitigation and management measures to inland water environmental quality. The proposed monitoring and reporting should specify which proposal phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.

Aspect	Specific information required
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 2.3: Aquatic ecosystems

Table 8 provides an outline of the information requirements for the NT EPA's 'Aquatic ecosystems' key environmental factor.

Table 8: Aquatic ecosystems

Aspect	Specific information required
Environmental objective: Protect aquatic habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning	
Environmental values	Describe the aquatic ecosystems and groundwater dependent ecosystems in proposal's zones of influence, including a description of Lake Woods. Provide detailed maps to support the above descriptions. Provide results and interpretation of any aquatic ecology surveys of the zone of influence.
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Direct and indirect disturbance to waterways and/or wetlands and associated ecological and hydrological values during proposal construction and operation, including: ▪ trenching on the Middle Arm peninsula (if applicable). ▪ construction of OHTL towers, where in proximity to waterways/wetlands, e.g. sedimentation, erosion, uncontrolled runoff. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water, etc. Provide an assessment of potential impacts, benefits and risks to aquatic ecosystems utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • Cumulative impacts with other industries or proposals. • The reversibility of potential impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to aquatic ecosystems and quantify their significance: • Against relevant guideline thresholds. • On the beneficial uses, water quality objectives and identified environmental values including groundwater dependent ecosystems and existing ground and surface water users.

Aspect	Specific information required
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Erosion and sediment control. • Compliance with any statutory or policy basis for the proposed measures. Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to aquatic ecology. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Theme 3: Sea

Provide sufficient information to enable assessment of whether the proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined below. These should be addressed in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

NT EPA Factor 3.2: Marine environmental quality

Table 9 provides an outline of the information requirements for the NT EPA's 'Marine environmental quality' key environmental factor.

Table 9: Marine environmental quality

Aspect	Specific information required
Environmental objective: Protect the quality and productivity of water, sediment and biota so that environmental values are maintained	
Environmental values	Describe the water quality (chemical, physical and biological) and sediment characteristics of the marine environment in the proposal's zones of influence. Describe water quality objectives and declared beneficial uses. Provide results and interpretation on any marine investigations undertaken.

Aspect	Specific information required
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Temporary impacts to fishing (commercial, recreational, charter, etc…), recreation, industry use of the harbour during construction. • Installation of subsea cables causing increased sedimentation in water column, negatively impacting upon harbour water quality and aquatic environments. • VSC and land-sea joint station development and the potential to produce site run-off, with impacts on water quality in the adjacent harbour. • Spills of hazardous materials • Acid sulphate soils • Direct impacts to seabed from cable laying, shore crossing and trenching if required. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing, trenching and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to marine environmental quality utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • The likely scale of disturbance. • Water management, including stormwater and wastewater management. • Erosion and sediment control. • Cumulative impacts with other industries or proposals. • Reversibility of impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to marine environmental quality and quantify their significance: • Against relevant guideline thresholds. • On the beneficial uses, water quality objectives and identified environmental values.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Construction/installation methods. • Erosion and sediment control. • Marine water management, including ballast water management and marine pest control. • Potential acid sulfate soil management. • Compliance with any statutory or policy basis for the proposed measures. Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.

Aspect	Specific information required
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to marine environmental quality. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 3.3: Marine ecosystems

Table 10 provides an outline of the information requirements for the NT EPA's 'Marine ecosystems' key environmental factor.

Table 10: Marine ecosystems

Aspect	Specific information required
Environmental objective: Protect marine habitats to maintain environmental values including biodiversity, ecological integrity and ecological functioning	
Environmental values	• Provide maps and interpretation of regional bathymetry and local-scale seabed features. • Provide results and interpretation of any marine investigations. • Describe the oceanic processes within Darwin Harbour and the offshore proposal area, such as local and regional tides, current patterns and wave magnitudes. • Describe the marine ecosystems of the proposal's zone of influence, including seabed habitat mapping, and marine vegetation and fauna species. • Describe any listed or threatened marine species within the proposal's zone of influence including (but not limited to) the following list derived from the results of Protected Matters Search Tool (PMST) search: ▪ All cetaceans ▪ Dugong (*Dugong dugon*) ▪ Green turtle (*Chelonia mydas)* ▪ Leatherback turtle *(Dermochelys coriacea)* ▪ Loggerhead turtle (*Caretta caretta)* ▪ Flatback turtle (*Natator depressus)* ▪ Olive Ridley Turtle (*Lepidochelys olivacea*) ▪ Saltwater crocodile *(Crocodylus porosus)* ▪ White shark, great white shark (*Carcharodon carcharias)* • Describe the existing health/condition/amenity of the marine environment in the proposal's zone of influence, with reference to threatening processes (e.g. pest species, habitat degradation), noise and vibration, and sedimentation.

Aspect	Specific information required
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Indirect impacts to fauna habitat due to changes to marine environment, introduction or spread of contaminants or pest species. • Direct impacts to fauna as a result of collision with vessels or survey and/or construction equipment. • Changes to marine fauna behaviours as a result of electromagnetic fields (EMF), noise, thermal emissions or lighting from proposal areas. • Direct loss of mangrove vegetation (including significant fauna habitat) in Darwin Harbour from cable trenching. • Direct disturbance/loss to benthic habitats from cable laying (including anchoring, vessel manoeuvrers and trenching if required) and HDD for subsea cable installation. • Indirect disturbances to benthic habitats – sedimentation/erosion from surface runoff. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to marine ecosystems utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • The likely scale, extent of disturbance. • Cumulative impacts with other industries or proposals. • Environmental management requirements associated with seasonal weather, extreme weather conditions such as storms and cyclones for the 2, 10, and 100 year average recurrence interval events. • Reversibility of impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to marine ecosystems and quantify their significance: • Against relevant guideline thresholds. • On the beneficial uses, water quality objectives and identified environmental values.

Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision-making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality.
	These should address at a minimum:
	• Facility design and layout.
	• Construction/installation methods, such as:
	  • Erosion and sediment control.
	  • Potential acid sulfate soil management.
	  • Marine water and sediment management, including ballast water management and marine pest control.
	• Compliance with any statutory or policy basis for the proposed measures.
	
	Discuss adaptation to a changing climate including design and resultant viability of the proposal.
	All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.

Aspect	Specific information required
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to marine ecosystems. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy (as published) and/or EPBC Act environmental offsets policy.

NT EPA Theme 4: Air

Provide sufficient information to enable assessment of whether the proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined below. These should be addressed in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

NT EPA Factor 4.1: Air quality

Table 11 provides an outline of the information requirements for the NT EPA's 'Air quality' key environmental factor.

Table 11: Air quality

Aspect	Specific information required
Environmental objective: Protect air quality and minimise emissions and their impact so that environmental values are maintained	
Environmental values	Describe the sensitive receivers within and in proximity to the proposal area. Describe the existing air quality environment. Describe any sources of emissions which could impact on air quality. Provide maps to support descriptions as appropriate.
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including reduction in local air quality due to the emission of dust and/or diesel exhaust during construction and/or operation of the proposal. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water etc. Provide an assessment of potential impacts, benefits and risks to air quality utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • The likely source, scale and extent or emissions. • Nature of sensitive receptors. • Cumulative impacts with other industries or proposals. • Reversibility of potential impacts. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to air quality and quantify their

Aspect	Specific information required
	significance: • Against relevant guideline thresholds. • On identified environmental values.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above, with consideration of sections 26 (Environmental decision making hierarchy) and section 27 (Waste management hierarchy) of the EP Act. Also include here measures to enhance or restore environmental quality. These should address at a minimum: • Facility design and layout. • Construction methods. • Emission suppression or management measures. • Compliance with any statutory or policy basis for the proposed measures. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline any proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to air quality. The proposed monitoring and reporting should specify which project phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 4.2: Atmospheric processes

Table 12 provides an outline of the information requirements for the NT EPA's 'Atmospheric processes' key environmental factor.

Table 12: Atmospheric processes

Aspect	Specific information required
Environmental objective: Minimise greenhouse gas emissions so as to contribute to the NT Government's aspirational target of achieving net zero greenhouse gas emissions by 2050 and adapt to a changing climate to protect ecological integrity and maintain the welfare and amenity of people.	
Environmental values	Describe the current energy mix of the NT with reference to GHG emissions and proportion of renewables in use.
Potential impacts and risks	Describe the proposal's influence on: • Direct GHG emissions due to Scope 1 and Scope 2 emissions (e.g., land clearing, diesel exhaust/etc. during construction and operation), and relevant indirect emissions related to proposal lifecycle. • Improvements in the supply of renewable energy and meeting NT renewable energy targets.
Avoidance, mitigation and management	Describe any energy efficiency and mitigation and management measures that will be adopted during the construction and operation phase of the proposal to reduce or minimize GHG emissions.
Monitoring and reporting	Outline any proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to atmospheric processes. The proposed monitoring and reporting should specify which proposal phase it relates to, i.e. construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.

Aspect	Specific information required
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Theme 5: People

Provide sufficient information to enable assessment of whether the proposal is likely to meet the NT EPA's objective. Specific information requirements are outlined below. These should be addressed in consideration of the NT EPA General Guidance for Proponents Preparing an EIS.

NT EPA Factor 5.1: Communities and economy

Table 13 provides an outline of the information requirements for the NT EPA's 'Communities and economy' key environmental factor.

Table 13: Communities and economy

Aspect	Specific information required
Environmental objective: Enhance communities and the economy and foster resilience to a changing climate, for the welfare, amenity and benefit of current and future generations of Territorians	

Environmental values	Describe the socio-economics of the proposal's areas of influence, including reference to:
	• Key landowners/stakeholders/communities.
	  • Social values as identified by stakeholders.
	  • Demographics, including skills audit of affected communities and workforce characteristics.
	• Relevant housing accommodation type and quantity.
	• Primary economic generators within the proposal area.
	• Primary employment source/s of townships/cities/communities within or in proximity to the proposal area.
	• Social amenity and use of the proposal area and adjacent areas for other purposes, including, residential, commercial, industrial, recreational/tourism, and traditional land use.

Potential impacts and risks	Describe potentially significant impacts to the environmental objective (including net positive benefits) associated with the proposed activities, including: • Change to population, employment market and businesses and indirect impacts to housing market, community and social services and infrastructure and economy. • Social integration of non-local construction personnel during construction. • Direct and indirect impacts to recreational and commercial areas and industries including in Darwin Harbour. • Changes or restrictions on railway access by local traffic due to transmission line corridor during construction, operation and maintenance. • Changes or restrictions to local traffic due to development of new roads and intersections and construction vehicles resulting in delays or inconvenience to local communities and other road users • Visual impact of infrastructure. • Interference with aviation/flight paths. • Economic feasibility of the proposal. • Impact on the local and NT energy market and energy prices. • Risks for future NT Government infrastructure within utility corridors e.g. future electricity transmission. Provide an assessment of potential impacts, benefits and risks to communities and economy utilising modelling, outcomes of investigations, and/or other relevant information.

Aspect	Specific information required
	The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to communities and economy and quantify their significance. The assessment of each aspect should consider cumulative impacts and the reversibility of potential impacts.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above. Develop stakeholder communication strategy. Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to communities and economy. The proposed monitoring and reporting should specify which project phase it relates to i.e., construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 5.2: Culture and heritage

Table 14 provides an outline of the information requirements for the NT EPA's 'Culture and heritage' key environmental factor.

Table 14: Culture and heritage

Aspect	Specific information required
Environmental objective: Protect sacred sites, culture and heritage	
Environmental values	Describe the local Aboriginal communities and traditional owners within (or in proximity to) the proposal area and any native title claims. Describe the nature and location of Aboriginal and non-Aboriginal historic cultural heritage sites/values within the proposal area, including: • areas listed on Commonwealth and Northern Territory registers of historic and/or cultural heritage. • a description and location of Aboriginal and non-Aboriginal sites, places or objects of natural, historic or cultural heritage significance, current utilisation and spiritual significance. Information sources should include published archaeological and anthropological information, respective registers, consultations and other research. Describe traditional land use or industry within or in proximity to the proposal area (if any).
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Direct and indirect disturbance to significant Aboriginal cultural heritage sites and values (e.g. artefact scatters, shell middens, earth mounds, quarries, stone arrangements, petroglyphs, rock shelters, rock art, etc.) during project construction, operation, and maintenance activities including vegetation clearance, topsoil stripping and subsoil excavation. • Direct and indirect disturbance to traditional and/or contemporary Aboriginal values or uses of land (e.g. hunting and ceremonial use) due to construction, operation or maintenance activities.

Aspect	Specific information required
	• Direct and indirect disturbance to non-Aboriginal cultural heritage sites and values during project construction, operation, and maintenance activities including vegetation clearance, topsoil stripping and subsoil excavation. • Change or permanent land use restrictions in areas of project infrastructure. • Tangible and intangible impacts to cultural values and landscapes due to potential disturbance to flora and fauna, ecosystems, landscapes and landforms from construction, operation or maintenance activities. • Details of unexploded ordinance clearance (marine). Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water, etc. Provide an assessment of potential impacts, benefits and risks to culture and heritage utilising outcomes of investigations and/or other relevant information. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to sacred sites, culture and heritage and quantify their significance. The assessment of each aspect should consider cumulative impacts and the reversibility of potential impacts.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above. Outline approach to ongoing consultation and engagement with traditional owners/representatives. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies and traditional owners.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to culture and heritage. The proposed monitoring and reporting should specify which project phase it relates to i.e., construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

NT EPA Factor 5.3: Human health

Table 15 provides an outline of the information requirements for the NT EPA's 'Human health' key environmental factor.

Table 15: Human health

Aspect	Specific information required
Environmental objective: Protect the health of the Northern Territory population	
Environmental values	Describe the sensitive human receivers within and in proximity to the proposal area. Provide maps to support descriptions as appropriate.
Potential impacts and risks	Describe potentially significant impacts to the environmental objective associated with the proposed construction and operation activities and development, including: • Impacts to sensitive receptors from noise and dust emissions during construction works.

Aspect	Specific information required
	• Human exposure to EMF. • Road safety impacts from increased traffic (vehicle accidents, vehicle/pedestrian collisions, especially near remote communities) are considered health impacts. Determine the areas that could feasibly experience those impacts. Classify the areas as: • Zones of impact – or direct disturbance footprint (proposal footprint). These are the areas of proposed infrastructure, vegetation clearing and direct use. • Zones of influence – or indirect disturbance footprint. These are surrounding areas that may be indirectly affected by proposed activities, for example via the release of contaminants (air, water, land), changes to land, water, etc… Provide an assessment of potential impacts, benefits and risks to human health utilising outcomes of investigations and/or other relevant information. As a minimum, the assessment should take into consideration: • Methods, equipment, timing and frequency. • The likely source, scale and extent or impacts. • Cumulative impacts with other industries or proposals. The assessment must take into account all construction and operation activities of the proposal. The assessment must identify potential impacts and risks to human health and quantify their significance against relevant guideline thresholds. The assessment of each aspect should consider cumulative impacts and the reversibility of potential impacts.
Avoidance, mitigation and management	Outline the measures for avoiding, mitigating, or offsetting adverse impacts identified above. These should address at a minimum: • Facility design and layout. • Construction/installation methods. • Facility operations and maintenance. • Dust control. • Traffic management measures Discuss adaptation to a changing climate including design and resultant viability of the proposal. All mitigation measures should be substantiated and in accordance with best practice, including advice from relevant NTG advisory agencies.
Monitoring and reporting	Outline proposed monitoring and reporting activities related to potential impacts and risks and mitigation and management measures to human health. The proposed monitoring and reporting should specify which project phase it relates to i.e., construction or operations. All monitoring activities should be substantiated and in accordance with best practice advice from relevant NTG advisory agencies.
Residual impact	Assess the significance of any residual impact or risk of the proposal to identified values.
Offsets	Where a significant residual impact may remain after applying the environmental decision-making hierarchy, identify offsets and describe how any proposed offset is consistent with the NT Offset Policy, as published.

3. Other requirements of the draft EIS

Part 3 – Other requirements for the draft EIS: a list of applicable guidelines and policies, and description of the public consultation requirements and statutory decision makers.

3.1. Other environmental factors or matters

3.1.1. Matters of National Environmental Significance

Where the proposal is determined to be a controlled action under the EPBC Act and is being assessed in accordance with an accredited assessment between the NT EPA and the Commonwealth in accordance with the EPBC Act, the draft EIS should address all relevant MNES.

It is expected that the following matters of national environmental significance (MNES) that are protected under Part 3 of the EPBC Act will need to be addressed:

- Listed threatened species and communities (section 18 and 18A)
- Listed marine and/or migratory species (sections 20 and 20A)
- Commonwealth marine environment (sections 23 and 24A), for the proposal component that extends from the edge of territorial waters (3 NM) to the edge of the EEZ.

These TOR can be revised in consultation with the NT EPA to reflect any Commonwealth requirements issued by DoAWE, following their decision to assess the proposal.

3.1.2. Whole of environment considerations

Provide a holistic assessment of the impacts of the proposal on the whole of the environment (where relevant), including a description of the connections and interactions between the environmental factors and succinctly discuss predicted outcomes in relation to the environmental principles and the NT EPA's environmental objectives and any of the Minister's declared environmental objectives.

3.2. Stakeholder engagement and consultation

The Proponent must engage and consult with stakeholders who are affected by and interested in the proposal. Further guidance is given in section 2.4 of the NT EPA General Guidance for Proponents Preparing an EIS (NT EPA 2020a) and the NT EPA Guidance for Proponents – Stakeholder Engagement (NT EPA 2020b).

The Proponent must document the following in the EIS:

- Identified key stakeholders.
- Details of any stakeholder engagement and consultation undertaken by the proponent to meet the requirements of section 43 of the EP Act.
- Key outcomes of stakeholder engagement, including decision-making and/or adjustments to the proposal as a result of consultation.
- Future engagement activities they intend to undertake throughout assessment and post-approval, including during construction and operation of the proposal.

3.3. Public consultation requirements

The EIS will also be exhibited for public comment following submission to the NT EPA, as outlined below.

3.3.1. Submission period and public consultation locations

Recognising the TOR are released at an early stage of the assessment of this proposal, a 30-business day public exhibition period for the draft EIS is considered appropriate, in accordance with NT EPA guidance on community engagement (2020b). This will be confirmed or adjusted during the draft EIS pre-lodgement phase.

The draft EIS should be provided to and be made available for public exhibition at:

- Adelaide River Post Office Store, 1 Stuart Highway, Adelaide River
- Barkly Regional Council Office, 41 Peko Road Tennant Creek NT
- Elliott Post Office, Elliott
- Environment Centre Northern Territory, Unit 3, 98 Woods Street, Darwin
- Katherine Public Library, Level 1, Randazzo Centre, Katherine Terrace, Katherine
- Northern Land Council, 45 Mitchell Street, Darwin
- Northern Territory Library, Parliament House, Darwin
- NT EPA, Level 1, Arnhemica House, 16 Parap Road, Parap
- Victoria Daly Regional Council – Pine Creek Office, 55 Moule Street, Pine Creek

Attachment A – List of relevant guidance material

Relevant guidance material / references

The following guidance material is considered relevant to the proposed draft TOR. This list is not exhaustive, but captures key guidance used in the preparation of this TOR and to inform the preparation of future EIS. The Proponent will draw on further relevant industry and best practice guidance as part of developing the EIS.

- Commonwealth of Australia, 2013. *Significant Impact Guidelines 1.1 – Matters of National Environmental Significance.*
- DENR, 2019. *Land clearing guidelines.* Department of Environment and Natural Resources, Darwin.
- DENR, 2020. *Northern Territory Climate Change Response: Towards 2050.*Department of Environment and Natural Resources, Darwin.
- NT EPA, 2013a. Guidelines for Assessment of Impacts on Terrestrial Biodiversity. Northern Territory Environment Protection Authority.
- NT EPA, 2013b. Guidelines for the Preparation of an Economic and Social Impact Assessment. Northern Territory Environment Protection Authority.
- NT EPA, 2013c. Guidelines for the Siting, Design and Management of Solid Waste Disposal Sites in the NT. Northern Territory Environment Protection Authority.
- NT EPA, 2014. A Stormwater Strategy for the Darwin Harbour Region. Northern Territory Environment Protection Authority.
- NT EPA, 2015. Waste Management Strategy for the Northern Territory 2015-2022. Northern Territory Environment Protection Authority.
- NT EPA, 2020a. Environmental impact assessment guidance for proponents: Preparing a proponent initiated EIS referral (draft). Northern Territory Environment Protection Authority, Darwin.
- NT EPA, 2020b. Environmental impact assessment guidance for proponents: Preparing an environmental impact statement (draft). Northern Territory Environment Protection Authority, Darwin.
- NT EPA, 2020c. Environmental impact assessment guidance for proponents: Stakeholder Engagement and Consultation (draft). Northern Territory Environment Protection Authority, Darwin.
- NT EPA, 2020d. Environmental impact assessment guidance: NT EPA Environmental Factors and Objectives. Northern Territory Environmental Protection Authority.