Western Green Energy Hub

Application Number: **02673** Commencement Date: **06/11/2024** Status: **Locked**

1. About the project

1.1 Project details

1.1.1 Project title *

Western Green Energy Hub

1.1.2 Project industry type *

Energy Generation and Supply (renewable)

1.1.3 Project industry sub-type

Wind Farm

1.1.4 Estimated start date *

01/01/2029

1.1.4 Estimated end date *

01/01/2129

1.2 Proposed Action details

1.2.1 Provide an overview of the proposed action, including all proposed activities. *

The Western Green Energy Hub is a proposed action to design, construct and operate a large-scale wind and solar power project to produce value added products, with the base case assuming green ammonia production. The proposed action is situated on WA Mirning Native Title determined land in the far southeast of Western Australia in the Shire of Dundas and City of Kalgoorlie-Boulder, to the northwest of Eucla. The proposed action will be located on Unallocated Crown Land and pastoral leases.

The onshore components of the proposed action will comprise a series of wind turbines and solar farms, with centrally-sited hydrogen electrolysers and data centres, as well as electrical infrastructure, pumping and cooling systems. Other components of the proposed action will include a green ammonia (or other vector) production facility, workshops and fabrication facilities and worker villages, as well as an infrastructure corridor to the coast. The coastal and offshore components comprise a marine offloading facility, desalination plant, brine pipeline and an ammonia (or other vector) export pipeline, set within Western Australian State Waters only.

The conceptual flow of energy for the proposed action commences with the natural sources of wind and the sun, using these to generate electricity to electrolyse water into hydrogen, which can then be converted to green ammonia (as an example vector) for export to market.

The proposed action can be categorised into three main process stages:

- ‘Upstream’ – the wind and solar renewable power generation;
- ‘Midstream’ – electrical transmission and hydrogen production, transmission and storage; and
- ‘Downstream’ – hydrogen production, ammonia (or other vector) production, storage and export, and desalination and brine discharge.

A distributed layout approach is typically used to transform, transport and store energy when the key energy transport between Upstream and Downstream is molecules. This conceptual design ensures that the electrolysers are located most optimally for efficient wind and solar energy transmission, and that the bulk energy can then be transported and stored as hydrogen within pipelines.

Based on this distributed layout approach, a ‘nodal’ concept will be adopted, where approximately 2-3 GW 'nodes' of wind and solar renewable power will be developed, with an approximately 1.5 GW electrolyser and/or data centre set within the centre of each node. The proposal will be implemented over a nominal seven stages, which will ultimately result in the installation of up to approximately 35 such nodes, generating up to approximately 70 GW of renewable energy from up to approximately 60 million solar modules and up to approximately 3,000 turbines.

In overview, the proposed action will comprise and construction and operation of:

- **Wind Turbines** – Up to approximately 3,000 wind turbines sited in a nominal grid, separated approximately 1.5-2.5 km from each other.
- **Solar Farms** – Up to approximately 35 solar farms.
- **Hydrogen Electrolysers** – A suite of electrolysers and associated substations, compressors, cooling and electricity storage, collecting the electrical energy generated by the wind turbines and solar farms and converting it into chemical energy as hydrogen.
- **Water and Hydrogen Pipelines** – The renewable energy harvested will be converted into hydrogen from water and piped to the Downstream facilities.
- **Ammonia (or other vector) Production and Storage Facility** – Ammonia (or other vector) plants, developed as ‘trains’ will be deployed in the Downstream plant area.
- **Access Tracks and Infrastructure** – Access tracks will be constructed, linking the wind turbines and other infrastructure. The track alignments will be cleared to various widths, depending on the purpose. Permanent tracks will be maintained, while other temporary tracks will be established for construction only, primarily via scrub-rolling to minimise disturbance.
- **Rail Siding** – A rail siding off the Trans-Australian Railway will be developed to take advantage of existing rail access that will assist with logistics during construction and operations. There is also the potential that hydrogen may be loaded onto railcars for domestic supply.
- **Marine Offloading Facility** – As the site is remote from any existing port facilities, a Marine Offloading Facility (MOF) will be constructed to support the proposal. The MOF will be constructed as a basin excavated into the coast, with accompanying breakwaters and an excavated approach channel created to allow safe vessel access for materials import and hydrogen/fuel berths.
- **Desalination Plant** – A desalination facility will be constructed to produce the ultra-pure water that will be the primary source for input to the electrolysers, which separate water into hydrogen and oxygen.

Water produced by the desalination plant will also be used at the green ammonia (or other vector) plant for cooling, and for potable water for the worker villages. The desalination plant will be located close to the coast where it can be visually integrated into the dune system.

- **Offshore Ammonia (or other vector) Export Pipeline** – An offshore subsea pipeline will be constructed, extending into State Waters only, to transport the green ammonia (or other vector) to an export terminal (a tower or buoy system) where it will be loaded onto ships.
- **Village** – An initial construction camp will be built in the east of the development envelope to accommodate the 100-300 workers who will then construct the Stage 1 village, which will accommodate approximately 3,300 workers. By the final end of construction, it is anticipated that this may expand with up to approximately 8,000 residents as a more permanent settlement is created with both direct and indirect employees of the proposal. Depending on future project development, a camp may also be constructed in the western end of the development envelope.

Additional detailed description of the proposed activities is provided in Section 1.2.1 of the attached 'Att 1 - WGEH referral support.pdf'.

The physical elements of the proposal will entail three categories of ground disturbance:

- permanent clearing - parts of the footprint where vegetation will be completely removed for the life of the proposal;
- temporary clearing - parts of the footprint that will only be cleared short-term during construction works and will be rehabilitated immediately thereafter; and
- partial clearing - parts of the footprint where vegetation will largely be retained or only subject to localised height trimming or scrub-rolling.

At the current stage of development, the disturbance footprint is nominal within the bounds of the overall project area, and flexibility of final design will be required to accommodate significant environmental and cultural heritage constraints in the avoidance footprint. The project area is 2,269,015 ha in size, with a summary of the three types of ground disturbance that would occur comprising:

- total permanent clearing: 10,724 ha - representing 0.5% of the project area;
- total temporary clearing: 16,464 ha - representing 0.7% of the project area; and
- total partial clearing: 77,206 - representing 3.4% of the project area.

The total indicative disturbance footprint of the project is 104,394 ha, representing 4.6% of the 2,269,015 ha project area, the remaining 2,164,621 ha of which would effectively become the retention footprint.

The proponent has committed to a design philosophy of mitigating direct environmental impacts by avoidance throughout the development of the proposed action's conceptual design. This has included consideration of significant ecological values, the locations of significant karst features and avoiding areas of cultural heritage importance.

The locations of existing infrastructure and other physical environment and logistical constraints have also been jointly considered, to arrive at an overall indicative disturbance footprint that optimises the design around these key constraints without affecting the viability of the proposal.

This fundamental mitigation strategy will be continued through the design and implementation of the proposed action. The proponent can commit to avoidance by mitigation, particularly in the Upstream, as:

- the input resources being accessed for the proposed action, the sun and wind, are not fixed to specific locations in the landscape but are present across the entire project area; and
- the project area is very large but also ecologically very similar across the extent that will accommodate the disturbance footprint.

The combination of these factors provides an uncommon flexibility to adjust final infrastructure locations to avoid impact on environmental or cultural heritage values; both those currently known and others that may be documented as site investigations and detailed design progress into implementation.

1.2.2 Is the project action part of a staged development or related to other actions or proposals in the region?

No

1.2.6 What Commonwealth or state legislation, planning frameworks or policy documents are relevant to the proposed action, and how are they relevant? *

In addition to the the current referral under the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act 1999), other Commonwealth legislation that is relevant:

Native Title Act 1993 - Native Title Act establishes a framework for the protection and recognition of native title, and the Mirning People are the determined Native Title Holders.

Aboriginal and Torres Strait Islander Heritage Protection Act 1984 - Legislation designed to protect areas and objects that are of cultural heritage significance to Aboriginal and Torres Strait Islander people.

Underwater Cultural Heritage Act 2018 - There are three shipwrecks of significant maritime heritage in the vicinity of the proposal area, and the *Underwater Cultural Heritage Act 2018* applies.

National Greenhouse and Energy Reporting Act 2007 and *National Greenhouse and Energy Reporting Regulations 2008* - Greenhouse gas emissions, energy production and consumption are reported and monitored against industry standards and contemporaries.

Western Australian State legislation:

Environmental Protection Act 1986 - the proposed action has been referred under s38 of the Act to the Western Australian Environmental Protection Authority (EPA) as a significant proposal. The proponent expects the EPA will determine that the proposal requires formal assessment under the Act at the level of Public Environmental Review.

Biodiversity Conservation Act 2016 - The proposed action has the potential to impact threatened species and ecological communities and as such, it is likely that protected species or threatened ecological communities will be adequately assessed under the EP Act and the EPBC Act.

Aboriginal Heritage Act 1972 - Aboriginal heritage sites have been recorded within the project area, some of which have been identified in recent surveys and are currently lodged with the Department of Planning, Lands and Heritage (WA). All sites will be avoided, with no disturbance proposed at cultural heritage sites. The proposed action will be assessed under the State *Aboriginal Heritage Act 1972* and EP Act during the EIA process, where applicable.

Dangerous Good Safety (Major Hazard Facilities) Regulations 2007 and *Dangerous Goods Safety (Storage and Handling of Non-explosives) Regulations 2007* - The proposed action will be exporting liquid ammonia (or other vector) material and will potentially be listed as a Major Hazard Facility, and subsequently will have oversight from Department of Energy, Mining, Industry Regulation and Safety (WA) and Safe Work Australia (Cth) as to the management of the facility.

Fish Resources Management Act 1994 - There is a risk of introduction of invasive species as a result of the proposed action. The management of invasive species in Western Australian waters is legislated under the *Fish Resources Management Act 1994* and is management by the Department of Primary Industries and Regional Development (WA). The Department of Agriculture, Fisheries and Forestry (Cth) manages invasive species for the Commonwealth, as legislated under the EPBC Act.

Rights in Water Irrigation Act 1914 - The proposed action may require a 26D and 5C licence through the *Rights in Water and Irrigation Act 1914* (RIWI Act) to commission and operate the coastal beach wells.

State Planning and Development Act 2005 - Town Planning regulations and requirements include the preparation of a Development Application, which will incorporate an environmental assessment that covers additional technical studies.

1.2.7 Describe any public consultation that has been, is being or will be undertaken regarding the project area, including with Indigenous stakeholders. Attach any completed consultation documentations, if relevant. *

The proponent has carried out regular consultation with a wide range of identified key stakeholders over the past three years, including:

- Mirning Traditional Lands Aboriginal Corporation (MTLAC) - the Registered Native Title Body Corporate for the WA Mirning people – Identified areas of cultural heritage significance which have been avoided in the disturbance footprint. Regular project updates provided at MTLAC community meetings and annual general meetings.
- Environmental Protection Authority (EPA) - Responsible for assessing and advising on all environmental aspects of the proposal under the terms of the *Environmental Protection Act 1986* (WA) (EP Act), including relevant environmental factors and survey and assessment requirements – Two pre-referral meetings conducted at which it was indicated the proposal would likely be formally assessed and that it would be assigned to the State government's Green Energy assessment unit.
- Office of the Minister for the Environment (WA) - Responsible for the environment portfolio at State level, including statutory approvals under the EP Act – Support for renewables projects done properly. Understood the need for curtilage for marine facility/vessel transit in proposed State South Coast Marine Park.
- Office of the Minister for the Environment (Commonwealth) - Responsible for the environment portfolio at Commonwealth level, including statutory approvals under the EPBC Act – Constructive and positive interaction. Project aligns with key Government policies and strategic initiatives. Emphasised the need for evidence- based data; project flexibility to avoid impacts; importance of restoration and nature positive. Likely separate Federal and State assessments.
- Department of Climate Change, Energy, the Environment and Water (DCCEEW) - Responsible for administrating the EPBC Act and assessing projects that may impact matters of national environmental significance (MNES) - Two pre-referral meetings conducted with DCCEEW representatives to brief the department on the proposed action, summarise environmental investigations to date, discuss relevant MNES and potential impacts and assessment pathway.
- Department of the Premier and Cabinet (WA) - Key interest in the proposal and its successful progress – Project aligns with renewables/ hydrogen policies of WA Government. Also recognised the significant regional development and indigenous engagement opportunities.
- Department of Biodiversity Conservation and Attractions (DBCA) (WA) - Specialist expertise in threatened fauna and flora species, and ecological communities, occurring in the development envelope, and managers of the conservation estate in the locality – Consulted on threatened species and community data from the locality and submissions provided on proposed State South Coast Marine Park.
- Shire of Dundas and City of Kalgoorlie (WA) - Boulder - Relevant WA local government authorities, responsible for planning and development approvals and integrating future services, facilities and infrastructure - Ongoing and regular interaction.
- Eucla townsite community - Closest commercial, government services and residential neighbours to the proposal - In person community engagement to describe the project and answers questions from the community. Updates provided by Community Information Sheets, website updates and future community information sessions.
- Mundrabilla, Madura and Moonera Pastoral Stations, all of which are within the project area - Regular interactions on progress of the project. On-site interaction on wind/solar infrastructure placement, environmental and cultural heritage assessments.

- Kybo Pastoral Station, immediately adjacent the project area – One engagement, indicating little concern regarding the project.
- Australian Speleological Federation (ASF) - An organisation with a long-term interest in mapping and conservation of caves and karst features in the project area locality – Two consultation meetings arranged to brief the ASF on the proposed action, summarise environmental investigations to date, confirm commitment to significance karst feature avoidance in the project design and to offer data sharing arrangements.
- Department of Transport / Southern Ports Authority - State agency responsible for the efficient and effective management of ports in the southern half of WA – Discuss statutory requirements relating to the marine infrastructure required for the implementation of the proposed action.
- Department of Jobs, Tourism, Science and Innovation (WA) (DJTSI) - State Government agency offering high level, cross-agency coordination for projects with Lead Agency status - Regular and ongoing consultation.
- Department of Planning, Lands and Heritage (WA) (DPLH) – State Government agency responsible for planning and managing land and heritage - Regular and ongoing consultation re Option to Lease and diversification on pastoral leases.
- Conservation Council of Western Australia - Non-government conservation and environment organisation - Consultation meeting arranged to brief the Conservation Council on the proposed action, summarise environmental investigations to date and discuss impact mitigation and environmental management measures.

Feedback from all stakeholders consulted has been considered by the proponent in the design and planned management of the proposed action, subject to technical engineering and land access constraints. The proponent intends to continue its consultation program through the course of the EIA via arranging further consultation meetings, updating stakeholders on project development and seeking further input.

1.3.1 Identity: Referring party

Privacy Notice:

Personal information means information or an opinion about an identified individual, or an individual who is reasonably identifiable.

By completing and submitting this form, you consent to the collection of all personal information contained in this form. If you are providing the personal information of other individuals in this form, please ensure you have their consent before doing so.

The Department of Climate Change, Energy, the Environment and Water (the department) collects your personal information (as defined by the Privacy Act 1988) through this platform for the purposes of enabling the department to consider your submission and contact you in relation to your submission. If you fail to provide some or all of the personal information requested on this platform (name and email address), the department will be unable to contact you to seek further information (if required) and subsequently may impact the consideration given to your submission.

Personal information may be disclosed to other Australian government agencies, persons or organisations where necessary for the above purposes, provided the disclosure is consistent with relevant laws, in particular the Privacy Act 1988 (Privacy Act). Your personal information will be used and stored in accordance with the Australian Privacy Principles.

See our Privacy Policy to learn more about accessing or correcting personal information or making a complaint. Alternatively, email us at privacy@awe.gov.au.

☑ **Confirm that you have read and understand this Privacy Notice ***

1.3.1.1 Is Referring party an organisation or business? *

Yes

Referring party organisation details

ABN/ACN	49092687119
Organisation name	BIOTA ENVIRONMENTAL SCIENCES PTY LTD
Organisation address	6005 WA

Referring party details

Name	Garth Humphreys
Job title	Principal Ecologist / Director
Phone	08 9328 1900
Email	garth@biota.net.au
Address	Level 4, 46 Colin Street, West Perth WA 6005

1.3.2 Identity: Person proposing to take the action

1.3.2.1 Are the Person proposing to take the action details the same as the Referring party details? *

No

1.3.2.2 Is Person proposing to take the action an organisation or business? *

Yes

Person proposing to take the action organisation details

ABN/ACN	647744474
Organisation name	WGEH PTY LTD
Organisation address	6104 WA

Person proposing to take the action details

Name	Raymond Macdonald
Job title	Chief Executive Officer
Phone	08 9328 1900
Email	raymond.macdonald@wgeh.com.au
Address	Suite 2, Level 3, 1 Havelock Street, West Perth WA 6005

1.3.2.14 Are you proposing the action as part of a Joint Venture? *

No

1.3.2.15 Are you proposing the action as part of a Trust? *

No

1.3.2.17 Describe the Person proposing the action's history of responsible environmental management including details of any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources against the Person proposing to take the action. *

The proponent for the proposal is WGEH Pty Ltd, a dedicated renewable energy project company owned by:

- InterContinental Energy: a global developer of large-scale renewable energy projects that is developing several projects around the world similar to the current proposal;
- CWP Global: a global developer of large-scale renewable energy and renewable hydrogen hub projects across four continents – Africa, Australia and North and South America – with characteristics similar to the current proposal; and
- Mirning Green Energy Limited (MGEL): a commercial subsidiary of Mirning Traditional Lands Aboriginal Corporation (MTLAC), which is the registered native title representative body that manages and protects the WA Mirning Peoples' Native Title rights and interests. MGEL was established to manage MTLAC's shareholding in WGEH Pty Ltd.

Neither the proponent, nor any shareholding entity forming part of WGEH Pty Ltd or individuals in executive roles therein, has ever been involved in any proceedings under a Commonwealth, State or Territory law for the protection of the environment or the conservation and sustainable use of natural resources.

MGEL is a subsidiary of MTLAC, which represents the Traditional Owners of the land on which the proposed action would be taken, who are the custodians of country in perpetuity and hold primary responsibility for healthy country outcomes. The other two shareholders in WGEH Pty Ltd, InterContinental Energy and CWP Global, have well-established histories of responsible environmental management, including compliance with conditions on other renewable power projects within Australia and internationally.

1.3.2.18 If the person proposing to take the action is a corporation, provide details of the corporation's environmental policy and planning framework

The proponent conducts all aspects of its affairs and the development and implementation of the proposed action in accordance with its Corporate Charter.

This includes environmental matters and planning frameworks and requirements that govern all aspects of the project, including actions by contractors engaged by WGEH Pty Ltd. The Corporate Charter is provided as 'Att 2 - WGEH Corporate Charter.pdf',

1.3.3 Identity: Proposed designated proponent

1.3.3.1 Are the Proposed designated proponent details the same as the Person proposing to take the action? *

Yes

Proposed designated proponent organisation details

ABN/ACN	647744474
Organisation name	WGEH PTY LTD
Organisation address	6104 WA

Proposed designated proponent details

Name	Raymond Macdonald
Job title	Chief Executive Officer
Phone	08 9328 1900
Email	raymond.macdonald@wgeh.com.au
Address	Suite 2, Level 3, 1 Havelock Street, West Perth WA 6005

1.3.4 Identity: Summary of allocation

Confirmed Referring party's identity

The Referring party is the person preparing the information in this referral.

ABN/ACN	49092687119
Organisation name	BIOTA ENVIRONMENTAL SCIENCES PTY LTD
Organisation address	6005 WA
Representative's name	Garth Humphreys
Representative's job title	Principal Ecologist / Director
Phone	08 9328 1900
Email	garth@biota.net.au
Address	Level 4, 46 Colin Street, West Perth WA 6005

Confirmed Person proposing to take the action's identity

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	647744474
Organisation name	WGEH PTY LTD
Organisation address	6104 WA
Representative's name	Raymond Macdonald

Representative's job title	Chief Executive Officer
Phone	08 9328 1900
Email	raymond.macdonald@wgeh.com.au
Address	Suite 2, Level 3, 1 Havelock Street, West Perth WA 6005

Confirmed Proposed designated proponent's identity

The Person proposing to take the action is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

1.4 Payment details: Payment exemption and fee waiver

1.4.1 Do you qualify for an exemption from fees under EPBC Regulation 5.23 (1) (a)? *

No

1.4.3 Have you applied for or been granted a waiver for full or partial fees under Regulation 5.21A? *

No

1.4.5 Are you going to apply for a waiver of full or partial fees under EPBC Regulation 5.21A?

No

1.4.7 Has the department issued you with a credit note? *

No

1.4.9 Would you like to add a purchase order number to your invoice? *

No

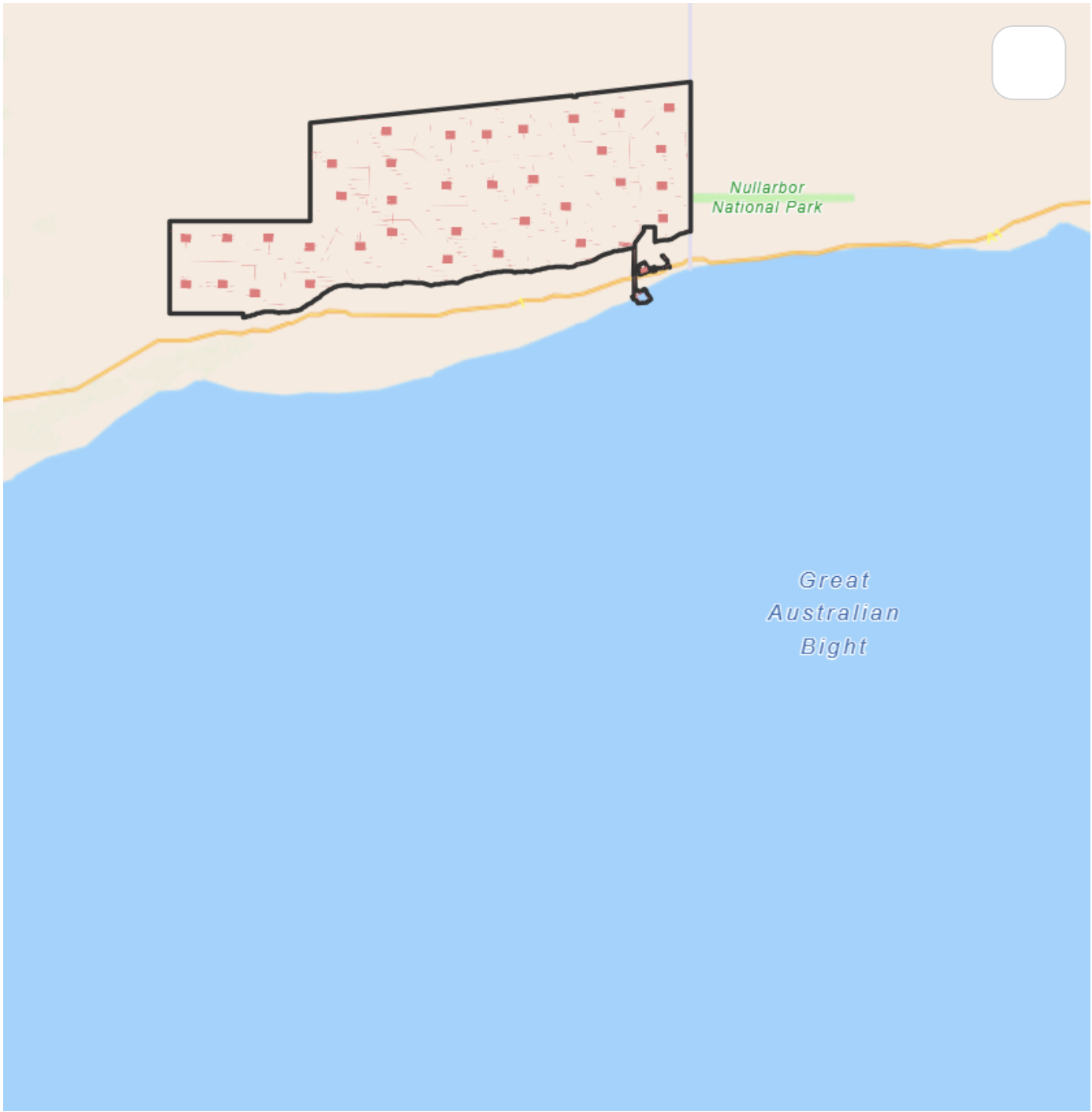
1.4 Payment details: Payment allocation

1.4.11 Who would you like to allocate as the entity responsible for payment? *

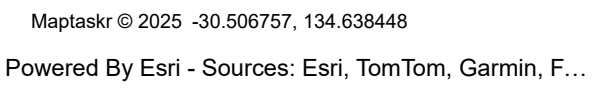
Proposed designated proponent

2. Location

2.1 Project footprint



Project area (2,274,449.43 Ha) Disturbance footprint (104,089.53 Ha)



2.2 Footprint details

2.2.1 What is the address of the proposed action? *

Eyre Highway, Eucla, WA 6443

2.2.2 Where is the primary jurisdiction of the proposed action? *

Western Australia

2.2.3 Is there a secondary jurisdiction for this proposed action? *

No

2.2.5 What is the tenure of the action area relevant to the project area? *

The proposed action would be implemented under a variety of formal tenure arrangements that the proponent is currently in the process of finalising under the provisions of the *Lands Administration Act 1997* (WA). These comprise:

- Section 91 licences, which have already been secured for all parcels of land within the project area;
- Draft Options to Lease received from the Department of Planning, Lands and Heritage (DPLH), with a range of lease types contemplated, including section 79 use provisions and diversification lease provisions; and
- Heads of Agreement signed with the lessees of the pastoral leases intersected by the project area.

3. Existing environment

3.1 Physical description

3.1.1 Describe the current condition of the project area's environment.

The project area is large and is located within the Hampton and Nullarbor Interim Bioregionalisation of Australia (IBRA) regions. The Hampton region is 1,043,043 ha (in WA), 114,628 ha (11%) of which is protected, and the Nullarbor region, which is characterised by tertiary limestone plain with subdued arid karst features, is 13,736,048 ha (in WA), 2,210,292 ha (16%) of which is protected (see Section 3.2.3 of the attached 'Att 1- WGEH referral support.pdf').

The town of Eucla is small border town approximately 1,300 km east of Perth and is the only residential centre in proximity to the project area. It sits within the Shire of Dundas, which covers 93,179 km2, and has a population of approximately 37 people. The town is accessed east and west by the Eyre Highway which provides the primary road corridor link between WA and the eastern states.

The vegetation and fauna habitats of the project area range from good to degraded condition. The locality has a history of past extensive grazing pressure from rabbits (prior to their control), in addition to pastoral grazing and soil profile erosion pressures. Weeds are common and widespread, particularly in association with the transcontinental railway corridor at the north of the project area. Vegetation types are discussed in more detail in response to Question 3.2.

3.1.2 Describe any existing or proposed uses for the project area.

The proposed action is located within the Shire of Dundas and the City of Kalgoorlie-Boulder local government boundaries (see Figure 11 in Section 3.1.2 of the attached 'Att 1 - WGEH referral support.pdf'). The proposed action is primarily situated on Unallocated Crown Land, with the southwestern sections of the project area intersecting three pastoral leases: Mundrabilla, Madura and Moonera.

The proposed action does not intersect the conservation estate. The closest conservation reserves to the project area are the Eucla National Park, located 16 km south of the southeastern corner of the project area, and the Nuytsland Nature Reserve, situated 4 km to the south of the southwestern corner of the project area (see Figure 11 in Section 3.1.2 of the attached 'Att 1 - WGEH referral support.pdf'). Both reserves are vested in the WA Conservation and Parks Commission and managed by the WA Department of Biodiversity, Conservation and Attractions (DBCA).

The northern boundary of the project area adjoins the freehold land held by the Australian Rail Track Corporation on behalf of the Commonwealth of Australia, that accommodates the Trans-Australian Railway. This Commonwealth land adjoins the northern boundary of the project area.

3.1.3 Describe any outstanding natural features and/or any other important or unique values that applies to the project area.

There are no Commonwealth or State marine parks, national parks or other conservation reserves intersected by the project area.

There are also no World Heritage Areas, Ramsar sites or sites listed in the Directory of Important Wetlands intersected by the project area.

The project area does not contain any features that have been mapped by the Geological Survey of Western Australia as representing significant geoheritage sites [#1], but the project area and its surrounding locality is well-recognised for the presence of significant caves and sinkholes. Many occur outside of the project area to the south but there also significant karst features within the project area. The proponent has compiled and rationalised a spatial data set of all known karst features of significance within the project area and these have been treated as avoidance constraints in the proposed action's indicative disturbance footprint (see response to Question 4.1).

[#1] https://catalogue.data.wa.gov.au/dataset/geoheritage-sites

3.1.4 Describe the gradient (or depth range if action is to be taken in a marine area) relevant to the project area.

The project area is located within the Nullarbor Plain and Hampton Interim Bioregionalisation of Australia (IBRA) regions, with the great majority situated within the Nullarbor Plain (see Figure 13 in Section 3.2.3 of the attached ‘Att 1 - WGEH referral support.pdf’)

The Nullarbor Plain IBRA region broadly corresponds to the Nullarbor Plain physiographic region defined for the Eucla Basin [#2]. The Hampton bioregion encompasses the Hampton Tableland, Hampton Range (scarp) and Roe Plains.

The Hampton Tableland’s elevation rises from 80-90 m AHD at the scarp to 160-180 m AHD at the Trans-Australian railway, some 100 km to the north. The scarp itself is a 70-80 m high feature in the landscape with the Eyre Highway set at its base for 180 km, rising to the Tableland at Eucla (to the east) and Madura (to the west). The Roe Plain is coastal flat terrain of relatively low relief above sea level (typically approximately 5 m AHD).

Offshore, the project area is bounded by the Southern Ocean, set against the edge of the continental shelf. Bathymetry surveys completed for the proposed action identified a clear reef-profile from the nearshore to the offshore environment. A reef-slope commenced at approximately 5 m depth and increased to approximately 20 m depth over approximately 2 km transect distance. The reef slope gradient commences decreasing at the end of the 2 km transects at approximately 30 m depth. (see Section 3.1.4, pg 26 of the attached ‘Att 1 - WGEH referral support.pdf’).

References

[#2] https://www.researchgate.net/publication/365612286_Eucla_Basin_and_peripheral_paleovalleys/figures?lo=1

3.2 Flora and fauna

3.2.1 Describe the flora and fauna within the affected area and attach any investigations of surveys if applicable.

A detailed account of the terrestrial and marine biological surveys that have been completed to date in relation to the proposed action is provided in Section 3.2 of the attached ‘Att 1 - WGEH referral support.pdf’.

In summary, the investigations completed to date include:

- desktop study of marine ecological values (see Section 3.2.1 of the attached 'Att 1 - WGEH referral support.pdf’);
- benthic habitat mapping (see Section 3.2.1 of the attached 'Att 1 - WGEH referral support.pdf’);
- benthic infauna survey (see Section 3.2.1 of the attached 'Att 1 - WGEH referral support.pdf’);
- marine fauna surveys, including elasmobranch and finfish, cetaceans and pinnipeds, sharks and introduced marine species (see Section 3.2.2 of the attached 'Att 1 - WGEH referral support.pdf’);
- four phases of flora and vegetation survey over a three-year period (see Section 3.2.3 of the attached 'Att 1 - WGEH referral support.pdf’); and
- four phases of terrestrial fauna survey over a three-year period, including avifauna and bat censuses, short-range endemic fauna sampling and wombat ecology studies (see Section 3.2.4 of the attached 'Att 1 - WGEH referral support.pdf’).

The findings of the work to date are detailed in Section 3.2 of the attached ‘Att 1 - WGEH referral support.pdf’, with the key findings relevant to this referral comprising:

- no marine species listed as Threatened under the EPBC Act have been recorded during the benthic habitat surveys and marine fauna surveys completed in the project area;
- while not recorded from the project area, two species of baleen whale have annual migration patterns that mean they are seasonally present in coastal waters adjoining the project area: these are the Southern Right Whale (*Eubalaena australis*) and Humpback Whale (*Megaptera novaeangliae*), both of which are listed as Migratory under the EPBC Act, with the Southern Right Whale also listed as Endangered under the Act. The waters surrounding the project area are also habitat for Australian Sea-lion (*Neophoca cinerea*) which is listed as Endangered under the Act (see Section 3.2.2.4 of the attached 'Att 1 - WGEH referral support.pdf’);
- while not recorded from the project area, it is likely that Great White Shark (*Carcharodon carcharias*), which is listed as Vulnerable and Migratory under the EPBC Act, may occasionally pass near the project area (see Section 3.2.2.5 of the attached 'Att 1 - WGEH referral support.pdf’);
- no flora species listed as Threatened under the EPBC Act have been recorded during the four phases of surveys completed in the project area and none are likely to occur (see Section 3.2.3.6 of the attached 'Att 1 - WGEH referral support.pdf’);
- no ecological communities listed as Threatened under the EPBC Act have been recorded during the four phases of surveys completed in the project area and none are likely to occur (see Section 3.2.3.5 of the attached 'Att 1 - WGEH referral support.pdf’);
- avifauna survey results include records of five shorebird species listed as Migratory under the EPBC Act, all of which were recorded in small abundances and mostly from the beach at the southern end of the project area (see Section 3.2.4.4 of the attached 'Att 1 - WGEH referral support.pdf’);
- avifauna surveys conducted for the proposed action also recorded two fauna species listed as Threatened under the EPBC Act: Southern Whiteface (*Aphelocephala leucopsis)* and Malleefowl (*Leipoa ocellata*), both of which are listed as Vulnerable under the EPBC Act (see Section 3.2.4.4 of the attached 'Att 1 - WGEH referral support.pdf’).

As requested by DCCEEW, versions of the maps showing the actual location of the records of Threatened and Migratory species in the project area are provided as an attachment here as ‘Att 1-WGEH referral support UNREDACTED.pdf’ (Figures 18 and 19), which are not for publication.

3.2.2 Describe the vegetation (including the status of native vegetation and soil) within the project area.

The project area is broadly divided into six land surface types, grouped primarily on geology, relief and landform, and secondly on genesis and soil [#2]. These land surfaces are further subdivided according to vegetation and hydrology into land systems, 19 of which are present in the project area.

The project area is spatially dominated by deflated limestone plains, which account for 91% of its extent. This in turn is mostly accounted for by Skink, Shakehole, Gaffa and Morris land systems, all of which are variants of bluebush shrubland on Nullarbor Limestone. The vegetation of the project area is very consistent over large extents, showing frequently repeated patterns of the same vegetation types strongly linked with broadscale landforms and landscape position (see Section 3.2.3.4 of the attached 'Att 1 - WGEH referral support.pdf'). The Upstream and Midstream part of the project area is dominated by 'Bunda Plateau 460' vegetation (87.4% of the overall extent), which comprises open to very open bluebush and saltbush associations with very occasional low trees. Further south, 'Hampton Tableland - Nullarbor 122' and 'Hampton Tableland - Coastal 515' vegetation dominate in areas of the project area closer to the scarp. The vegetation structure in these units becomes more complex and comprises a low open shrubland to woodland, dominated by *Eucalyptus* spp. and *Acacia* spp. The proposed action's infrastructure corridor then crosses the scarp and the project area descends onto the coastal plain and extends south to the coast. The vegetation here changes again to be dominated by the low shrublands of 'Roe Plain 122', 'Roe Plain 460' and 'Roe Plain 1515' vegetation types in the more mesic setting.

See Section 3.2.3 of the attached 'Att 1 - WGEH referral support.pdf' for further detail on the soils, landforms and vegetation of the project area.

References

[#2] Waddell, P. A., A. K. Gardner, and P. Hennig (2010). Technical Bulletin No. 97: An inventory and condition survey of the Western Australian part of the Nullarbor region. Department of Primary Industries and Regional Development, Perth, Western Australia.

3.3 Heritage

3.3.1 Describe any Commonwealth heritage places overseas or other places recognised as having heritage values that apply to the project area.

There are no Commonwealth heritage places within the project area.

A search of the Heritage Council of WA InHerit database also found no heritage places listed under the State Register within a 10 km buffer area of the project area.

A search of the Australasian Underwater Cultural Heritage Database [#1] and WA Museum Online Shipwrecks Database [#2] and yielded three shipwrecks in the Eucla locality. All three are more than 100 km from the project area.

References

[#1] Australasian Underwater Cultural Heritage Database. Australian Department of Climate Change, Energy, the Environment and Water, Canberra, Australian Capital Territory. Available at http://www.environment.gov.au/shipwreck/public/wreck/search.do [Accessed 25 January 2023]

[#2] Maritime Archaeology Shipwrecks Databases. West Australian Museum, Perth, Western Australia. Available at http://www.museum.wa.gov.au/maritime-archaeology-db/wrecks [Accessed 25 January 2023]

3.3.2 Describe any Indigenous heritage values that apply to the project area.

The WA Mirning People are the traditional custodians of the lands on the Nullarbor Plain within WA. The WA Mirning People have a deep spiritual connection to their land and their culture, particularly with whales, as whales are their family and the annual returning of the whale is a celebration of reuniting family. The great arching bridge of the ngargaum Bunda Cliffs holds up Australia with their lands including the Nullarbor Plain and the seas of the Great Australian Bight. Over millennia, the isolated landscape has been reflected in their unique culture, the connection with coastal country blending land and sea through the largest network of underground limestone caves in the world. The sea caters for the great Eucla Basin, wilbiyirrinyie, through underground rivers and channels.

Native Title determination was granted in 2017 for the WA Mirning People. A desktop search of the WA Department of Planning, Lands and Heritage (DPLH) Aboriginal Cultural Heritage Enquiry System (ACHIS) [#1] found no registered Aboriginal heritage sites in the vicinity of the development envelope. However, as Aboriginal Cultural Heritage (ACH) may still be present on-site, just not listed or registered in the ACHIS system, there is an ongoing requirement for site-specific heritage assessments in consultation with the relevant Traditional Owners. The proponent has been conducting such assessments for all works to date on the proposal that have required ground disturbance.

References

[#1] Aboriginal Cultural Heritage Enquiry System (ACHIS), Department of Planning, Lands and Heritage, Perth WA. Available at https://espatial.dplh.wa.gov.au/ACHIS/index.html?viewer=ACHIS [Accessed 18 October 2024]

3.4 Hydrology

3.4.1 Describe the hydrology characteristics that apply to the project area and attach any hydrological investigations or surveys if applicable. *

The great majority of the project area is accounted for by the tableland landscape setting, which is topographically very flat over extensive distances, with no consolidated major contemporary drainage systems. The lack of defined surface drainage means the Nullarbor has not developed the large scale accelerated water-induced erosion features seen in other southern rangeland regions [#1]. The Nullarbor land surface, especially the Nullarbor Plain with its shallow soils, has been more extensively shaped through wind erosion, as well as by localised natural erosion cells driven by karst processes [#1].

Low undulations in the extensive plain form corridors of linear depressions and ‘dongas’ (locally-named rounded depressions or claypans) separated by low rocky limestone ridges. The lack of defined surface drainage on the Nullarbor Plain results in water sheet flow having only a restricted and localised role in transporting sediment from the stony plains to surrounding karstic depressions [#1]. In addition to localised

run-off patterns, rapid infiltration to the underlying limestone occurs in areas where karst features daylight, whereas other depressions and low elevation features in the landscape that have significant clay in the profile typically hold water after major rain events, which is only lost to evaporation.

References

[#1] Waddell, P. A., A. K. Gardner, and P. Hennig (2010). Technical Bulletin No. 97: An inventory and condition survey of the Western Australian part of the Nullarbor region. Department of Primary Industries and Regional Development, Perth, Western Australia.

4. Impacts and mitigation

4.1 Impact details

Potential Matters of National Environmental Significance (MNES) relevant to your proposed action area.

EPBC Act section	Controlling provision	Impacted	Reviewed
S12	World Heritage	No	Yes
S15B	National Heritage	No	Yes
S16	Ramsar Wetland	No	Yes
S18	Threatened Species and Ecological Communities	Yes	Yes
S20	Migratory Species	Yes	Yes
S21	Nuclear	No	Yes
S23	Commonwealth Marine Area	No	Yes
S24B	Great Barrier Reef	No	Yes
S24D	Water resource in relation to large coal mining development or coal seam gas	No	Yes
S26	Commonwealth Land	Yes	Yes
S27B	Commonwealth Heritage Places Overseas	No	Yes
S28	Commonwealth or Commonwealth Agency	No	Yes

4.1.1 World Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.1.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.1.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no World Heritage properties in the project area locality.

4.1.2 National Heritage

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.2.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.2.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no National Heritage places in the project area locality.

4.1.3 Ramsar Wetland

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

—

4.1.3.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.3.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

No Ramsar wetlands in the project area locality.

4.1.4 Threatened Species and Ecological Communities

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Threatened species

Direct impact	Indirect impact	Species	Common name
Yes	Yes	Aphelocephala leucopsis	Southern Whiteface
No	No	Ardenna grisea	Sooty Shearwater
No	No	Balaenoptera musculus	Blue Whale
No	No	Calidris acuminata	Sharp-tailed Sandpiper
No	No	Calidris canutus	Red Knot, Knot
No	No	Calidris ferruginea	Curlew Sandpiper
No	Yes	Carcharodon carcharias	White Shark, Great White Shark
No	No	Caretta caretta	Loggerhead Turtle
No	No	Chelonia mydas	Green Turtle
No	No	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
No	No	Diomedea antipodensis	Antipodean Albatross
No	No	Diomedea dabbenena	Tristan Albatross
No	No	Diomedea epomophora	Southern Royal Albatross
No	No	Diomedea exulans	Wandering Albatross
No	Yes	Eubalaena australis	Southern Right Whale
No	No	Falco hypoleucos	Grey Falcon
No	No	Galeorhinus galeus	School Shark, Eastern School Shark, Snapper Shark, Tope, Soupfin Shark
No	No	Halobaena caerulea	Blue Petrel
Yes	Yes	Leipoa ocellata	Malleefowl
No	No	Limosa lapponica menzbieri	Northern Siberian Bar-tailed Godwit, Russkoye Bar-tailed Godwit
No	No	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
No	No	Macronectes halli	Northern Giant Petrel
No	No	Neophoca cinerea	Australian Sea-lion, Australian Sea Lion

Direct impact	Indirect impact	Species	Common name
No	No	Pachyptila turtur subantarctica	Fairy Prion (southern)
No	No	Phoebetria fusca	Sooty Albatross
No	No	Polytelis alexandrae	Princess Parrot, Alexandra's Parrot
No	No	Pterodroma mollis	Soft-plumaged Petrel
No	No	Seriolella brama	Blue Warehou
No	No	Sternula nereis nereis	Australian Fairy Tern
No	No	Thalassarche carteri	Indian Yellow-nosed Albatross
No	No	Thalassarche cauta	Shy Albatross
No	No	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
No	No	Thalassarche melanophris	Black-browed Albatross
No	No	Thalassarche steadi	White-capped Albatross

Ecological communities

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4.1.4.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.4.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

Two terrestrial fauna species listed as Threatened under the EPBC Act are present: Southern Whiteface and Malleefowl (see Section 3.2.4.4 of the attached ‘Att 1 - WGEH referral support.pdf’), but of which are listed as Vulnerable. Potential direct and indirect impacts on these species from the proposed action include:

- clearing of 27,188 ha of terrestrial fauna habitat that may be utilised by Southern Whiteface, resulting in reduction in habitat extent and potential indirect impacts on individuals during construction;
- limited disturbance to approximately 77,206 ha of fauna habitat that may be utilised by Southern Whiteface, from the installation of solar PV module infrastructure over open native vegetation;
- avifauna collision risk for Southern Whiteface with the operation of the Upstream wind turbines;
- creation of access corridors in the landscape that may favour feral predators, potentially impacting both species;
- operation of the worker village leading to increased free water and other resources favouring feral fauna, potentially impacting both species;

- reduction in habitat quality in areas adjacent to the proposal footprint from dust deposition and sediment run-off, particularly during construction, potentially impacting both species;
- clearing of 649 ha of terrestrial fauna habitat that may be utilised by Malleefowl on the Roe Plain,resulting in reduction in habitat extent and potential direct and indirect impacts on individuals during construction; and
- increased vehicle movements on the Roe Plain resulting in a risk of loss of Malleefowl individuals due to roadkill.

While not confirmed as occurring in the project area, the Southern Right Whale (*Eubalaena australis)* and Australian Sea-lion *(Nephoca cinerea)*, both listed as Endangered and Migratory under the EPBC Act, and the Great White Shark (*Carcharodon carcharias*), listed as Vulnerable and Migratory under the EPBC Act, may occur. Potential direct and indirect impacts on these species from the proposed action include:

- Hydrocarbon Spills and Waste Generation: There is a risk of marine fauna being exposed to surface oil or ingesting small quantities in the event any spills occur during construction or operational activities. Rubbish and hazardous waste may also be generated on board vessels, which can pollute the surrounding environment if not contained and removed.
- Vessel Strike: individuals may be impacted by vessel strike during construction and operational activities. Cetaceans in particular may be at risk, as they spend a significant period of time at or near the sea surface for breathing between dives, resting and/or during other key behaviours.
- Underwater Noise and Vibration: The proposed action is likely to generate underwater noise and vibration emissions during construction (piling operations, supporting vessels and excavation activities) and operation (engines, propellers and thrusters from vessel movement), which has the potential to cause temporary or permanent injury to sensitive marine fauna (whales, dolphins and fish) in the project area and surrounds.
- Increase in Turbidity: A temporary increase in water column turbidity due to construction activities, has the potential to impair visual acuity and/or predator detection, especially in pinnipeds.
- Brine Discharge: The discharge of brine from the proposed desalination plant may lead to increased salinity and temperature stressor effects on marine fauna directly, as well as impact benthic communities and habitats which support marine fauna.
- Artificial Light Pollution: Artificial lighting has the potential to disrupt a wide array of marine organisms, processes and habitats for which light cycles are critical.
- Risk of Ammonia (or Other Vector) Spill: The release of ammonia (or other vector) or hydrogen into the environment may result in toxic effects to marine fauna if they are caught within the spill zone and unable to move out of it rapidly. In comparison to spills of other materials, such as oil or gas, toxic effects associated with ammonia spills (taking this product as a worse case exemplar) will have a high impact on fish as well as moderate impacts to all other marine fauna. As such, the accidental release of ammonia from the proposal has the potential to cause major impacts to marine fauna present in the proposal vicinity. Engineering controls and mitigations will reduce the risk to as low as reasonably practicable (see response to Question 4.1.4.10).
- Introduced Marine Species (IMS): There is a risk of introducing IMS during both the construction and operations. While IMS can have significant impacts on marine ecosystems and marine industries, only a small fraction of IMS are able to thrive and successfully colonise new habitats.

Discussion of potential impacts and mitigation on Threatened species is provided in Section 4.1.4 of the attached ‘Att 1- WGEH referral support.pdf’.

As requested by DCCEEW, versions of the maps showing the actual location of the records of Threatened and Migratory species in the project area are provided as an attachment here as ‘Att 1-WGEH referral support UNREDACTED.pdf’ (Figures 18 and 19), which are not for publication.

4.1.4.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.4.5 Describe why you consider this to be a Significant Impact. *

At present, the potential impact significance for the two confirmed Threatened fauna species occurring in the project area comprise:

Malleefowl – With only two records from four survey phases, the species is at apparently low density and limited to the southern, coastal plain part of the project area, below the scarp. Considering the context of the wider distribution of the species, and that no mounds have been located to date within the project area, it currently appears unlikely that impacts will be significant at local, state or national levels (following the criteria of 'Att 3 - 2013_MNES Significant Impact Guidelines 1.1.pdf') . However, in accordance with the precautionary principle, the potential impact has been treated as significant at this stage of the EIA, and proposed action referred, to allow for a fuller assessment of the significance of predicted impacts under the EPBC Act.

Southern Whiteface – while listed as an MNES species, the Southern Whiteface is widespread within central Australia, and its conservation status is unlikely to be affected by the proposed action. However, a significant area of habitat that may be used by the species would be cleared as a result of the proposed action, so again; the potential impact has been treated as significant at this stage of the EIA, and proposed action referred, to allow for a fuller assessment of the significance of predicted impacts under the EPBC Act.

Further work has been committed to by the proponent to inform the EIA of the proposed action in regard to the significance of the above impacts, as set out in Section 4.1.4.5 of the attached 'Att 1 - WGEH referral support.pdf'.

Similarly, further studies are required to more accurately predict potential impacts on MNES marine fauna, recognising that at present there are no confirmed records of species listed as Threatened under the EPBC Act from the project area. The studies outlined in Section 4.1.4.5 of the attached 'Att 1 - WGEH referral support.pdf' will be undertaken to provide a more robust understanding of the occurrence of MNES marine fauna, predict potential impacts and environmental outcomes.

4.1.4.7 Do you think your proposed action is a controlled action? *

Yes

4.1.4.8 Please elaborate why you think your proposed action is a controlled action. *

The project area and proposed action interact with three matters of national environmental significance.

While one of these, Commonwealth land, does not represent a significant impact on the environment, the Threatened species and ecological communities and Migratory species provisions may, with two Threatened species and five Migratory species confirmed from the project area.

While a preliminary evaluation of potential impacts has been conducted to inform this referral, more comprehensive evaluation of predicted impacts on these species, including consideration of mitigation measures, residual environmental impacts and any environmental offsets, is needed through the statutory

process of controlled action assessment within the EPBC Act's environmental impact assessment (EIA) framework.

4.1.4.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

With regards to the Southern Whiteface and Malleefowl, the following mitigation measures will be implemented to address the potential impacts arising from the proposed action:

1. pre-clearance targeted surveys will be conducted for the coastal plain sections of the footprint where Malleefowl may occur, with design modifications to avoid direct impacts in the event an active Malleefowl mound is located;
2. development and implementation of procedures to manage and control areas of habitat clearing to remain within design limits for the proposal footprint, including GPS control of plant and equipment;
3. progressive rehabilitation of all habitat areas that are temporarily cleared during construction, resulting in approximately 16,464 ha (60.6% of the total permanent and temporary clearing) being rehabilitated as soon as practicable post-construction;
4. development and implementation of the Construction Environmental Environmental Management Plan (EMP) to address surface water and erosion controls, and general workforce management measures, including environmental inductions for all onsite personnel in regard to terrestrial fauna;
5. development and implementation of a Weed Management Plan, including consideration of materials management, plant and equipment hygiene measures and species-specific weed monitoring and control, to minimise the risk of introducing or spreading weeds within the project area degrading MNES fauna habitat; and
6. development and implementation of a Rehabilitation Management and Monitoring Plan, including consideration of topsoil management, direct return protocols, monitoring and remedial actions, to maximise the revegetation of temporarily disturbed areas within the project area.
7. imposing vehicle speed limits in areas where Malleefowl may occur on the Roe Plain part of the project area; and
8. development and implementation of a Feral Fauna Management Plan, including targeted feral species control measures, waste and free water controls, to minimise the risk of introducing or spreading feral fauna within the development envelope.

Preliminary management measures proposed to minimise the impacts of the proposed action to MNES marine fauna are summarised below. This list is not exhaustive and other potential avoidance and mitigation options will be considered as the EIA progresses in accordance with the mitigation hierarchy.

In temporal sequence from construction through to operations, the mitigation measures will comprise:

1. Implement procedures for all marine operations to manage waste, hazardous substances and refuelling, and to maintain clean and tidy work areas. This will include mandatory spill kits on site, with all materials for mitigation of accidental spillage of hydrocarbons.
2. Regular inspections to ensure a clean and tidy work chemical storage site, appropriate and refuelling procedures are carried out, and to ensure all fittings are functional and compliant.
3. Development and implementation of a Marine Construction EMP with which operations are to comply.
4. Training of all contractors to minimise the risk of marine fauna interactions during construction. This would include marine fauna behaviour and actions, reporting requirements in the event of marine fauna injury or mortality, and maintenance of a Marine Fauna Observation and Interaction Log throughout construction works
5. Mandatory restriction of all vessel speeds within 300 m of marine fauna, with further restrictions on vessel speed and movements imposed during whale migration season (May to October).

6. Scheduling of marine construction works to occur outside of peak whale migration season to avoid disturbance during migration or critical breeding and calving windows.
7. Implementation of precaution and shutdown zones, and pre-startup, soft start, stop work, nighttime and low visibility procedures during construction works, particularly pile driving.
8. The use of rotary bored piling or percussive piling with protective curtains to minimise noise emissions, and the inclusion of reduction in noise emissions as a criterion for excavation selection.
9. Potential utilisation of silt curtains or similar controls to limit plume dispersal, depending on excavation method.
10. Completion of plume sketches at the excavator and return water discharge on each day of construction to record the presence and spatial extent of turbidity.
11. Engineering design to optimise brine diffuser performance and adequate subsurface diffusers or risers placed according to current and flow modelling.
12. Development and implementation of a Marine Operations EMP, including measures to manage brine discharge.
13. Water quality monitoring, including potential toxicity testing and profiles.
14. Best-practice engineering controls on all ammonia (or other vector) or hydrogen associated infrastructure and vessels, including the use of pipe-in-pipe infrastructure and continuous leak detection monitoring.
15. Low-intensity vessel lighting and development and implementation of a night works approval process, with lighting compliant with national light pollution guidelines.
16. Implementation of ammonia (or other vector) storage and handling mitigation and monitoring measures.
17. All vessels will operate under strict ballast discharge conditions and not expel foreign waters from their ballast into local waters.
18. Adoption of electric powered tug fleet in support of local marine operations to minimise pollutant emissions, and
19. Deployment of a dedicated shuttle fleet for import of materials at the MOF, whereby vessel emissions, speed and operation can be specified and controlled.

4.1.4.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

As a final determination of residual environmental impacts and outcomes has not yet been arrived at, no formal environmental offsets have been developed for the proposed action.

However, the proponent has committed to the implementation of an ecological restoration program as part of the implementation of the proposed action that could reasonably be developed into a suitable offset plan (see Section A.3 of the attached ‘Att 1 - WGEH referral support.pdf’).

4.1.5 Migratory Species

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Species	Common name
No	No	Actitis hypoleucos	Common Sandpiper
No	No	Apus pacificus	Fork-tailed Swift
No	No	Ardenna carneipes	Flesh-footed Shearwater, Fleshy-footed Shearwater
No	No	Ardenna grisea	Sooty Shearwater
No	No	Balaenoptera edeni	Bryde's Whale
No	No	Balaenoptera musculus	Blue Whale
No	No	Calidris acuminata	Sharp-tailed Sandpiper
Yes	Yes	Calidris alba	Sanderling
No	No	Calidris canutus	Red Knot, Knot
No	No	Calidris ferruginea	Curlew Sandpiper
No	No	Calidris melanotos	Pectoral Sandpiper
Yes	Yes	Calidris ruficollis	Red-necked Stint
No	No	Caperea marginata	Pygmy Right Whale
No	No	Carcharias taurus	Grey Nurse Shark
No	No	Carcharodon carcharias	White Shark, Great White Shark
No	No	Caretta caretta	Loggerhead Turtle
Yes	Yes	Charadrius bicinctus	Double-banded Plover
Yes	Yes	Charadrius veredus	Oriental Plover, Oriental Dotterel
No	No	Chelonia mydas	Green Turtle
No	No	Dermochelys coriacea	Leatherback Turtle, Leathery Turtle, Luth
No	No	Diomedea antipodensis	Antipodean Albatross
No	No	Diomedea dabbenena	Tristan Albatross
No	No	Diomedea epomophora	Southern Royal Albatross
No	No	Diomedea exulans	Wandering Albatross

Direct impact	Indirect impact	Species	Common name
No	Yes	Eubalaena australis	Southern Right Whale
No	No	Hydroprogne caspia	Caspian Tern
No	No	Lagenorhynchus obscurus	Dusky Dolphin
No	No	Lamna nasus	Porbeagle, Mackerel Shark
No	No	Limosa lapponica	Bar-tailed Godwit
No	No	Macronectes giganteus	Southern Giant-Petrel, Southern Giant Petrel
No	No	Macronectes halli	Northern Giant Petrel
No	Yes	Megaptera novaeangliae	Humpback Whale
No	No	Motacilla cinerea	Grey Wagtail
No	No	Motacilla flava	Yellow Wagtail
No	No	Orcinus orca	Killer Whale, Orca
No	No	Phoebetria fusca	Sooty Albatross
No	No	Thalassarche carteri	Indian Yellow-nosed Albatross
No	No	Thalassarche cauta	Shy Albatross
No	No	Thalassarche impavida	Campbell Albatross, Campbell Black-browed Albatross
No	No	Thalassarche melanophris	Black-browed Albatross
No	No	Thalassarche steadi	White-capped Albatross
Yes	Yes	Thalasseus bergii	Greater Crested Tern

4.1.5.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.5.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The avifauna of the development envelope includes five species listed as Migratory under the EPBC Act (see Section 3.2.4.4 of the attached ‘Att 1 - WGEH referral support.pdf’). All records of four of the five species came from beach transect surveys conducted at the coastal infrastructure southern limit of the project area.

The only exception to this distributional pattern of migratory bird records was the Oriental Plover, which was recorded three times from the Hampton Tablelands vegetation above the scarp and would be expected to periodically utilise plains habitat such as this.

Potential direct and indirect impacts on these Migratory species from the proposed action include:

- clearing of up to 649 ha of terrestrial fauna habitat from the Roe Plain part of the project area, which contains the majority of records and Migratory species representation;
- coastal construction activities resulting in localised disturbance of migratory shorebird beach habitat;
- artificial lighting resulting in behavioural changes in migratory shorebird, particularly foraging; and
- avifauna collision risk with the operation of the Upstream wind turbines for the Oriental Plover.

The Humpback Whale (*Megaptera novaeangliae*) is also listed as Migratory under the EPBC Act and, while not confirmed as occurring in the project area, is likely to seasonally pass through the waters within or south of the project area. Potential impacts, their significance and mitigation measures for this species are all equivalent to those outlined in response to Question 4.1.4 for the Southern Right Whale (*Eubalaena australis*), which is also listed as Migratory as well its Endangered status, and are therefore not repeated here.

As requested by DCCEEW, versions of the maps showing the actual location of the records of Threatened and Migratory species in the project area are provided as an attachment here as 'Att 1-WGEH referral support UNREDACTED.pdf' (Figures 18 and 19), which are not for publication.

4.1.5.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

Yes

4.1.5.5 Describe why you consider this to be a Significant Impact. *

Four of the five listed Migratory bird species confirmed for the project area have only been recorded from beach habitat and the proposed action will result in both habitat loss in the coastal part of the project area, and construction disturbance and displacement of Migratory shorebirds from the immediate area. The four species have only been recorded in small abundances and it would appear unlikely that these impacts would meet the criteria to be considered significant under the EPBC Act (see attached 'Att 3 - 2013_MNES Significant Impact Guidelines 1.1.pdf'). This coastal habitat is also separated by approximately 30 km from the closest proposed wind turbine, meaning that rotor collision risk for these species is currently considered low.

However, current data suggest that the Oriental Plover may occur within the Upstream part of the project area where the wind turbines are proposed and impacts on this species could include loss of individuals from turbine rotor collision. In accordance with the precautionary principle, this potential impact has been treated as significant at this stage of the EIA, and the proposed action referred, to allow for a fuller assessment of the significance of predicted impacts under the EPBC Act.

To this end, the three years of avifauna data from the project area will be consolidated with literature review during the EIA to consolidate relevant information to assess potential risks to Migratory birds from the proposal. In particular, the focus will be on potential impacts from the proposed wind turbines to listed Migratory species recorded or considered to have a high likelihood of occurrence in the development envelope. This ecological risk assessment will focus on risks from direct collision and displacement/barrier effects from turbines.

4.1.5.7 Do you think your proposed action is a controlled action? *

Yes

4.1.5.8 Please elaborate why you think your proposed action is a controlled action. *

The project area and proposed action interact with three matters of national environmental significance.

While one of these, Commonwealth land, does not represent a significant impact on the environment, the Threatened species and ecological communities and Migratory species provisions may, with two Threatened species and five Migratory species confirmed from the project area.

While a preliminary evaluation of potential impacts has been conducted to inform this referral, more comprehensive evaluation of predicted impacts on these species, including consideration of mitigation measures, residual environmental impacts and any environmental offsets, is needed through the statutory process of controlled action assessment within the EPBC Act's EIA framework.

4.1.5.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

The mitigation measures applied to this proposed action will follow the mitigation hierarchy of avoid, minimise, rehabilitate and offset. With regards to Migratory fauna, the following mitigation measures will be implemented to address the potential impacts arising from the proposed action:

1. a setback of the Upstream indicative disturbance footprint of approximately 30 km from the coast, resulting in a significant geographic separation of the key Migratory shorebird habitat to the nearest wind turbine location.
2. development and implementation of procedures to manage and control areas of habitat clearing to remain within design limits for the proposal footprint, including GPS control of plant and equipment;
3. progressive rehabilitation of all habitat areas that are temporarily cleared during construction, resulting in approximately 16,464 ha (60.6% of the total permanent and temporary clearing) being rehabilitated as soon as practicable post-construction;
4. development and implementation of the Construction Environmental Management Plan (EMP) to address lighting design, surface water and erosion controls, open-overnight trench inspections and entrapped fauna management, and general workforce management measures, including environmental inductions for all onsite personnel in regard to terrestrial fauna.

4.1.5.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

As a final determination of residual environmental impacts and outcomes has not yet been arrived at, no formal environmental offsets have been developed for the proposed action.

However, the proponent has committed to the implementation of an ecological restoration program as part of the implementation of the proposed action that could reasonably be developed into a suitable offset plan (see Section A.3 of the attached 'Att 1 - WGEH referral support.pdf').

4.1.6 Nuclear

4.1.6.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.6.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not a nuclear action.

4.1.7 Commonwealth Marine Area

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.7.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.7.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The direct impacts of the project are limited to Western Australia State Waters only and do not extend into any Commonwealth Marine Areas.

The proposed action will result in facilitated third-party shipping increases within Commonwealth Waters to the south of the project area, both during construction and operation of the proposed action. However, this will primarily occur in existing international shipping lanes where regular vessel traffic occurs [#1]. This will result in an incremental increase in vessel movements on existing levels offshore, in the order of 50-75 arrival per year, with increased vessel movement numbers in areas closer to the project area than is currently occurring. Any potential impact of this increase within Commonwealth Marine Areas would be limited to the same impact pathways identified for Marine Fauna, which will be effectively mitigated by the measures detailed in Section 4.1.4.10 of the attached 'Att 1 - WGEH referral support.pdf'.

References

[#1] Marine Traffic. Available at https://www.marinetraffic.com/en/ais/home/centerx:126.7/centery:-32.2/zoom:7 (accessed 3 January 2025)

4.1.8 Great Barrier Reef

4.1.8.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.8.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not within or near to the Great Barrier Reef Marine Park.

4.1.9 Water resource in relation to large coal mining development or coal seam gas

4.1.9.1 Is the proposed action likely to have any direct and/or indirect impact on this protected matter? *

No

4.1.9.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

The proposed action is not a coal-related development.

4.1.10 Commonwealth Land

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

Direct impact	Indirect impact	Commonwealth land area
No	No	Commonwealth Land -
Yes	Yes	Commonwealth Land - Australian National Railways Commission

4.1.10.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

Yes

4.1.10.2 Briefly describe why your action has a direct and/or indirect impact on these protected matters. *

The northern boundary of the project area adjoins freehold land held by the Australian Rail Track Corporation (ATRC) on behalf of the Commonwealth of Australia, that accommodates the Trans-Australian Railway (see Section 3.1.2 of the attached ‘Att 1 - WGEH referral support.pdf’). The proposed action may include the upgrade of existing rail siding(s) to assist with logistics (see Section 1.2.1.5 of the attached ‘Att 1 - WGEH referral support.pdf’).

4.1.10.4 Do you consider this likely direct and/or indirect impact to be a Significant Impact? *

No

4.1.10.6 Describe why you do not consider this to be a Significant Impact. *

While the action of upgrading existing rail siding(s) may intersect Commonwealth land, this is very unlikely to result in a significant impact to the environment, based on the criteria set out in 'Att 3 - 2013_MNES Significant Impact Guidelines 1.1.pdf': the freehold land is not held by the Commonwealth for conservation purposes or for its ecological significance but rather to accommodate the rail infrastructure.

Further, the Commonwealth land surrounding the Trans-Australia Railway is significantly degraded by long-term increased fire frequency, clearing for access tracks, erosion, and weed invasion and spread [#1]. It is likely to have lost the majority of its original ecological values as a result, and there are no records of any Threatened species or ecological communities listed under the EPBC Act on the Commonwealth land in question

References

[#1] Waddell, P. A., A. K. Gardner, and P. Hennig (2010). Technical Bulletin No. 97: An inventory and condition survey of the Western Australian part of the Nullarbor region. Department of Primary Industries and Regional Development, Perth, Western Australia.

4.1.10.7 Do you think your proposed action is a controlled action? *

Yes

4.1.10.8 Please elaborate why you think your proposed action is a controlled action. *

The project area and proposed action interact with three matters of national environmental significance.

While one of these, Commonwealth land, does not represent a significant impact on the environment, the Threatened species and ecological communities and Migratory species provisions may, with two Threatened species and five Migratory species confirmed from the project area.

While a preliminary evaluation of potential impacts has been conducted to inform this referral, more comprehensive evaluation of predicted impacts on these species, including consideration of mitigation measures, residual environmental impacts and any environmental offsets, is needed through the statutory process of controlled action assessment within the EPBC Act's EIA framework.

4.1.10.10 Please describe any avoidance or mitigation measures proposed for this action and attach any supporting documentation for these avoidance and mitigation measures. *

Given no significant impacts to the environment are predicted, no avoidance or mitigation measures are proposed in regard to the Commonwealth land controlling provision. However, the proponent will ensure that no action is taken that could interact with Commonwealth freehold land in question without the formal approval of the ARTC.

4.1.10.11 Please describe any proposed offsets and attach any supporting documentation relevant to these measures. *

Given no significant impacts on the environment are predicted, not proposed offsets are required in regard to the Commonwealth land provision.

4.1.11 Commonwealth Heritage Places Overseas

You have identified your proposed action will likely directly and/or indirectly impact the following protected matters.

A direct impact is a direct consequence of an action taken – for example, clearing of habitat for a threatened species or permanent shading on an ecological community as the result of installing solar panels.

An indirect impact is an 'indirect consequence' such as a downstream impact or a facilitated third-party action.

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4.1.11.1 Is the proposed action likely to have any direct and/or indirect impact on any of these protected matters? *

No

4.1.11.3 Briefly describe why your action is unlikely to have a direct and/or indirect impact. *

There are no Commonwealth Heritage Places Overseas in the project area locality.

4.1.12 Commonwealth or Commonwealth Agency

4.1.12.1 Is the proposed action to be taken by the Commonwealth or a Commonwealth Agency? *

No

4.2 Impact summary

Conclusion on the likelihood of significant impacts

You have indicated that the proposed action will likely have a significant impact on the following Matters of National Environmental Significance:

- Threatened Species and Ecological Communities (S18)
- Migratory Species (S20)

Conclusion on the likelihood of unlikely significant impacts

You have indicated that the proposed action will unlikely have a significant impact on the following Matters of National Environmental Significance:

- World Heritage (S12)
- National Heritage (S15B)
- Ramsar Wetland (S16)
- Nuclear (S21)
- Commonwealth Marine Area (S23)
- Great Barrier Reef (S24B)

- Water resource in relation to large coal mining development or coal seam gas (S24D)
- Commonwealth Land (S26)
- Commonwealth Heritage Places Overseas (S27B)
- Commonwealth or Commonwealth Agency (S28)

4.3 Alternatives

4.3.1 Do you have any possible alternatives for your proposed action to be considered as part of your referral? *

No

4.3.8 Describe why alternatives for your proposed action were not possible. *

A site search was undertaken to identify potential locations for Giga-scale renewable projects that could enable the energy transition to sustainable power and fuels. This search included several areas in Western Australia, including a proposal area in the extreme southeast of the state.

In comparing this area with other opportunities in WA, two key parameters were considered (applicable to Giga-scale renewable projects):

- Resource:
- Wind Resource
- Solar Resource
- Land matters (include but not limited to):
- Total land area (scalability)
- Simple Terrain suitable for giga scale construction of project
- Traditional Owners
- Cadastre/Pastoral and other Leases
- Environmental Sensitivities
- Existing Habitation
- Flooding Risk
- Telecommunications
- Proximity/Access to water
- Proximity to export options

Reviewing the potential area for a Western Green Energy Hub, it was identified, from early assessment of the wind and solar resource, that the Proposal area in the south east of WA possessed significant Renewable Energy resources. These conditions made this site a potential candidate for further investigations of land issues that identified:

- **Land** – significant area of un-allocated Crown Land, and a small number of very large pastoral leases. No existing tenements
- **Traditional Owners** – Native Title determination over significant area held by the Mirning Peoples
- **Environment** – significant Tableland with sparse vegetation north of Coastal Plain and coastline (west of adjacent Marine Park)
- **Habitation** – Pastoral stations
- **Flooding Risk** – low risk
- **Telecommunications** – minimal at perimeter, none within area

- **Proximity/Access to water** – will require dedicated infrastructure
- **Proximity to export options** – will transit toward markets around SW Australia

The initial assessment (that has been reconfirmed throughout investigations to date) is that the Proposal area in the extreme SE of Western Australia possesses a high-quality opportunity, in terms of excellent wind and solar resources, at scale, in simple terrain that can otherwise only be achieved offshore.

This large scale and simplicity of terrain is, from a development perspective, complemented by the lack of constraints including land and mining rights, significant ecological and construction constraints associated with complex terrain.

5. Lodgement

5.1 Attachments

1.2.1 Overview of the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High

1.2.6 Commonwealth or state legislation, planning frameworks or policy documents that are relevant to the proposed action

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High

1.3.2.18 (Person proposing to take the action) If the person proposing to take the action is a corporation, provide details of the corporation’s environmental policy and planning framework

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 2 - WGEH Corporate Charter.pdf WGEH's Corporate Charter, which sets out how all aspects of the project will be managed from an environmental and social governance perspective.		No	High

3.1.1 Current condition of the project area's environment

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High

3.1.2 Existing or proposed uses for the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High

3.1.3 Natural features, important or unique values that applies to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Geoheritage Sites https://catalogue.data.wa.gov.au/dataset/geoheri..			High

3.1.4 Gradient relevant to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High
#2.	Link	Eucla Basin and peripheral paleovalleys https://www.researchgate.net/publication/3656122..	01/11/2022		High

3.2.1 Flora and fauna within the affected area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support UNREDACTED.pdf A version of the referral supporting document containing maps with the precise record locations for Threatened and Migratory species from the project area.	19/01/2025	Yes	High
#2.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to	19/01/2025	No	High

		date, and an assessment of impacts and mitigation in relation to matters of national environmental significance			

3.2.2 Vegetation within the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High
#2.	Link	An inventory and condition survey of the Western Australian part of the Nullarbor region https://library.dpird.wa.gov.au/tech_bull/10/	01/01/2010		High

3.3.1 Commonwealth heritage places overseas or other places that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Australasian Underwater Cultural Heritage Database http://www.environment.gov.au/shipwreck/public/w..			High
#2.	Link	Maritime Archaeology Shipwrecks Databases http://www.museum.wa.gov.au/maritime-archaeology..			High

3.3.2 Indigenous heritage values that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	Aboriginal Cultural Heritage Enquiry System https://espatial.dplh.wa.gov.au/ACHIS/index.html..			High

3.4.1 Hydrology characteristics that apply to the project area

	Type	Name	Date	Sensitivity	Confidence
#1.	Link	An inventory and condition survey of the Western Australian part of the Nullarbor region. https://library.dpird.wa.gov.au/tech_bull/10/	01/01/2010		High

4.1.4.2 (Threatened Species and Ecological Communities) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence

#1.	Document	Att 1 - WGEH referral support UNREDACTED.pdf A version of the referral supporting document containing maps with the precise record locations for Threatened and Migratory species from the project area.	18/01/2025	Yes	High
#2.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	19/01/2025	No	High

4.1.4.5 (Threatened Species and Ecological Communities) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	18/01/2025	No	High
#2.	Document	Att 3 - 2013_MNES Significant Impact Guidelines 1.1.pdf EPBC Act policy document to guide significance of impact assessments.	01/01/2013	No	High

4.1.4.11 (Threatened Species and Ecological Communities) Proposed offsets relevant to avoidance or mitigation measures

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	18/01/2025	No	High

4.1.5.2 (Migratory Species) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support UNREDACTED.pdf A version of the referral supporting document containing maps with the precise record locations for Threatened and Migratory species from the project area.	18/01/2025	Yes	High
#2.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	18/01/2025	No	High

4.1.5.5 (Migratory Species) Why you consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3 - 2013_MNES Significant Impact Guidelines 1.1.pdf EPBC Act policy document to guide significance of impact assessments.	31/12/2012		High

4.1.5.11 (Migratory Species) Proposed offsets relevant to avoidance or mitigation measures

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	18/01/2025	No	High

4.1.7.3 (Commonwealth Marine Area) Why your action is unlikely to have a direct and/or indirect impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	18/01/2025	No	High
#2.	Link	Marine Traffic https://www.marinetraffic.com/en/ais/home/center..			High

4.1.10.2 (Commonwealth Land) Why your action has a direct and/or indirect impact on the identified protected matters

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 1 - WGEH referral support.pdf A supporting document for the WGEH EPBC Act referral, providing detail on the description of the proposed action, land use and tenure, environmental surveys completed to date, and an assessment of impacts and mitigation in relation to matters of national environmental significance	18/01/2025	No	High

4.1.10.6 (Commonwealth Land) Why you do not consider the direct and/or indirect impact to be a Significant Impact

	Type	Name	Date	Sensitivity	Confidence
#1.	Document	Att 3 - 2013_MNES Significant Impact Guidelines 1.1.pdf EPBC Act policy document to guide significance of impact assessments.	31/12/2012		High
#2.	Link	An inventory and condition survey of the Western Australian part of the Nullarbor region.	01/01/2010		High

https://library.dpird.wa.gov.au/tech_bull/10/

5.2 Declarations

Completed Referring party's declaration

The Referring party is the person preparing the information in this referral.

ABN/ACN	49092687119
Organisation name	BIOTA ENVIRONMENTAL SCIENCES PTY LTD
Organisation address	6005 WA
Representative's name	Garth Humphreys
Representative's job title	Principal Ecologist / Director
Phone	08 9328 1900
Email	garth@biota.net.au
Address	Level 4, 46 Colin Street, West Perth WA 6005

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ By checking this box, I, **Garth Humphreys of BIOTA ENVIRONMENTAL SCIENCES PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to this EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

Completed Person proposing to take the action's declaration

The Person proposing to take the action is the individual, business, government agency or trustee that will be responsible for the proposed action.

ABN/ACN	647744474

Organisation name	WGEH PTY LTD
Organisation address	6104 WA
Representative's name	Raymond Macdonald
Representative's job title	Chief Executive Officer
Phone	08 9328 1900
Email	raymond.macdonald@wgeh.com.au
Address	Suite 2, Level 3, 1 Havelock Street, West Perth WA 6005

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Raymond Macdonald of WGEH PTY LTD**, declare that to the best of my knowledge the information I have given on, or attached to the EPBC Act Referral is complete, current and correct. I understand that giving false or misleading information is a serious offence. I declare that I am not taking the action on behalf or for the benefit of any other person or entity. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

✔ Completed Proposed designated proponent's declaration

The Proposed designated proponent is the individual or organisation proposed to be responsible for meeting the requirements of the EPBC Act during the assessment process, if the Minister decides that this project is a controlled action.

Same as Person proposing to take the action information.

☑ Check this box to indicate you have read the referral form. *

☑ I would like to receive notifications and track the referral progress through the EPBC portal. *

☑ I, **Raymond Macdonald of WGEH PTY LTD**, the Proposed designated proponent, consent to the designation of myself as the Proposed designated proponent for the purposes of the action described in this EPBC Act Referral. *

☐ I would like to receive notifications and track the referral progress through the EPBC portal. *