Draft Environmental Impact Statement Guidelines

Woolnorth Wind Farm Holdings Pty Ltd

Woolnorth Wind Farm Repowering, Studland Bay and Bluff Point

November 2024

EPA TASMANIA
ENVIRONMENT PROTECTION AUTHORITY

Table of Contents

Glossary and abbreviations

Term	Definition
Board	Board of the Environment Protection Authority
Case for assessment	Information required for environmental impact assessment, prepared according to the Board's requirements.
Director	Means the Director, Environment Protection Authority holding office under Section 18 of *Environmental Management and Pollution Control Act 1994* and includes a delegate or person authorised in writing by the Director to exercise a power or function on the Director's behalf.
EIS	Environmental Impact Statement
EMPCA	*Environmental Management and Pollution Control Act 1994*
EMPCS	Environmental Management and Pollution Control System. Objectives found in Schedule 1 of EMPCA.
Environmentally hazardous material	Means any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment and includes fuels, oils, waste and chemicals but excludes sewage.
EPA	Environment Protection Authority. Tasmania's independent principal environmental regulator which administers EMPCA and consists of a Board and a Director.
EPBC Act	*Environment Protection and Biodiversity Conservation Act 1999* (Commonwealth)
JAMBA/CAMBA	Japan-Australia and China-Australia Migratory Bird Agreements
LUPAA	*Land Use Planning and Approvals Act 1993*
MNES	Matters of National Environmental Significance
NCA	*Nature Conservation Act 2002*
Noise sensitive premises	Residences and residential zones (whether occupied or not), schools, hospitals, caravan parks and similar land uses involving the presence of individual people for extended periods, except in the course of their employment or for recreation.
Planning Authority	Council for relevant local government area
RMPS	Resource Management and Planning System, Tasmania. Objectives found in Schedule 1 of EMPCA.
Suitably qualified person	Means suitably qualified person in the opinion of the Director
RFA	Tasmanian Regional Forest Agreement
TSPA	*Threatened Species Protection Act 1995*

Part A. Introduction

These Guidelines provide instructions for proponents on how to prepare an Environmental Impact Statement (EIS) for an activity being assessed in Tasmania by the Board of the Environment Protection Authority (the Board). The Board uses an EIS as a 'case for assessment', to assess the environmental impact of an activity, as required under the *Environmental Management and Pollution Control Act 1994* (EMPCA).

The role of the EIS

An EIS is generally required for larger scale developments, classed as requiring 2B or 2C assessments under EMPCA. It is a document that provides information about a proposal, its potential impacts and proposed mitigation measures. As a publicly available document, an EIS should facilitate public consultation and informed comment and should contain sufficient information to establish the conditions of approval by authorities, if approved.

The EIS should demonstrate that the proposal is consistent with the objectives of relevant laws and policies, including the Tasmanian Resource Management and Planning System (RMPS) and the Environmental Management and Pollution Control System (EMPCS). These systems are designed to facilitate sustainable development.

Further information on the EPA Assessment Process is available on the EPA website.[1]

Refer also to Appendix B *General principles for assessing environmental impacts*, for further information on EIS principles.

How the Board uses the EIS

The Board uses the EIS to inform decision making as part of the environmental impact assessment process. The EIS must be prepared in accordance with guidance provided by the Board under section 74(4) of EMPCA. The staff of the EPA support the Board during the assessment process.

The EIS will be advertised publicly to allow for public consultation. The proponent may then be required to supply additional information in response to public and government agency submissions. This information is generally supplied in the form of a supplement to the EIS.

The Board considers the EIS as well as other relevant information in the context of the objectives of the RMPS and EMPCS. These objectives aim to sustain the environment and avoid or mitigate adverse effects, while considering the economic and social needs of people now and in the future. The Board will endeavour to make the decision which best furthers the objectives of the RMPS and EMPCS. It may approve the proposal with conditions, or in some cases may decide to reject the proposal if the objectives cannot be upheld.

The Environmental Impact Statement Guidelines are adapted for each specific proposal. In general, more detailed studies and information will be required where issues are considered by the Board to involve a higher level of environmental risk.

Other significant matters may emerge while preparing the EIS, from environmental studies, public comments, or other sources. These must also be considered in the EIS. Information collected or generated during the assessment process may also change the understanding of the level of risk associated with some issues. This must also be reflected in the EIS.

[1] See https://epa.tas.gov.au/Pages/Assessment-Process.aspx

Planning information

The relevant Planning Authority (local Council) will assess planning information if the *Land Use Planning and Approvals Act 1993* (LUPAA) applies. Information solely for the purpose of assessment under the relevant Planning Scheme should be supplied to the Planning Authority either:

- as required under section 54 of LUPAA where the planning application has started the environmental assessment process; or
- as a combined planning and environmental report where it is intended to submit an EIS (draft or final) with the planning application. Where this option is selected, the information required for the Board's assessment must be clearly distinguished from that supplied for the purposes of LUPAA.

Australian Government environmental assessment

The proposal was determined to be a controlled action on 9 September 2024 under the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* (**EPBC Act**) (EPBC Reference 2024/09880) and will require assessment and approval under the EPBC Act, in addition to Tasmanian State and Local government requirements. It was determined that the proposed action will have, or is likely to have, a significant impact on matters of national environmental significance (**MNES**), protected under Part 3 of the EPBC Act including:

- Listed threatened species and communities (sections 18 & 18A of the EPBC Act); and
- Listed migratory species (sections 20 & 20A of the EPBC Act).

The Australian and Tasmanian Governments have signed a bilateral agreement for environmental impact assessment under section 45 of the EPBC Act, which accredits the Tasmanian assessment process. This allows a proposal that has been determined to be a controlled action under the EPBC Act to be assessed by the Board on behalf of the Australian Government.

As the proposal is being assessed under the bilateral agreement, the EIS should specifically describe the implications of the proposal for the relevant EPBC Act controlling provisions. It must also contain a summary table showing that it addresses the matters specified in Schedule 4 of the *Commonwealth Environment Protection and Biodiversity Conservation Regulations 2000*.[2]

[2] See http://www8.austlii.edu.au/cgi-bin/viewdoc/au/legis/cth/consol_reg/epabcr2000697/sch4.html

Part B. Instructions

The EIS must present information in a way that can be easily understood. It should provide summaries in non-technical language to give readers a general understanding of the proposal. It must also provide technical detail to allow analysis and understanding of impacts and mitigation measures by technical specialists, regulatory bodies, and people with an interest in specific matters arising from the proposal.

Section C of these Guidelines sets out the structure and **minimum** content requirements of the EIS.

Proponents are advised to consult the EPA during preparation of the EIS, including in the case of any uncertainty in relation to the requirements set out in these Guidelines.

General requirements

- Avoid technical terminology where possible in the main body of the EIS. It should be able to be read as an independent document which provides a general understanding of the proposal.
- Include any detailed technical data or supplementary reports as appendices.
- Consider document accessibility. The Australian Government Style Manual provides information about inclusion and accessibility.
- Use cross-referencing to prevent unnecessary duplication between sections.
- Reference all sources of information using a consistent style.
- Define all key terms and words used.
- Information in the EIS must be relevant.
    - Show reasoning for arguments. Support conclusions with referenced evidence.
    - Indicate how current information is, how reliability has been tested, and the degree of confidence attached to any predictions.
    - Sufficient technical detail must be provided to allow for environmental impact assessment, even when details are not final at the time of preparation.
    - If information is currently unavailable, estimates and alternative options should be provided, however the limitations of available information must be evaluated.
- Provide any sensitive commercial or corporate information in a confidential appendix. Provide a comment in the EIS if this has been done.

The EIS must not include information that is known to be false or misleading, and nothing should be omitted if it is known that without it the EIS would be false or misleading (section 43A of EMPCA).

Spatial and visual information requirements

- Present information in maps, plans, diagrams, and photographs where necessary, to enhance understanding.
- Images must be high quality and reproducible in monochrome, with all text and relevant features clearly visible.
- Maps and plans should include a north arrow, legend and scale.

- Use a consistent base plan throughout the EIS where appropriate, to allow elements to be overlaid and compared. Ensure that detailed information is clear and visible, particularly when using satellite images as background layers. This is best achieved using a geographical information system (GIS).
- Specify the coordinate reference system when providing or referring to spatial information, including maps, plans, grid coordinates and heights. Further information on coordinate reference systems used in Tasmania can be found on the Land Tasmania website[3].

Recommended systems are:

- Horizontal – Geocentric Datum of Australia 1994[4] Map Grid of Australia Zone 55 (GDA94 MGA55)
- Vertical – Australian Height Datum (Tasmania) (AHD83).

Independent Review

For large proposals, such as Class 2C activities, prior to submission to the EPA, the draft EIS should be independently reviewed by a suitably qualified person to confirm that it meets the requirements detailed in Guidelines issued for the proposal.

Submission

It is strongly recommended that proponents submit a draft EIS to the EPA for review before formally lodging the EIS with the Board. The draft EIS submitted for review must meet the requirements of these Guidelines and be in accordance with Appendix B; incomplete documents will not be accepted for review.

The EIS (and any drafts submitted for review) may be submitted via email to assessments@epa.tas.gov.au and your nominated contact officer. Proponents should contact the EPA if alternative submission methods are deemed necessary.

[3] See https://nre.tas.gov.au/land-tasmania/geospatial-infrastructure-surveying/geodetic-survey/coordinate-height-and-tide-datums-tasmania

[4] Geocentric Datum of Australia 2020 (GDA2020) is the new official datum for recording the horizontal location of spatial information in Australia, but is not yet fully implemented in Tasmania.

Part C. EIS structure and content

The EIS must follow the structure set out below and must address all requirements unless otherwise agreed following consultation with the EPA. For clarity, organise content with further headings and subheadings as appropriate.

Title page

The title page must include:

- Name of proponent (legal entity)
- Name of proposal (include "expansion" or "upgrade" where appropriate)
- Proposal address or location
- EIS version number
- Month and year of submission

Executive summary

The executive summary must provide a clear and concise overview of the proposal, its environmental implications, and the function of the EIS in the context of the assessment process. For a larger EIS, the executive summary must be written as a stand-alone document for people who may not wish to read or acquire the full EIS.

Table of contents

The EIS must include a table of contents and a list of figures and tables to allow the reader to easily locate information. The table of contents should include hyperlinks to allow documents to be navigated easily.

Glossary and abbreviations

Provide a list of abbreviations and acronyms and a glossary which clearly defines any technical terms used in the EIS.

Proponent information

Proponent details:

- Name of proponent (legal entity)
- Name of proponent (trading name)
- Registered address of proponent
- Postal address of proponent
- ABN
- ACN (where relevant)

Contact person's details:

- Name
- Telephone
- Email address

Activity Operator details must be provided if the operator will be a different entity to the proponent.

1. Introduction

The introduction should provide:

- General background information on the proponent, including relevant development and operational experience.
- General background information on the proposal, including:
    - current status of the proposal;
    - an overview of the principal components of the proposal;
    - the proposal location;
    - likely markets for the product;
    - possibilities for future expansion; and
    - objective of the proposal.
- If the proposal is associated with an existing activity, information on current permits, regulatory approvals and/or licences.
- A discussion about how the proposal relates to any other proposals that have been or are being developed in the same region as the proposal.
- Environmental legislation, standards and guidelines that will be applicable, such as policies, regulations, and industry codes of practice.
- Other relevant Commonwealth[5], State and Local Government policies, strategies, and management plans with which the proposal would be expected to comply.

2. Proposal description

The scope of the proposal must be clearly described, and must include:

- A summary table,
- A detailed description of proposal,
- Definition of the Land,
- Maps, plans and visual information,
- A summary of planning aspects,
- Socio-economic context, and
- Off-site infrastructure.

Where a proposal will require a permit application under LUPAA, the proposal description and specification of the site must be consistent with the intended or current permit application.

2.1 Summary table

The summary table provides an overview of the proposal and identifies the key characteristics, including:

- Location and planning context;

[5]Relevant Commonwealth policy documents include:
Commonwealth of Australia, 2013, EPBC Act Policy Statement 1.1 Significant Impact Guidelines - Matters of National Environmental Significance
Commonwealth of Australia, 2010, Survey Guidelines for Australia's Threatened Birds
Commonwealth of Australia, 2009, EPBC Act Policy Statement 2.3 Wind Farm Industry
Commonwealth of Australia, 2010, Survey Guidelines for Australia's Threatened Mammals
Note that this is not an exhaustive list, others may apply (including Recovery Plans).

- Existing site information, including topography, local climate, geology, geomorphology, soils (e.g. erodibility and acid sulphate soils), vegetation, fauna, groundwater, and surface drainage (e.g. waterways, lakes, wetlands, coastal areas);
- Proposed infrastructure;
- Proposed timeline; and
- Inputs (e.g. water, materials, energy) and outputs (e.g. products, wastes and emissions).

Refer to *Appendix C* for an example of a project description summary table.

2.2 Detailed description of proposal

This section should include information that has not been included in the summary table, or that requires further explanation. Provide detail on the proposed decommissioning of existing wind farm and transmission line infrastructure and transition to the new wind farm and transmission line infrastructure, as well as the construction, commissioning and operation of the new wind farm and transmission line infrastructure, including any ancillary works that are for the purpose of the proposal (e.g. access works).

2.2.1 Project Components

- Describe the physical components required for the proposal to function up to closure.
- Describe the major items of equipment (including pollution control equipment) and onsite facilities. Include detailed technical information on major items of equipment as appendices.
- Detail the total footprint of the proposal.

2.2.2 Decommissioning of existing infrastructure and transition to new infrastructure

Provide a Transition Plan for the proposed repowering period, which indicates likely staged activities during construction of the proposed wind farm, and operation and decommissioning of the existing windfarms. The plan should include:

  - any proposed staged areas/sectors for the decommissioning of the existing windfarm and construction of the proposed windfarm;
  - a timetable outlining the sequencing and proposed timeframe(s) for construction, commissioning and commencement of operations; and
  - significant milestones during the repowering period.

- The Transition Plan must refer to and be consistent with any Decommissioning and Rehabilitation Plans submitted for the existing wind farm and transmission line as required by Permit PA10/00 as varied by Environment Protection Notice (EPN) No. 7421/2, Permit PA10/00 as varied by EPN No. 7423/3 and EPBC 2000/12.

2.2.3 Construction of new infrastructure

- Provide a step-by-step description of significant activities that will occur during the construction phase of the proposal.
- Provide an indicative timetable for completing major stages of construction.
- Detail the total construction footprint.
- Define the proposed hours within which construction activities will take place (hours per day and specific days per week).
- Describe the volume, composition, origin, destination, and route for vehicle movements (road, rail, shipping, and air) during construction. Specify what proportion of road usage and vehicle movements will involve over-dimension and heavy road vehicles. Compare the proposed vehicle movements with existing usage of relevant routes.

2.2.4 Commissioning of new infrastructure

- Provide a step-by-step description of significant commissioning activities that will occur following installation of equipment.
- Provide an indicative timetable for completing major stages of commissioning. Describe the point at which commissioning will be considered complete.

2.2.5 Operation of new infrastructure

- Describe the process(es) of operation in a step-by-step manner, using explanatory diagrams and flow charts where appropriate.
- Outline all raw materials (including water) required for operation. Detail sources, quantities, and characteristics.
- Identify and quantify all products, emissions and/or wastes produced.
- Outline all energy requirements for operation. Describe how energy demands will be met.
- Define the production capacity and rate for relevant processes. Include peak rates, daily average rates and annual production rates where applicable.
- Define the proposed hours of operation (hours per day and specific days per week). Specify any seasonal variations.
- Describe the volume, composition, origin, destination, and route for vehicle movements (road, rail, shipping, and air) likely to occur during operation, including timing of traffic flows. Specify what proportion of road usage and vehicle movements will involve over-dimension and heavy road vehicles. Compare the proposed vehicle movements with existing usage of relevant routes.
- If the proposal is associated with an existing activity, provide the following information:
    - a summary of environmental monitoring results;
    - a summary of public complaints regarding the activity (received by the activity operator and by regulatory authorities);
    - details of breaches of conditions of current regulatory approvals (if any); and
    - details of contraventions of environmental law (if any).

2.3 Maps, plans and figures

Spatial information should be presented in maps, plans, diagrams and imagery. These must be of high quality and reproducible in monochrome with all text and relevant features clearly visible. Maps and plans should include a north arrow, scale and legend. When spatial data (including maps, plans, coordinates and heights) are provided or referred to, the horizontal and vertical datum must be specified. At a minimum, provide the following:

2.3.1 General location maps

Provide general location maps of the existing environment and surrounding area (of a suitable scale), showing:

- The location of the proposal site;
- Boundaries of the property on which the proposal is located;
- Road access to and from the site;
- The distance(s) to any nearby sensitive uses and residences[6];
- The applicable attenuation distance;[7]

[6] Defined in the State Planning Provisions as 'a residential use or a use involving the presence of people for extended periods except in the course of their employment such as a caravan park, childcare centre, dwelling, hospital or school.'
[7] Refer to relevant planning scheme or the State Planning Provisions.

- Topographical features, aspect, and direction of drainage;
- Location of waterways and drains (including ephemeral waterbodies and water courses);
- Electricity transmission lines;
- Surrounding land tenure;
- Surrounding land use (including areas of conservation or recreational significance); and
- Surrounding land zoning in the local government planning scheme.

2.3.2 Map of the Land as defined in the Development Application

Showing relevant Cadastral boundaries with title details, e.g. Volume/Folio 136529/1.

2.3.3 Map of the proposed activity area

Clearly showing the physical extent of the proposal. The activity area should encompass all works for construction and areas used for operation, including earthworks, land clearing, existing or proposed structures, stockpiles, laydown areas, parking, amenities and sediment management and other infrastructure.

- The map should include a sufficient number of coordinates at corner points for the activity area boundary; and
- The activity area boundary should also be provided in a geospatial vector format (shapefile or DXF).

Where works are proposed in key stages over time, include definitions or boundaries of each of the key stages.

2.3.4 Site Plan

Provide site plan(s) showing the detail of the proposed works and operation, including:

- cadastral boundaries and mining lease boundaries (if relevant);
- the boundary of the activity area;
- the location of existing and proposed buildings/structures and plant and machinery;
- relevant topographic features, including contours and waterways;
- proposed buildings, structures, major earthworks, major items of equipment, storage areas, loading/unloading areas;
- the locations and extent of areas for that may used for any extraction or materials handling that are included as part of the proposal (e.g. crushing of concrete or rock to reuse material from the existing wind farm sites or on-site quarries to extract material for construction of roads and hardstands);
- site water management (drains, settling ponds, bunding and monitoring points, as relevant);
- vegetation types, clearly marking areas to be cleared, and records of any threatened species/vegetation communities.

2.3.5 Figures and flowcharts

Present figures such as process flowcharts and images where they are likely to improve readers' understanding of the site and proposal. Any images and photos used must be high-quality, with an accurate description and date.

2.4 Offsite infrastructure

Describe any new infrastructure or offsite ancillary facilities required to enable the proposal to proceed, such as water supply, electricity supply, roads or other infrastructure.

3. Planning and socio-economic context

The planning aspects description should include any additional planning information and data not included in the summary table.

- If a permit is required under LUPAA provide Use Class and Permissibility of the proposed activity under the applicable Planning Scheme.

- Detail land tenure and property boundaries of the proposed site, with certificate of title details.
- Detail land zonings for the proposed site and surrounding areas.
- Describe any rights of way, easements and covenants affecting the site.
- Discuss land use and planning history of the site, including the potential for site contamination[8], present use and any existing buildings and significant structures.
- Describe land use and ownership in the vicinity of the site and those areas which may be affected by the proposal.
- Provide the location and nature of industrial facilities.
- Detail sensitive uses[9] and residential zones within applicable attenuation distances including the location of individual residences, schools, hospitals, caravan parks and similar sensitive uses, and the location of any tourist or recreation facilities or routes (such as camping areas, picnic areas, walking tracks, historic routes).
- Consider any proposed or potentially sensitive uses within applicable attenuation distances from the proposal site, which have been or are likely to be granted approval under the local planning scheme.

Briefly describe the existing social and economic environment that may be affected by the proposal. This may include:

- A summary of the social or demographic characteristics of the population living in the vicinity of the proposal site, identifying any special characteristics which may make people more sensitive to impacts from the proposal than might otherwise be expected.
- A summary of the characteristics of the local and regional economy.

4. Project Alternatives

Proponents should provide the rationale for the proposal. Alternatives should consider best practice environmental management, including measures listed under section 4(2) of EMPCA.[10] The rationale should:

- Describe the site selection process and criteria.
- Evaluate the alternative of taking no action to repower the existing windfarm.
- Evaluate any alternative sites considered. Justify the choice of the proposed site in terms of clearly defined environmental, social, economic, and technical considerations, including avoidance of environmental impacts.
- Describe the effect of any community consultation on the selection process.
- Identify and provide an assessment of other available technologies, materials, design options or management practices, where relevant, including how environmental impacts will be avoided. Evaluate the environmental performance of identified alternatives and provide justification for the preferred option.

[8] Information on potentially contaminating activities and contaminated site assessment can be found online at https://epa.tas.gov.au/Pages/Land.aspx

[9] Defined in the State Planning Provisions as 'a residential use or a use involving the presence of people for extended periods except in the course of their employment such as a caravan park, childcare centre, dwelling, hospital or school.'

[10] See: https://www.legislation.tas.gov.au/view/html/inforce/current/act-1994-044#GS4@EN

5. Public Consultation

Describe any public consultation that has taken place during project planning and preparation of the EIS and summarise the results of this consultation. Describe any proposed future public consultation that will take place during project implementation and operation. The Board encourages early community engagement, as it often leads to better outcomes for all parties. Guidance on effective community engagement is available on the EPA website[11] . Consider available guidance on culturally appropriate consultation approaches under the EPBC Act[12]

[11] See https://epa.tas.gov.au/Documents/Guidance on Community Engagement.pdf
[12] See https://www.dcceew.gov.au/sites/default/files/documents/interim-engaging-with-first-nations-people-and-communities-assessments-and-approvals-under-epbc-act.pdf

6. Potential Impacts and Management

Identify all potential environmental impacts and describe the proposed measures to avoid, mitigate or offset adverse consequences. The detail provided on each issue should reflect its significance. While key issues are identified for the proposal, other issues that emerge as significant while preparing the EIS, through environmental studies, public comments or otherwise, must be considered and addressed.

Address each discrete issue separately, using headings and subheadings where necessary to organise and separate discussions.

Use scientific data to support predictions and evaluate impacts and provide references to the data used. Where specialist reports have been required for key issues, summarise them within the body of the EIS where relevant, and attach the reports as appendices. Detail the qualifications of the authors of any specialist reports. Make sure that the information in the body of the EIS is consistent with the information in the appendices.

General information requirements for each potential impact are described below and are in addition to any specific information requirements detailed later in this section.

Existing Environment

- Describe the existing environment in relation to the impact, including the vulnerability of the potentially affected environment.
- Analyse the issue in relation to the existing environment.

Methodology

- Describe how the assessment of the impact has been undertaken, such as by survey or desktop study.
- Identify any relevant guidelines and standards used.
- Discuss any choice of methodology over alternatives where relevant.

Assessment

- Clearly articulate potential impacts, using tables and figures to aid communication where possible.
- Support assertions and assumptions with adequate argument and/or evidence.
- Identify plausible worst-case scenarios and the reversibility of the impact.
- Summarise the proposal's contribution to any cumulative impacts, where appropriate.

Avoidance and Mitigation Measures

- Describe the measures proposed to avoid, mitigate or offset potential adverse impacts.
- Detail any specialist recommendations which have been/will be implemented. Where specialist recommendations are not to be implemented, justify why. All recommendations made in specialist reports should be addressed.
- Analyse the effectiveness of the mitigation measures. Describe how and to what degree the impacts will have been avoided, minimised or offset.
- Discuss any residual impacts, referring to relevant guidelines or standards.
- Discuss any contingency measures related to pollution control equipment.

Refer to *Appendix B: General principles for assessing environmental impacts*.

Key issues

The key issues identified for this proposal, which should be the focus of the EIS, are:

1. Potential impacts on avian fauna associated with the operation of the proposal.
2. Potential impacts on non-avian fauna associated with the construction and/or operation of the proposal.
3. Potential impacts on vegetation communities and flora associated with the construction and/or operation of the proposal.

6.1 Key issue 1: Avian fauna

The EIS should discuss the potential impacts of construction and operation of the proposal and any associated infrastructure on avian fauna, with particular reference to MNES, and threatened and migratory species, including those listed under the Tasmanian *Threatened Species Protection Act 1995* (**TSPA**), the Tasmanian *Nature Conservation Act 2002* (**NCA**), and the EPBC Act.

Impacts of the proposal are likely to include mortality or injury of avifauna through collision with wind turbine generators (**WTGs**), transmission lines and associated infrastructure as well as habitat loss and disturbance. Species of particular concern include, but are not limited to:

- orange-bellied parrots (*Neophema chrysogaster*) (**OBPs**);
- Tasmanian wedge-tailed eagle (*Aquila audax fleayi*) (**WTE**);
- white-bellied sea eagle (*Haliaeetus leucogaster*) (**WBSE**);
- swift parrot (*Lathamus discolor*);
- blue-winged parrot (*Neophema chrysostoma*);
- Tasmanian masked owl (*Tyto novaehollandiae castanops*) (**TMO**);
- grey goshawk (*Accipiter novaehollandiae*);
- white-throated needletail (*Hirundapus caudacutus*); and
- seabirds and shorebirds (including MNES, and threatened and migratory species).

6.1.1 Required technical studies and plans

- Bird Utilisation Surveys (**BUS**);
- OBP Survey and Monitoring Plan;
- Targeted surveys for nocturnally active avian fauna;
- Targeted utilisation surveys – WTE and WBSE;
- Nest searches and condition assessments - WTE and WBSE;
- Bat surveys;
- Collision Risk Model (**CRM**)

Requirements of these studies and plans are detailed in the below sections.

6.1.2 Existing environment

- Specify and map known/recorded populations and known or potential habitat for avian fauna species listed under the TSPA, NCA and EPBC Act within the proposal site and surrounding areas.
- Provide a description of MNES within the proposal site and surrounding areas.
- Provide the results of surveys, as outlined below. The details of surveys undertaken, including survey effort, timing and an assessment of the adequacy of surveys must be included in the EIS.

Bird utilisation surveys

BUS should be carried out across the proposal site to determine utilisation of the area by avian fauna species. It is recommended that surveys:

- Be undertaken in all habitat types present;
- Be undertaken by suitably qualified persons;

- Use multiple observers for each survey;
- Include a minimum of five-day surveys at the mid-point of each season (summer, autumn, winter and spring), undertaken from dusk to dawn or an appropriately representative period depending on the time of year;
- Represent the full range of avian species using the proposal site across the year, noting that this is particularly important for migratory avian species which will be present, potentially for short periods although for some species longer, from late summer over autumn and during spring;
- Be representative of local wind conditions; and
- Be undertaken over a minimum period of two years.

Table 1 below provides more specific details regarding the impact assessment of avian species of concern, including survey recommendations (note that targeted BUS requirements for WTE and WBSE are detailed on page 23 of these Guidelines).

It is requested that all survey data be submitted to the Natural Values Atlas within 90 days of the survey results being finalised.

Table 1 Details regarding impact assessment for avian fauna species

Species	Status	Background	Requirements for surveys, technical studies, plans and impact assessment
Orange-bellied parrot (*Neophema chryogaster*)	Critically endangered under the EPBC Act and endangered under the TSPA.	There is a very high potential for OBPs to be present at the existing and proposed Woolnorth Wind Farm sites at Bluff Point and Studland Bay during migratory and non-breeding periods, as evidenced or inferred by: • The Natural Values Atlas (**NVA**) contains 28 records of OBPs within 2km of the existing Woolnorth Wind Farm sites at Studland Bay and Bluff Point and one OBP was detected in the rotor swept area at the Woolnorth Wind Farm Studland Bay site in 1999;[13] • Although weed species on which OBPs are known to forage have historically been actively managed on the existing Woolnorth Wind Farm sites to reduce the attractiveness of the immediate area to foraging OBPs, other potential foraging habitats (coastal grass and herb land (TasVEG Code: GHC) and saline sedge land/rush land (TasVEG Code: ARS) are present within 1km of the existing and proposed Woolnorth Wind Farm sites and are likely to attract OBPs; • OBPs are known to favour locations, using them repeatedly over several years, then changing locations for several years to exploit a new area; • OBPs are also known to change locations during the non-breeding season, meaning a location not currently in use may be used at another time in the season; • Most of the OBP population is not observed in the non-breeding season despite survey efforts across the range, meaning there are currently important but unknown locations of occupancy; • In 2014, the wild population of OBPs (based on spring arrivals at Melaleuca) was approximately 35 birds; in	An OBP Survey and Monitoring Plan outlining how surveys or monitoring will be undertaken to inform the assessment of the proposal's potential impacts on OBPs must be submitted to the EPA for feedback and approval prior to finalising any survey or monitoring methodology. The OBP Survey and Monitoring Plan must include a proposal for immediately commencing OBP mortality surveys and monitoring at the existing Woolnorth Wind Farm sites at Studland Bay and Bluff Point, drawing on the methodology previously utilised as outlined in the *Woolnorth Studland Bay Wind Farm Bird and Bat Monitoring Plan 2007*. At a minimum, the methodology for OBP mortality surveys and monitoring must: • Include searches for OBP carcasses and blood spots in cleared areas around all WTGs, in the periods 15 September to 15 December, and 1 March to 15 June, each year, at a frequency that accounts for potential carcass scavenging; • Provide for the reporting of any OBP carcasses or blood spots found during or outside of these surveys in accordance with existing protocols; and • Consider the use of scent detection dogs to detect mortalities. Any proposal to undertake BUS for OBPs that is included in the OBP Survey and Monitoring Plan must detail how: • Uncertain identifications will be treated;

[13] *Avifauna Collision Risk Update 2008 Surveys for Studland Bay Wind Farm*

		2023 the population was 82 birds, following a year-on-year upwards trajectory in numbers. With a larger population, the area of occupied OBP habitat appears to be expanding in both the breeding and non-breeding range and OBPs are being detected in areas where they have not been seen for some time and in sites where they have not previously been recorded. Visual bird utilisation surveys may be inadequate for detecting actual or potential site occupancy by OBPs given their low population size, low density, cryptic nature, high mobility, and wide distribution during migration. Significantly, evidence now indicates that migratory movements are rapid and often occur at night, when birds would not be detected through visual surveys. In addition, there is the possibility that OBPs could be misidentified as blue-winged parrots (*Neophema chrysostoma*). Recent VHF tracking of OBPs conducted by the Department of Natural Resources and Environment (**NRE Tas**) and Zoos Victoria in 2023 and 2024 indicates that migratory movements of this species also often occur at night.	• Observers will confidently distinguish OBPs from blue-winged parrots based on physical appearance and vocalisations; and • Surveys have been designed to maximise detectability, particularly during migratory movements that occur at night. The OBP Survey and Monitoring Plan must also ensure that surveys are designed to maximise detectability given that migratory movements of this species may occur at night. Where practical, it is recommended that the proposed works, including decommissioning and construction, are scheduled outside the OBP migration period to reduce disturbance to the migrating population.
Tasmanian masked owl (*Tyto novaehollandiae castanops)*	Vulnerable under the EPBC Act and endangered under the TSPA.	TMOs occur across the state with fewer records in the west, which may be due to lack of survey effort. TMOs inhabit a diverse range of forests and woodlands including agricultural and forest mosaics. Nesting occurs in large hollows of living or dead trees. Tree hollows suitable for TMO breeding are large (i.e., >15 cm diameter at the entrance), deep and generally spacious enough to provide protection for up to four masked owls. Trees >100 cm diameter-at-breast-height have a higher probability of containing suitable nesting hollows.	A survey for TMO nesting habitat should also be undertaken as part of the proposal's natural values surveys in areas of potential habitat. If any potential nest trees are recorded within or near the development footprint, further investigations should be carried out to determine the likely presence of the species, potential impacts on the species, and to inform avoidance and mitigation measures. The survey should also consider areas of foraging habitat potentially impacted by the development footprint.
Grey goshawk (*Accipiter novaehollandiae*)	Endangered under the TPSA	Grey goshawks nest in mature wet forest, usually in the vicinity of a watercourse, but can also be observed in open woodland and around urban fringes. The species have large ranges and are predominantly ambush predators, hunting from perches in the forest canopy but can also hunt from low heights. Threats to the species include collisions with infrastructure, particularly powerlines.	Surveys should be undertaken for grey goshawk and its nests in areas where development is likely to encroach on its habitat (i.e., areas where wind farm, transmission line and associated infrastructure will cross or encroach on riparian vegetation and waterways).

Swift parrot (*Lathamus discolor*)	Critically endangered under the EPBC Act and endangered under the TSPA.	The existing and proposed Woolnorth Wind Farm transmission line corridor partially intersects with the western potential breeding range of the swift parrot and there is potential habitat for the species (*Eucalyptus brookeriana* wet forest (WBR)) within the sites and nearby. As such, there is potential for the species to utilise the existing and proposed Woolnorth Wind Farm sites for breeding and/or foraging, and they may also fly through the sites while migrating to other areas of the state. While breeding and foraging by swift parrots has not been recorded as often on the west coast of Tasmania compared to the east coast, it still occurs to some extent and the lack of records may be largely due to a lack of survey effort in the vicinity.	It is recommended the species be included in bird utilisation surveys to determine their use of the project area (movement, flight height) and adjacent areas for nesting, foraging, and transiting (e.g., as part of migration and/or between foraging and nesting sites) and to assess impact and inform mitigation.
Blue-winged parrot (*Neophema chrysostoma*)	Vulnerable under the EPBC Act and is currently being considered for listing under the TSPA.	Blue-winged parrot mortalities caused by WTGs have been recorded at operational wind farms in Tasmania.	It is recommended the species be included in BUS to: • Determine their use of the project area (movement, flight height) and adjacent areas for nesting, foraging, and transiting (e.g., as part of migration and/or between foraging and nesting sites); • Assess impacts; and • Inform mitigation.
White-throated needletail (*Hirundapus caudacutus*)	Vulnerable, marine and migratory under the EPBC Act.	White-throated needletails occur in Tasmania during their non-breeding season, primarily from November to April, however, a few birds also occasionally remain in Australia during the breeding season. The species is mostly aerial, from heights of less than 1 m up to more than 1000 m above the ground. White-throated needletail mortalities caused by WTGs have been recorded by operational wind farms in Tasmania and there is also evidence of collisions with powerlines in Australia. The white-throated needletail is a migratory species that forages during daytime and after sunset.	It is recommended the species be included in BUS to: • Determine their use of the project area (movement, flight height) and adjacent areas for roosting, foraging, and transiting (e.g., as part of migration and/or between roosting sites); • Assess impact; and • Inform mitigation. Surveys need to maximise detectability and should occur when the species is present in Tasmania.
Seabirds, shorebirds and migratory birds	Threatened, and migratory under the EPBC Act, (MNES), The shy albatross (*Thalassarche cauta*) is listed as endangered under the EPBC Act and	Seabirds and shorebirds (including MNES, and threatened and migratory species) have been recorded within 5km of the existing and proposed Woolnorth Wind Farm sites including on the coastline adjacent to the sites. It is noted that seabirds can be disorientated by light pollution that is projected out to sea.	The EIS should discuss the biology, ecology, migration patterns, and potential impacts of the proposal on seabirds and shorebirds. In particular the shy albatross breeds at Albatross Island approximately 35km north of the existing Woolnorth Wind Farm site at Bluff Point and produces naïve chicks with less flying skills. The EIS should therefore consider potential impacts of the proposal on this species and associated measures to avoid or minimise adverse impacts (see section 6.1.3 below) given that chicks fledge annually in autumn and

	vulnerable under the TSPA.		may be ill equipped to evade the larger rotor swept area of the new WTGs if they happen to fly (or are blown) overland. Although limited vegetation clearance is identified as being potentially required as part of the proposal, searches of the areas to be impacted during decommissioning and construction should be undertaken to identify seabird nests and burrows which are a key characteristic of the Seabird Rookery Complex, a Threatened Native Vegetation Community listed under the *Nature Conservation Act 2002* (Tas). Lighting management to reduce seabird impacts should be considered at all stages of the development, particularly for any decommissioning, construction or infrastructure within 500 m of the coastline or within 500 m of any vegetation identified as Seabird Rookery Complex. Lighting design should incorporate the principles outlined in the *Department of the Environment and Energy National Light Pollution Guidelines for Wildlife* in order to reduce the impacts of artificial light during night-time hours, in particular Appendix A - Best Practice Lighting Design.

Targeted surveys for nocturnally active avian fauna
Targeted surveys are required to understand the movements of nocturnally active avian fauna and must be designed to maximise detectability. See Table 1 above, for information about recent VHF tracking of OBPs conducted by NRE Tas and Zoos Victoria in 2023 and 2024 that indicates that migratory movements of this species also often occur at night.

Targeted utilisation surveys – Tasmanian wedge-tailed eagle and white-bellied sea eagle
Targeted utilisation surveys must be carried out across the proposed project footprint to confirm utilisation of the area by WTE and WBSE. These surveys should be carried out in the manner outlined in section 6.1.2 above for BUS and should also include:

- Survey methodology such that spatial use of the site (any favoured areas, any common flight paths etc) can be determined;
- Survey coverage should be sufficient to inform a robust understanding of site utilisation and support the application of collision risk modelling;
- Attention should be given to ensuring that utilisation surveys are representative of the range of, any prevailing conditions, particularly if WTGs are to be located on ridge-tops where updrafts may be extensively used by WTE and WBSE;
- Consideration should be given to incorporating the use of GPS harnessed WTEs (adults) to assess flight patterns. Consultation with relevant specialists/researchers is strongly recommended to design an appropriately informative study/approach, improve air-scape usage information, inform WTG micro-siting and collision risk models.

Nest searches and condition assessments - Tasmanian wedge-tailed eagle (and white-bellied sea eagle
Nest searches should be undertaken to understand use of the area by WTE and WBSE. Specifically:

- Searches for WTE and WBSE nests should be undertaken out to 1km from the boundary of the project area, including all areas to be disturbed as a result of the proposal. The results should be used to inform development activities and infrastructure layout.
- Searches for WTE and WBSE nests must be conducted between March and June, that is, outside the breeding season for WTE and WBSE in accordance with the *FPA Technical Note 1: Eagle Nest Searching, Activity Checking and Nest Management* and the *EPA Guide to Eagle Nest Searching and Nest Activity Checks*.
- Previously recorded WTE and WBSE nests that are unable to be located during surveys should following the reporting process outlined in the *FPA Technical Note 1: Eagle Nest Searching, Activity Checking and Nest Management* and the *EPA Guide to Eagle Nest Searching and Nest Activity Checks*.
- It is recommended that nest searches for WTE and WBSE are undertaken annually until the proposal is fully commissioned.
- Ground-based nest condition assessments may be conducted using UAVs (drones) if they are conducted between April and June and in accordance with the *FPA Technical Note 1: Eagle Nest Searching, Activity Checking and Nest Management*.
- The EIS should:
    - discuss the potential adverse impacts of the proposal on WTE and WBSE nests;
    - outline how new WTE and WBSE nests will be detected, reported and managed post-commissioning.

Bat Surveys
Surveys must be undertaken to determine the presence of native bat species at the locations of the existing and proposed wind farm and transmission line infrastructure at the Woolnorth Wind Farms sites. Bat species utilising the area are all high-flying species which may be adversely impacted by mortality or injury through collision with WTGs or transmission lines.

6.1.3 Assessment

Describe, assess and analyse the significance of the impacts of the proposal on avian fauna species and habitats, including consideration of:

- Any relevant threatened species Recovery Plans, Listing Statements or Conservation Advice for current information on species foraging habitat requirements, known and potential threats to species recovery, evidence for impact, and risk ratings, and comprehensive review of current literature for the species,
- Collision risk, including a CRM (detailed below);
- Habitat removal;
- Disturbance from movement, noise, or light pollution;
- In regard to light pollution, the EIS should:
    - Detail proposed lighting infrastructure, lighting regimes, positioning and lighting type during different stages of the proposal;
    - Consider proximity to identified nests and breeding habitat;
    - Have regard to the *National Light Pollution Guidelines for Wildlife including Marine Turtles, Seabirds and Migratory Shorebirds (2023)*.
- Cumulative impact with the Robbins Island Renewable Energy Park, Jims Plains Renewable Energy Park, Whaleback Ridge Renewable Energy Major Project, Granville Harbour Wind Farm and future transmission infrastructure associated with these proposals, including but not limited to the North West Transmission Development and the Robbins Island Road to Hampshire Transmission Line.

Collision-risk model

- Provide a CRM to support the proposal, which should be used in conjunction with other survey and assessment methods, such as BUS, to identify potential impacts including but not limited to the following species from the proposed development:
    - WTE;
    - WBSE;
    - white-throated needletail;
    - blue-winged parrot; and
    - swift parrot (where sufficient data is available).
- The CRM analysis should be based on and include justification against up-to-date scientific literature and understanding, be supported by an appropriate level of site utilisation data, provide a robust assessment of any uncertainties, assumptions or limitations and provide clear discussion of the outcomes.
- A proposal outlining how the CRM analysis will be undertaken must be submitted to the EPA for feedback and approval prior to finalisation of the methodology.

Orange-Bellied Parrot Management Plan

Provide an OBP Management Plan and discuss the OBP's broader biology, ecology, migration patterns, potential impacts of the proposal on this species, with regard to the following:

- Review and consideration of the *National Recovery Plan for the Orange-bellied Parrot* for current information on species foraging habitat requirements, known and potential threats to species recovery, evidence for impact, and risk ratings, and comprehensive review of current literature for the species;
- Review of the intersection between NVA records and TasVEG 4.0 vegetation communities, with a focus on the variety of habitats utilised by OBPs in Tasmania, including Bass Strait Islands;
- Review of current OBP migratory periods, including NVA data that shows the arrivals and departures of OBPs to and from Melaleuca;

- Any available details of the OBP VHF tracking program conducted by NRE Tas and Zoos Victoria, including tracking program methodology and results;
- The limitations of any OBP surveys and monitoring undertaken, including temporal limitations (e.g., number of survey days, surveys for both northward and southward migration periods, whether surveys captured the hours OBPs are most likely to be active), and visual limitations (e.g., surveys during southward migration are unlikely to yield results due to the fast rate of movement, and the recording of OBPs migrating at night, when birds would not be detected through visual surveys); and
- OBP flight height is not known, either for short-scale movements (e.g. movements within a foraging patch) or for longer movements (e.g. between foraging sites, between foraging and roosting sites, and during migration). It is possible that a larger tower height, blade length and rotor swept area may result in increased collision risk for OBPs.

6.1.4 Avoidance and Mitigation Measures

- Describe management measures that will be implemented to avoid adverse impacts to avian fauna, including but not limited to collisions with WTGs, transmission lines and associated infrastructure.
- Where impacts cannot be avoided, present proposed measures to minimise and mitigate adverse impacts on avian fauna. Specific management plans and measures (detailed further below) required include:
    - OBP Management Plan;
    - Avian collision monitoring program;
    - Carcass management program; and
    - Offset strategy (as relevant)
- Outline how impacts will be avoided and minimised through the design of the proposal and the construction methodology (as relevant), including consideration of the outcomes of the surveys described above.
- If technology-based mitigation or avoidance approaches are proposed (e.g. automated avifauna tracking, and WTG curtailment systems such as IdentiFlight etc.), an assessment of their effectiveness at the site is required. It is recommended that this is informed by results from their use at existing wind farms, particularly in the Tasmanian context. Other mitigation and avoidance strategies such as the use of black blades on WTGs should also be discussed.
- Identify potential residual impacts[14] after full implementation of the avoidance and mitigation steps of the mitigation hierarchy.
- The OBP Management Plan above must also detail measures to avoid or minimise adverse impacts.

Avian collision monitoring program

An avifauna collision monitoring program should be provided to outline how collisions (injuries and mortalities) will be detected and reported, and how appropriate management responses will be implemented. Refer to avian mortality monitoring plan guidelines in Appendix A for guidance. The EIS should also outline how non-detections (i.e., birds that collide with WTGs, transmission lines, vehicles or associated infrastructure but are not detected during collision monitoring) will be compensated for.

Carcass management program

Detail how food resources (e.g. carcasses) for avian species such as WTE and WBSE will be managed across the site to address collision risk with WTGs, transmission lines, vehicles or associated infrastructure. Monitoring along roadsides, around WTGs and beneath transmission lines should be considered. Discuss the potential implications for the carcass management program associated with anticipated changes to land use prior to, during and after construction.

[14] As defined in Appendix B of these Guidelines.

Offset strategy [15]

- Detail measures to compensate for any residual, adverse impacts after implementation of the avoidance and mitigation steps of the mitigation hierarchy.
- Where offsets are required, provide an offset strategy that details likely benefits from proposed offsets including consideration of effectiveness. Note that any proposed offsets must have a measurable and relevant benefit which would otherwise not have occurred. Include details of how the offsets:
    - were determined; and
    - will be secured, managed and monitored, including management actions, responsibility, timing, performance measures and the specific environmental outcomes to be achieved
- Proposed offsets must be consistent with the following documents as relevant, or any amendments or substitutions to these documents:
    - *EPBC Act Environmental Offsets Policy*
    - *Tasmanian Offset Guidelines for Impacts to Threatened Eagles from Wind Farm Developments*
    - *Guidelines for Terrestrial Natural Values Surveys related to Development Proposals*
    - *Tasmanian Devil Survey Guidelines and Management Advice*

6.2 Key issue 2: Non-avian fauna

The EIS should discuss the potential impacts of construction and operation of the proposal and any associated infrastructure on non-avian fauna, with particular reference to threatened species, including those listed under the TSPA, NCA and EPBC Act.

6.2.1 Existing Environment

- Specify and map known records of non-avian fauna as relevant with reference to threatened species listed under the TSPA, NCA and EPBC Act.
- Provide a description of MNES within the proposal site and surrounding areas.
- Provide the results of natural values surveys undertaken by a suitably qualified person(s), in accordance with relevant survey guidelines[16], for non-avian fauna species including but not limited to:
    - Tasmanian devil (*Sarcophilis harrisii)* (detailed below);
    - eastern quoll (*Dasyurus viverrinus);*
    - spotted-tail quoll (*Dasyurus maculatus maculatus*);
    - dwarf galaxias (*Galaxiella pusilla*);
    - Australian grayling (*Prototroctes maraena*);
    - striped marsh frog (*Limnodynastes peronii*);
    - green and gold frog (*Litoria raniformis*);
    - giant freshwater crayfish (*Astacopsis gouldi*);
    - keeled carnivorous snail (*Austrorhytida lamproides*);
    - eastern barred bandicoot (*Perameles gunnii gunnii*);
    - Schayer's grasshopper (*Schayera baiulus*)[17]; and
    - Marrawah skipper (*Oreisplanus munionga* ssp. *Larana).*

Tasmanian devil, eastern quoll and spotted-tail quoll surveys

Tasmanian devils are regularly and consistently trapped at the Woolnorth Wind Farms site at Bluff Point during Save the Tasmanian Devil Program annual monitoring trap release surveys, and it is noted that the current Tasmanian devil population at Woolnorth is the last remaining abundant disease-free population.

[15] See Appendix B of these Guidelines under Residual Impacts.

[16] See https://nre.tas.gov.au/conservation/development-planning-conservation-assessment/survey-guidelines-for-development-assessments

[17] The range for Schayer's grasshopper (*Schayera baiulus*) and Marrawah skipper (*Oreisplanus munionga* ssp. *larana* species has recently been extended in the north-west of Tasmania, including the areas in and around Woolnorth.

Although little to no vegetation clearance is likely to take place as a result of the proposal, surveys to inform potential impacts on the Tasmanian devil are still required to be carried out in accordance with the *Tasmanian Devil Survey Guidelines and Management Advice*. In the absence of specific guidelines for the eastern quoll and spotted-tailed quoll, the *Tasmanian Devil Survey Guidelines and Management Advice* can be applied, given that they have similar habitat requirements and are susceptible to a similar range of threats.

Surveys should identify and map suitable denning habitat in relation to the position of proposed infrastructure, including WTGs, transmission lines and roads, and as relevant, assist in determining a site layout that minimises impacts on devils and quolls. Once the final layout has been determined, den surveys should be conducted prior to construction in accordance with the *Tasmanian Devil Survey Guidelines and Management Advice*. Any dens that are proposed to be destroyed will require a permit to take under the NC Act. Impacts to potential foraging habitat are also required to be considered.

In addition, a summary (e.g., table and/or site plan) must be provided showing which existing internal roads will be retained and which new roads/tracks are proposed, as well as the distance(s) they cover. Provide an analysis of the expected vehicle movements during both construction and operational phases, and a comparison with existing vehicle movements.

Transport of required machinery and WTG parts may increase the amount of traffic on Woolnorth Road during construction. The EIS should therefore include the results of a devil roadkill survey to understand current background levels of roadkill and whether it is likely to increase during the construction phase, particularly at night. The potential for roadkill during the operational phase should also be assessed. Identification of high-risk roadkill areas may help to inform mitigation and offset considerations for the Tasmanian devil and spotted-tailed quoll.

It is noted that an increase in night-time (between one hour before sunset and one hour after sunrise as defined by the Bureau of Meteorology) traffic on internal and nearby roads of more than 10% combined with a high abundance of Tasmanian devils and/or Tasmanian devil roadkill records in the NVA is considered significant regarding likely impacts on the Tasmanian devil. See the*Tasmanian Devil Survey Guidelines and Management Advice* for further information.

6.2.2 Assessment

Describe the potential impacts of the construction and operation of the proposal on non-avian fauna, with particular reference to MNES, and threatened species listed under the EPBC Act, TSPA and NCA, including consideration of:

- Any relevant threatened species Recovery Plans, Listing Statements or Conservation Advice for current information on species foraging habitat requirements, known and potential threats to species recovery, evidence for impact, and risk ratings, and comprehensive review of current literature for the species;
- Direct impacts, such as collision risks from both vehicles and infrastructure, clearing or other physical changes to breeding and hunting or foraging habitat and impacts to nests dens or burrows (e.g. Tasmanian wombat);
- Indirect impacts, such as changes in disturbances to nesting, impacts of noise and light, changes in prey or food availability or introduction of pests or diseases;
- Cumulative impacts with other human activity.

6.2.3 Avoidance and Mitigation Measures

- Describe management measures that will be implemented to avoid adverse impacts to threatened non-avian fauna. Management measures should address all potential impacts to the species, including vegetation clearance/ground disturbance, increased habitat fragmentation, impacts to dens, changes to food resources, roadkill management, and changes in land use. Include any roadkill management measures as required in the *Tasmanian Devil Survey Guidelines and Management Advice.*
- Where impacts cannot be avoided, present proposed measures to minimise and mitigate adverse impacts on biodiversity and nature conservation values.

- Identify potential residual impacts[18].
- Detail measures to compensate for any residual, adverse impacts after full implementation of the avoidance and mitigation steps of the mitigation hierarchy
- Where offsets are required, provide an offset strategy (as detailed in 6.1.4)

[18] As defined in Appendix B of these Guidelines.

6.3 Key issue 3: Vegetation communities and flora

Discuss the potential impacts of the construction and operation of the proposal on vegetation communities and flora with particular reference to MNEs, threatened flora species, threatened ecological communities (**TECs**) and threatened native vegetation communities (**TNVCs**) including those listed under the TSPA, NCA and EPBC Act.

Include details on how information has been collected or generated where applicable.

6.3.1 Required technical studies

- Vegetation community ground surveys and vegetation mapping
- Flora surveys

6.3.2 Existing environment

- Specify and map known records of flora and vegetation communities including MNES, and threatened species, TECs and TNVCs listed under the EPBC Act, TSPA and NCA.
- Provide a description of MNES that are within the proposal area and surrounding areas.
- Specify and map known records of weeds, pests and diseases.

Vegetation community ground surveys and vegetation mapping

The existing TasVEG vegetation mapping for the Woolnorth Wind Farm sites is dated and likely to be inaccurate. Vegetation community ground surveys and vegetation mapping by a suitably qualified ecologist are required to verify the actual distribution and condition of vegetation communities with particular attention paid to the extent and condition of TNVCs listed under the NC Act. Surveys are required to:

- Give equal consideration to areas with temporary impacts (e.g., open cut trenching for underground power reticulation cables, material laydown areas) and permanent impacts (e.g., new turbine hardstand areas, substations, access tracks, roads, and proposed extension of existing clearance around WTGs); and
- Follow the methodology, data collection practices, data standards and reporting in the *Guidelines for Natural Values Surveys – Terrestrial Development Proposals.*

Consultants undertaking vegetation surveys are encouraged to engage with NRE Tas's Natural Assets Spatial Intelligence Section (NASIS) to ensure vegetation survey and mapping efforts are of appropriate quality and capture sufficient metadata for their integration into TasVEG. Appropriate documents and protocols can be provided to consultants by NASIS before they commence vegetation surveys and mapping; and

Any discrepancies between field survey results and the existing TasVEG layer should be submitted directly to the NVA.

Flora surveys

Flora surveys are required to be:

- Undertaken in all areas likely to be impacted by vegetation clearing or soil disturbance associated with the proposed development, including both the wind farm and transmission line components;
- Conducted at appropriate times of the year to detect threatened flora that may occur in the area, particularly for orchids or ephemeral species (i.e., during the flowering periods of candidate species); and
- In accordance with the *Guidelines for Natural Values Surveys related to Development Proposals*.

A permit to take will be required under the TSPA if 'taking' (as defined under the TSPA) threatened flora (e.g., for the purposes of identification or as part of the proposal) is necessary.

6.3.3 Assessment

Describe potential impacts of both construction and operation of the proposal on:

- Flora and vegetation communities with reference to MNES, and threatened species, TECs and TNVCs listed under the EPBC Act, TSPA and NCA, including consideration of:
    - any relevant threatened species Recovery Plans, Listing Statements or Conservation Advice for current information on species requirements, known and potential threats to species or vegetation communities, evidence for impact, and risk ratings, and comprehensive review of current literature for the species;
    - direct impacts, such as disturbance, clearing, excavation or burning;
    - indirect impacts, such as changes in hydrogeological flows, fragmentation of populations or introduction of weeds, pests or diseases; and
    - cumulative impacts with other human activity.

6.3.4 Avoidance and Mitigation Measures

- Describe management measures that will be implemented to avoid adverse impacts to flora and vegetation communities.
- Outline the current measures used on the site to control the spread of weeds, pests and diseases and whether these measures will continue to apply during the construction and operation of the proposed development. Information about controlling the introduction and spread of weeds and the development of weed and disease management plans can be found in the *Weed and Disease Planning and Hygiene Guidelines – Preventing the Spread of Weeds and Diseases in Tasmania*.
- Where impacts cannot be avoided, present proposed measures to minimise and mitigate adverse impacts on flora, vegetation communities, wetland and habitat.
- Identify potential residual impacts[19].
- Discuss any offset proposed for residual impacts, including likely benefits from such an offset and consideration of effectiveness, having regard to the Tasmanian Guidelines for Natural Values Surveys – Terrestrial Development Proposals.
- Discuss rehabilitation of disturbed areas following the completion of construction activities including any proposed seed collection and progressive rehabilitation program.
- Detail measures to compensate for any residual, adverse impacts after full implementation of the avoidance and mitigation steps of the mitigation hierarchy
- Where offsets are required, provide an offset strategy (as detailed in 6.1.4)

[19] As defined in Appendix B of these Guidelines.

6.4 Other natural values

6.4.1 Existing Environment

- Specify and map known sites of geoconservation significance or natural processes (such as fluvial or coastal features) within the vicinity of the proposal, including sites of geoconservation significance listed on the Tasmanian Geoconservation Database (e.g. Cape Grim volcanics geosite (2457), Mowbray Swamp megafauna fossil site (3113)).
- Identify areas of reserved land[20] or conservation significance in the vicinity of the proposal, including:
    - designated conservation areas;
    - MNES including areas relating to the requirements of international treaties (e.g. Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA) and Ramsar (wetlands) Convention); and
    - wetlands listed in Directory of Important Wetlands in Australia.[21]
- Identify any freshwater ecosystems of high conservation management priority, including values, in the vicinity of the proposal using the Conservation of Freshwater Ecosystem Values (CFEV) database.

6.4.2 Assessment

Describe potential impacts of both construction and operation of the proposal on:

- Identified sites of geoconservation significance or natural processes
- MNES including areas relating to the requirements of international treaties (e.g. Japan-Australia and China-Australia Migratory Bird Agreements (JAMBA/CAMBA) and Ramsar (wetlands) Convention).
- Existing conservation areas or reserved land that may be affected by the proposal, with reference to the management objectives of the reserved land and the reserve management plan(s) (if any). In particular, it is noted that several sections of the easement for the existing transmission line are within the Welcome River State Reserve and Duck River Conservation Area. The EIS should demonstrate how the proposal is consistent with the existing easement title(s) and, as relevant, the management objectives for State Reserves and Conservation Areas under Schedule 1 of the *National Parks and Reserves Management Act 2002* and any applicable management plans.
- Other sites or areas of special conservation significance, including areas of wilderness or scientific value.
- The reserve system identified as part of the Tasmanian RFA, including high-quality wilderness areas; maintenance of forest communities under the Permanent Native Forest Estate Policy;[22] wildlife habitat strips under the *Tasmanian Forest Practices Code 2015*;[23] and non-forest communities.[24]

6.4.3 Avoidance and Mitigation Measures

- Describe management measures that will be implemented to avoid adverse impacts to MNES, sites of geoconservation significance, conservation areas and reserved land.
- Where impacts cannot be avoided, present proposed measures to minimise and mitigate adverse impacts on MNES, sites of geoconservation significance, conservation areas and reserved land (e.g. best practice erosion and sediment control measures and an unanticipated discovery plan to minimise and mitigate impacts on the Cape Grim volcanics geosite (2457) and Mowbray Swamp megafauna fossil site (3113), respectively).
- Identify potential residual impacts[25].

[20] As defined in the *Nature Conservation Act 2002*.
[21] See https://www.environment.gov.au/water/wetlands/australian-wetlands-database/directory-important-wetlands.
[22] See https://fpa.tas.gov.au/planning/permanent_native_forest_estate_policy
[23] See https://fpa.tas.gov.au/planning/forest_practices_code
[24] See https://www.stategrowth.tas.gov.au/about/divisions/Renewables,_Climate_and_Future_Industries_Tasmania_and_resources/forestry/legislative_and_policy_framework/permanent_native_forest_estate_policy
[25] As defined in Appendix A of these Guidelines.

- Discuss any offset[26] proposed for residual impacts, including likely benefits from such an offset and consideration of effectiveness, having regard to the *Tasmanian Guidelines for Natural Values Surveys – Terrestrial Development Proposals*.

[26] See Appendix A of these Guidelines under Residual Impacts.

6.5 Air quality

This air quality assessment is required to detail the potential impacts of the proposal on the local and regional air environment and provide evidence that the activity will not cause environmental nuisance or harm.

6.5.1 Existing Environment

- Provide a site map that includes the land boundary and the location of the nearest sensitive receptors.
- Describe the existing environment, including details on the climatic/meteorological conditions, terrain, land use and air quality within the vicinity of the proposal.

6.5.2 Assessment

- Provide a figure showing the locations and names of all potential sources of atmospheric emissions from the proposed activity.
- Describe all potential sources of atmospheric emissions (point and fugitive) and the composition of the atmospheric emissions that may arise from the proposed activities including but not limited to:
    - dust from construction phase activities, which include land clearing and excavation work, stockpiles, vehicle movements, concrete batch plants, quarrying activities (if applicable), and loading, unloading and transport of materials.
    - engine exhaust from construction equipment, vehicles and generators.
- Provide an assessment of emissions from the proposed activities regarding the likelihood of causing environmental nuisance of harm. This should include:
    - an assessment of the potential impacts of the atmospheric emissions from the proposed activity on nearby sensitive receptors and the impact on the local environment considering meteorology, terrain and land use;
    - a history of any complaints related to the operation of the existing facility received in the last 5 years and the likely causes;
    - where a potential for impact on sensitive receptors is identified, the deployment of suitably located dust deposition monitors should be considered to determine the extent of the impact;
    - a description of climate change projections relevant to the project area, and how the future climate may change the local meteorology and impact of air emissions from the proposal; and
    - compliance with the requirements of the relevant NEPM standards, the *Tasmanian Environment Protection Policy (Air Quality) 2004*[27] and any supplementary documents including the *Board Statement Jan 2022*.

6.5.3 Avoidance and Mitigation Measures

- Provide information about management and mitigation strategies that will be deployed, if required, to mitigate the impact of any atmospheric emissions from the site that have the potential to cause environmental nuisance or harm at or beyond the activity area.
- Demonstrate how the application of appropriate dust control management and mitigation measures described in section 7.5 of the *Quarry Code of Practice* (where applicable) will reduce potential impacts of dust emissions on sensitive receptors.
- Where a potential for impact on sensitive receptors is identified, the deployment of suitably located dust deposition monitors should be considered to inform the implementation of appropriate mitigation measures.

[27] See https://epa.tas.gov.au/Documents/EPP_Air_Quality_2004.pdf

6.6 Water quality

Discuss potential impacts of the proposal on surface water during construction and operation, including methodology where appropriate.

For information about the water quality management framework and evaluation criteria in Tasmania, refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.[28]

6.6.1 Existing Environment

- Provide a description and map of the activity site with respect to topography and preferential surface water flow, existing surface water and stormwater drainage of the receiving environment.
- Describe surface water bodies and watercourses that may potentially be impacted by the proposal during construction and operation. The description should include:
    - Protected Environmental Values (PEVs);[29]
    - sensitive uses and associated water quality considerations;
    - any conservation listings and values identified in the Conservation of Freshwater Ecosystem Values (CFEV) program;
    - any surveys of community uses to determine receiving water community values; and
    - seasonal water quality, hydrological characteristics and biological condition of the receiving environment.
- Describe to any relevant environmental management goals for Tasmanian surface waters detailed in the
    - *Environmental Management Goals for Tasmanian Surface Waters Catchments Circular Head and Waratah Wynard Municipal Areas*
    - *Environmental Management Goals for Tasmanian Surface Water Catchments West Coast Municipal Areas.*
- Provide published or determined (site-specific) water quality guideline values for protection of receiving water bodies that may be impacted by the proposal, consistent with the *State Policy on Water Quality Management 1997*. As a minimum, refer to:
    - *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*
    - *Australian and New Zealand Guidelines for Fresh and Marine Water Quality 2018* (ANZ 2018)
    - *Environmental Management Goals for Tasmanian Surface Waters Catchments Circular Head and Waratah Wynard Municipal Areas*
- Provide site specific information including any historical water quality data and site-specific monitoring.
- Where merited, monitoring programs should be developed to determine baseline, ecosystem condition, water quality and potential water quality impacts. Include the results of monitoring in the report and provide separately as data. Provide metadata and monitoring data to the EPA following the instructions and using the Excel workbook templates or file formats provided on the Water Quality Data Elements[30] webpage.

6.6.2 Assessment

Assess the potential water quality impacts to identified receiving environments in relation to the selected water quality guideline values as a result of the release of contaminants entrained in stormwater, disturbance of acid sulfate soils, or the discharge of any other pollutants during construction and operation of the Woolnorth Wind Farm

- Identify and characterise all liquid emissions that could arise from the proposal, including from industrial processes, concrete batching, waste treatment processes, fuelling, domestic/office facilities, stormwater or other sources.

[28] See https://epa.tas.gov.au/Documents/Technical%20Guidance%20for%20Water%20Quality%20Objectives%20(WQOs)%20Setting%20for%20Tasmania.pdf
[29] See https://epa.tas.gov.au/environment/water/pevs-for-tasmanian-surface-waters
[30] See https://epa.tas.gov.au/environment/water/water-quality-data-elements

- Describe any existing wastewater and/or stormwater treatment on the site. Where available, provide an analysis of wastewater and/or stormwater quality as discharged from the existing activity.
- Describe any proposed changes to wastewater and/or stormwater treatment for the development. Describe the selected treatment technology, the likely volume and quality of effluent/water that will be produced and its fate in the environment.
- Provide details of any agreement with the operator of the municipal sewerage system, if discharge of trade waste or sewage to the system is anticipated.
- Provide details of, and a map depicting:
    - proposed wastewater discharge locations;
    - preferential flow of stormwater arising from rainfall on the proposal site; and
    - location of stormwater collection system.

6.6.3 Avoidance and mitigation measures

- Discuss how impacts will be avoided and minimised through the design and construction methodology:
    - describe proposed stormwater management, including during reasonably foreseeable flood events;
    - include an assessment of the potential for pollutants to become entrained in stormwater and details of drainage control measures such as cut-off drains and sediment settling ponds.
- Provide an initial Erosion and Sediment Control Plan detailing the potential for mobilisation of sediment for each significant construction element and/or environmental setting that is identified, and mitigation measures detailed in accordance with best practice erosion and sediment control principles (i.e., the International Erosion Control Association's Best Practice Erosion and Sediment Control document[31].As a minimum the plan should include:
    - classification of erosion potential for each land type and topography likely to be disturbed by construction activities. Activities may include roads, turbine pads, laydown areas and other works yards;
    - details of measures to be employed to minimise erosion potential including, staging of works, temporary surface treatments, cut-off drains, temporary drainage controls and rehabilitation staging;
    - design specification for temporary and permanent drainage control and sediment containment infrastructure i.e., design rainfall average recurrence interval and emission limits for sediment retention basins;
    - for works that are significant in scale or pose an erosion risk, plans detailing erosion and sediment control infrastructure to be installed at those locations should be provided. Where merited, plans for each significant work phase and the operational phase if controls require adjustment through the construction process, should also be provided. For other works, general plans of erosion and control measures sufficient to enable comparison between plans and constructed infrastructure; and
    - details of any measures incorporated into erosion and sediment control plans to mitigate impacts to blanket bog peat land, including direct impacts from physical works and indirect impacts from hydrological changes.
- Where impacts cannot be avoided, proposed measures to mitigate adverse impacts on surface water quality, including consideration of effectiveness, should be discussed.
- Justification for any proposed emission of contaminants to surface waters should be in accordance with the principles of the *State Policy on Water Quality Management 1997* and with application of a 'weight of evidence approach' consistent with the ANZG 2018. Refer to the Technical Guidance for Water

[31] Available https://www.austieca.com.au/publications/best-practice-erosion-and-sediment-control-bpesc-document

Quality Objectives (WQOs) Setting for Tasmania for information regarding the water quality management framework and evaluation criteria.

6.7 Groundwater

Discuss potential impacts of the proposal on groundwater (quality and quantity). Consider construction and operation phases and include methodology details where appropriate.

For information about the water quality management framework and evaluation criteria in Tasmania refer to *Technical Guidance for Water Quality Objectives (WQOs) Setting for Tasmania, August 2020*.[32]

6.7.1 Existing Environment

- Provide a map showing the location of existing and proposed groundwater extraction bores nearest to the area impacted by the activity. Refer to NRE's Groundwater Information Access Portal where relevant.[33]
- Identify any surface water and groundwater dependent ecosystems that may receive groundwater from areas impacted by the proposal.
- Provide details of any baseline groundwater quality monitoring undertaken.
- Provide the required yield, volumes, and process for bore establishment and management for any groundwater extraction that may be proposed.

6.7.2 Assessment

- Discuss the potential impact of the proposal on groundwater (quality and quantity), including release of sediment and other pollutants during construction, with reference to groundwater assessments undertaken where appropriate.

6.7.3 Avoidance and mitigation measures

- Describe the measures proposed to avoid or mitigate potential adverse impacts to groundwater.
    - Justification for any proposed emission of contaminants to surface waters should be in accordance with the principles under the *State Policy on Water Quality Management 1997*[34] and with reference to likely groundwater community values, associated guideline values, and guideline values for receiving surface waters.

[32] See https://epa.tas.gov.au/Documents/Technical%20Guidance%20for%20Water%20Quality%20Objectives%20(WQOs)%20Setting%20for%20Tasmania.pdf
[33] See https://wrt.tas.gov.au/groundwater-info/
[34] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/statutory-policies/state-policies-and-environment-protection-policies/state-policy-on-water-quality-management-1997

6.8 Noise emissions

6.8.1 Existing Environment

- Provide a map showing the location of all major sources of noise and the closest noise sensitive premises in the vicinity of the boundary of the activity.
- Provide a list of nearby identified residences and other noise-sensitive premises in the vicinity of the boundary of the activity.

6.8.2 Assessment

- Discuss the potential for noise and vibration emissions from construction and operation of the windfarm to result in environmental nuisance or environmental harm to sensitive receptors, including:
    - Identification, location, and description of potential sources of noise (including associated sound power levels and 1/3 octave data to assess for low frequency and tonal noise);
    - Identification, location, and description of potential sources of vibration;
    - Identification and location of sensitive receptors in the vicinity of the proposal;
    - Establishing the existing background noise level in the area with particular focus on sensitive receptors likely to be impacted by the activity;
    - Based on the existing background noise levels and relevant guidelines, proposing appropriate noise level criteria for the construction phase of the proposal;
    - Proposing appropriate vibration level criteria for the construction and operational phases of the proposal;
    - Predicting noise and vibration emission levels at sensitive receptors for the construction phase of the proposal;
    - Predicting operational noise levels (noise modelling is required, including contour maps), considering potential background noise creep, and cumulative impact associated with the existing Woolnorth Wind Farm project, identify areas where:
    - The levels exceed the proposed appropriate criteria (i.e., the EPA Board's Policy of 35 dB(A), or background + 5 dB(A), whichever is greater); and/or
    - The predicted levels exceed the existing background noise levels.
- The assessment should reference relevant guidelines and standards, including:
    - The EPA Board's Policy on noise limits for wind energy projects is the 35 dB(A) criterion, or background + 5 dB(A), whichever is greater, at sensitive receptors and/or land zoned for sensitive uses;
    - The NZS 6808:2010 Acoustics – wind farm noise;
    - The Tasmania Noise Measurement Procedures Manual;
    - Part 5 of The *Environment Protection Policy (Noise) 2009*[35];
    - AS 2436-2010 Guide to noise and vibration control on construction, demolition, maintenance sites Discuss the potential for noise emissions to affect terrestrial, marine and freshwater wildlife and livestock.

6.8.3 Avoidance and mitigation measures

- Describe how impacts can be avoided and minimised through the design of the proposal;
- Discuss proposed construction noise management and mitigation measures, including management of noise complaints, options for noise and vibration monitoring and preparation of a construction noise and vibration management plan, if required; and
- Discuss proposed operational noise monitoring, and operational management and mitigation strategies.

[35] See https://epa.tas.gov.au/Documents/EPP_Noise_2009.pdf

6.9 Waste management

Discuss the impacts of waste generated by the proposal, during construction and operation.

6.9.1 Existing Environment

- Describe the existing environment in relation to the impact of waste generated by the activity.

6.9.2 Assessment

- Describe the source, nature and quantities of all general wastes likely to be generated by the proposal (liquid, gaseous, solid or other), including:
    - general refuse;
    - treated concrete production wash waters;
    - any other treated wastewater;
    - decommissioned infrastructure; and
    - any byproducts from the various stages of construction, operation and decommissioning of the proposal.
- A description of the source, nature and quantities of waste likely to be generated during decommissioning of the existing wind farm and transmission line should be provided in any Decommissioning and Rehabilitation Plans required by Permit PA10/00 as varied by EPN No. 7421/2, Permit PA10/00 as varied by EPN No. 7423/3 and EPBC 2000/12 and summarised in the EIS as relevant.
- Describe the methods and facilities proposed to collect, store, reuse, treat or dispose of each general waste stream. Describe collection or other maintenance requirements where relevant.
- Describe the source, nature, quantity, and method of treatment, storage and disposal for each controlled waste arising from the proposal.[36] Describe collection or other maintenance requirements where relevant.

6.9.3 Avoidance and mitigation measures

- Demonstrate that any waste management measures follow the following hierarchy of waste management, arranged in decreasing order of desirability:
    - Avoidance,
    - Reuse,
    - Treatment/stabilisation for reuse,
    - Recycling,
    - Energy recovery,
    - Repository storage (for future treatment/recovery),
    - Treatment/stabilisation for disposal,
    - Disposal/permanent containment.

For information on the landfill levy and reporting requirements for landfills or resource recovery facilities under the *Waste and Resource Recovery Act 2022* and Regulations, refer to Waste and Resource Recovery, Department of Natural Resources and Environment Tasmania website..[37]

[36] Controlled waste is defined in EMPCA and associated regulations. A non-exhaustive listing of categories of controlled waste can be found at https://epa.tas.gov.au/business-industry/regulation/waste-management/controlled-waste

[37] See https://nre.tas.gov.au/environment/waste-and-resource-recovery

6.10 Potential acid sulfate soils (PASS) / Acid sulfate soils (ASS)

Identify potential acid sulfate soils (PASS) / acid sulfate soils (ASS) which may be disturbed by the proposal and/or any associated infrastructure and how this disturbance will be managed.

6.10.1 Existing Environment

- Provide an analysis as to whether PASS/ASS may be present and potentially disturbed by the proposal, including as a minimum a desktop assessment of the potential for disturbance of acid sulphate soils. The desktop assessment should consider:
    - soil profiles, including any test pit and bore log data;
    - geology, hydrogeology, and geomorphology; detail of development footprint, proposed construction methodology and the extent of disturbance;
    - the time period over which sub surface materials are likely to be exposed;
    - any proposed groundwater extraction and associated drawdown; and
    - initial geochemical testing in areas where PASS/ASS may be disturbed.

6.10.2 Assessment

- Outline the potential volumes of acid sulfate soil that may require management and discuss whether the sequencing of geotechnical and geochemical testing is required prior to disturbance and how results will be used to make decisions regarding construction management and PASS/ASS impact mitigation.

6.10.3 Avoidance and mitigation measures

- Determine whether an acid sulfate soil management plan consistent with the Tasmanian ASS Management Guidelines[38] and the Commonwealth ASS Guidelines[39] is required. If significant disturbance of PASS/ASS is likely to occur, provide an acid sulfate soil management plan for the proposal. The acid sulfate soil management plan should contain as a minimum:
    - Identification of receptors and the risk to receptors from PASS/ASS disturbance with consideration of all proposal stages (e.g., from scouring of sediment due to altered flow patterns);
    - Discussion of potential consequences of disturbance (i.e., potential impacts/risks), and evaluation of their significance, including consideration of water quality, natural values, and karst systems; and
    - Proposed management and mitigation measures for minimising impacts of PASS/ASS during construction and long-term use/operation, including storage, monitoring, and disposal as relevant, including consideration of the following:
        - The management of excavated spoil which may contain PASS/ASS;
        - The management of intersected groundwater and groundwater ingress and associated groundwater drawdown where PASS/ASS may be present;
        - Where treatment of excavated PASS/ASS is proposed at a specialised facility, detail potential locations, the size of the facility, pad design, and treated water management and discharge criteria; and
- Detail disposal options for excavated and treated PASS/ASS including any onsite or off-site disposal locations and the disposal method.

[38] See https://nre.tas.gov.au/agriculture/land-management-and-soils/soil-management/acid-sulfate-soils
[39] See https://www.waterquality.gov.au/issues/acid-sulfate-soils

6.11 Dangerous goods and environmentally hazardous materials

Dangerous goods and environmentally hazardous materials are any substance or mixture of substances of a nature or held in quantities which present a reasonably foreseeable risk of causing serious or material environmental harm if released to the environment. This includes fuels, oils, waste and chemicals. Discuss the potential impacts of dangerous goods and environmentally hazardous substances used in or generated by the proposal. The discussion should:

- Describe the nature, quantity and storage location of all environmentally hazardous materials including Dangerous Goods (as defined in the Australian Code for the Transport of Dangerous Goods by Road and Rail)[40] that will be used during the construction and operation of the proposal.
- Provide a map showing the location of temporary and permanent storage areas for fuels, oils, and other dangerous goods or chemicals.
- Detail measures to be adopted to prevent or control any accidental releases of dangerous goods and environmentally hazardous materials. Examples include bunding or spill trays.
- Provide contingency plans for when control measures fail, equipment breaks down or accidental releases to the environment otherwise occur. Include detail on proposed emergency and clean-up measures and notification procedures. Identify any safety management requirements for the protection of human health and safety where incidents may affect the community.

6.12 Potentially contaminated material

Discuss identification and management of contaminated land or material which may be present within and adjacent to the proposal site, including the following:

- An analysis as to whether potentially contaminated material may be present. If required, an assessment of site contamination must be conducted in accordance with the *National Environment Protection (Assessment of Site Contamination) Measure 1999*[41] by a consultant who holds Site Contamination Specialist certification under the Certified Environmental Practitioner Scheme (CEnvP(SC)).
- Detail of proposed construction methodology, footprint, extent of disturbance and how this may interact with contaminated material.
- Analysis of receptors and risk to receptors due to disturbing potentially contaminated material, during and after construction (e.g., from scouring of sediment due to altered flow patterns).
- Potential consequences of disturbance (i.e., potential impact/risks), and evaluation of their significance.
- Describe proposed management and mitigation measures for minimising impacts of contaminated material during construction and long-term use/operation, including storage, monitoring and disposal as relevant.

For legislative and policy requirements refer to *National Environment Protection (Assessment of Site Contamination) Measure 1999*[41] and the *Environmental Management and Pollution Control (Waste Management) Regulations 2020*.[42]

6.13 Marine and coastal

If not addressed in other sections, discuss impacts of the proposal on marine and coastal areas. Specifically:

- Provide measures to avoid and mitigate any possible adverse impacts.

[40] See https://www.ntc.gov.au/codes-and-guidelines/australian-dangerous-goods-code
[41] See https://www.legislation.gov.au/F2008B00713/latest/text
[42] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/acts-regulations/empca/waste-management-regulations

- Assess the overall residual impacts on marine and coastal areas following implementation of the proposed avoidance and mitigation measures.
- Use cross-references to relevant sections dealing with conservation values (marine flora and fauna, geoconservation) and coastal impacts where relevant.
- Demonstrate that the proposal is consistent with the objectives and requirements of all relevant marine and coastal policies and legislation, including the *Living Marine Resources Management Act 1995*[43], *State Policy on Water Quality Management 1997*[44] and the *Tasmanian State Coastal Policy 1996*[45].

6.14 Greenhouse gas emissions, ozone depleting substances and climate change

Discuss potential impacts of the proposal in relation to greenhouse gases, ozone-depleting substances and climate change. The discussion should be proportionate to the significance of the potential impacts.

- Describe the direct and indirect effects of the proposal on greenhouse gas production and ozone-depleting substances, as well as any associated benefits of the proposal.
- Provide an inventory of projected scope 1, scope 2 and total greenhouse gas emissions,[46] energy production, and energy consumption for a year of operation. Describe the methods used to develop the inventory[47]. Discuss potential annual variation that may occur.
- Provide an estimate of scope 3 emissions that may occur as a consequence of the proposal.
- Consider any carbon dioxide generated as a result of the use of lime products to treat Acid Sulfate Soils (ASS), both in production and transport as well as via spreading and neutralisation reactions. Refer to the *Tasmanian Acid Sulfate Soil Management Guidelines* for more information. [48]
- Demonstrate that the development will use cost-effective, best practice measures to minimise future greenhouse gas emissions.
- Detail measures proposed to minimise emissions and describe the anticipated effectiveness of these measures. Where less emissions-intensive options are not adopted, provide sufficient justification and/or mechanisms to offset greenhouse gas emissions.
- Estimate 'whole of life' greenhouse gas emissions for the proposed development. Include details of the methodology used.
- Describe the potential impacts of climate change upon the proposal. For example, it may be appropriate to plan for more intense storm events, more severe fire weather, and/or long-term sea level rise.
- Discuss impacts of the proposal in terms of the evolving national response to climate change and greenhouse gas emissions and the targets set in the *Climate Change (State Action) Act 2008* (Tas),[49] *Tasmania's Climate Change Action Plan 2023-25*[50] and the *Climate Change Act 2022* (Commonwealth).[51]

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[43] See https://www.legislation.tas.gov.au/view/html/inforce/current/act-1995-025
[44] See https://epa.tas.gov.au/about-the-epa/policy-legislation-cooperative-arrangements/statutory-policies/state-policies-and-environment-protection-policies/state-policy-on-water-quality-management-1997
[45] See https://www.dpac.tas.gov.au/__data/assets/pdf_file/0010/11521/State_Coastal_Policy_1996.pdf
[46] More information on categorising emissions can be found at https://www.cleanenergyregulator.gov.au/NGER/About-the-National-Greenhouse-and-Energy-Reporting-scheme/Greenhouse-gases-and-energy
[47] Calculators are available on the Australian Government Clean Energy Regulator website. See http://www.cleanenergyregulator.gov.au/NGER/Forms-and-resources/Calculators#Emissions-and-Energy-Threshold-Calculator-202021-and-user-guide
[48] See https://nre.tas.gov.au/documents/ass-guidelines-final.pdf
[49] See https://www.legislation.tas.gov.au/view/html/inforce/current/act-2008-036
[50] See https://recfit.tas.gov.au/climate/climate_change_action_plan
[51] See https://www.legislation.gov.au/Details/C2022A00037

Note: Proponents must determine whether they are required to report to the Commonwealth under the *National Greenhouse and Energy Reporting Act 2007*.[52]

6.15 Socio-economic issues

Discuss the social and economic impacts of the proposal. This discussion may:

- Include an estimate of total capital investment for the proposal and where that capital will be expended (particularly in relation to the source of large capital items of processing equipment).
- Provide a summary of operational expenditures and revenues.
- Describe impacts on local and state labour markets for both the construction and operational phases of the proposal. The number and nature of direct and indirect jobs arising from the proposal must be detailed. Skills and training opportunities should also be discussed.
- Describe impacts on upstream/downstream industries, both locally and for the State.
- Detail the extent to which raw materials, equipment, goods and services will be sourced locally.
- Provide a qualitative assessment of impacts on local social amenity and community infrastructure, including recreational, cultural, health and sporting facilities and services. Any proposals to enhance or provide additional community services or facilities should be described.
- Describe community demographic impacts (changes to cultural background, occupation and incomes).
- Describe impacts on land values, and demand for land and housing.
- Describe impacts on the local, regional, state and national economies.
- Detail any publicly funded subsidies or services to be relied upon for the construction or operation of the proposal.
- Detail any impacts on local, state and federal government rate, taxation and royalty revenues.

The extent to which socio-economic considerations need to be described depends on the nature and extent of any negative impacts or risks to the environment from the proposal. Modest proposals with relatively low-level and localised environmental impacts or risks may be adequately supported by details of intended capital expenditure, operational expenditures, revenues and employment (distinguishing between direct and indirect employment) and a qualitative discussion of other socio-economic aspects of particular relevance.

Proposals with higher-level or broader-scale environmental impacts need more comprehensive analysis of economic and social benefits, to allow the Board to evaluate both the benefits and adverse impacts of the proposal. Methods used to model social and economic impacts should be described where relevant. A description of how the local community has been consulted to determine its needs and aspirations in relation to the proposal should also be included. A social impact assessment and/or economic impact assessment may be required.

6.16 Fire risk

Discuss the potential fire risk associated with the proposal, including:

- Consideration of fire within the site, fire escaping from the site and the impact of wildfire originating outside the development and the environmental impacts that could result from such an event.
- The objectives and management principles to be adopted to prevent and respond to potential fire events.

[52] See https://www.legislation.gov.au/Details/C2007A00175

- Where a fire response plan is appropriate, it should be fully integrated with other relevant documents, such as a Tasmania Fire Service Local Area Fire Management Plan, a Sustainable Timber Tasmania Fire Management Plan and a Parks and Wildlife Service Fire Action Plan for relevant districts.

6.17 Infrastructure and off-site ancillary facilities

Discuss potential environmental impacts of the proposal on any significant off-site infrastructure or facilities (including increased use of existing infrastructure, such as roads, ports and quarries). Identify measures proposed to avoid and mitigate any possible adverse impacts. Assess the likely overall impacts after implementation of the proposed avoidance and mitigation measures.

Identify roads and other infrastructure to be used by vehicles for the proposal (during both construction and operation). Potential environmental impacts associated with construction and use of such infrastructure should be assessed. Cross-reference to other sections where relevant.

7. Monitoring and Review

Outline any proposed monitoring, review and reporting programs for the proposal. Include a table of proposed monitoring locations, parameters and frequencies, and a map showing the location of all monitoring sites.

Monitoring, review and reporting programs should be designed to:

- Assess compliance with the proposed management measures;
- Assess compliance with emission standards and other identified performance requirements;
- Assess the effectiveness of the performance requirements and environmental safeguards in achieving environmental quality objectives; and
- Assess the extent to which the potential impacts described in the EIS have eventuated.

8. Decommissioning and Rehabilitation

For the Woolnorth Wind Farm repowering proposal:

- Describe any proposed rehabilitation of disturbed areas that will follow construction activities or occur upon cessation of the proposal.
- Outline a preliminary Decommissioning and Rehabilitation Plan or Closure Plan for the proposal.
- If applicable, describe the stages of site decommissioning and rehabilitation, including any proposed seed collection and progressive rehabilitation.

9. Management Measures Table

Provide a summary table listing all management measures detailed throughout the EIS. Each measure must include a reference number, must be an unambiguous statement of intent, must specify when it is to be implemented (including whether it is to be implemented during construction, operation, maintenance or other phases) and must include a cross-reference to where the measure is described in the EIS.

10. Conclusion

Summarise the proposal and present a balanced overview of its net impacts. Draw together the critical environmental, social and economic impacts. Evaluate the extent to which negative impacts can be avoided, mitigated, remediated or compensated and positive impacts promoted and sustained.

Describe how the proposal meets and furthers the objectives of relevant legislation, policies, plans and strategies. Itemise the RMPS and EMPCS objectives and comment on how the proposal addresses each of the objectives.

11. References

Provide details of authorities consulted, reference documents and other information sources, using a consistent referencing style.

12. Appendices

Detailed technical information which supports the EIS should be included as appendices. The salient features of the appendices should be included in the main body of the EIS. Technical content of appendices must be consistent with information presented in the EIS itself, unless inconsistencies are carefully explained. The EIS may not be accepted where unexplained inconsistencies exist.

Appendix A: Avian mortality and monitoring plan guidance

- Introduction, include:
    - Brief project description and site location;
    - Site layout plan;
    - Information about the proponent, including the person responsible.
- Objectives of the plan.
- Survey methodology, a structured and statistically designed survey program:
    - Assuming searches by human observers or dogs:
- The search methodology, to be informed by the results of scavenging and detectability trials, should include:
    - The turbine area to be searched (i.e., distance from the base of turbine);
    - Spacing of circular transects (i.e., at what distance from the turbine base will each transect occur);
    - The number and location of turbines to be searched;
    - The frequency of searches (including frequency of each individual turbine);
    - The search strategy (i.e., whether the same search strategy will be suitable for all turbines based on terrain and surrounding vegetation);
    - How searches are undertaken (i.e., by car/foot/dog/all-terrain vehicle), and how many observers.
    - Management of searched areas (i.e., is vegetation clearance required to allow detections);
    - Commencement date of surveys;
    - Survey duration;
    - Inclusion of met masts search methodology, if present;
    - Estimation of the proportion of mortalities and injured birds and bats likely to be detected, based on the results of the observer detectability and scavenger trials;
    - Fatigue management plan;
    - Who will conduct the searches (i.e., if informal searches will form part of the monitoring program how will the personnel be trained).
- If the monitoring program is supplemented by an alternative monitoring method such as an automated option (e.g., remote sensing, radar, or imaging) full details of the monitoring strategy should be provided, including:
    - Commencement date of surveys;
    - Comparative benefit of the method relative to using human observers or dogs;
    - Survey duration.
- Incidental dead or injured bird and bat reporting, including actions taken.
- Reporting Requirements:
    - Detail the notification requirements to the Director, EPA of any evidence of dead or injured native birds or bats (verbal and written);
    - Provide a commitment to provide all results of the monitoring in an annual environmental report to the Director, EPA;
    - Reports of any dead or injured threatened species should be reported to the Department of Natural Resources and Environment Tasmania.
- Review of the mortality monitoring plan and adaptive management.

Appendix B: General principles for assessing environmental impacts

This Appendix summarises general principles for assessing environmental impacts in EIS documents prepared in accordance with EMPCA.

General Approach

When assessing environmental impacts in an EIS, the proponent should:

- Present information in a clear, well-structured manner appropriate to the audience of the EIS.
- Avoid duplication.
- Base assessments and evaluations on scientifically supportable, referenced data.
- Describe methodologies used and provide supporting research and information wherever relevant.
- State any scientific assumptions, simplifications, or judgements, and define uncertainties.
- Describe impacts and their mitigation to a level of detail that is proportionate to potential consequences and to what extent they can be controlled.

Impact assessment

Impact assessment involves the identification and characterization of the effects of a proposal. When undertaking impact assessment, the proponent should:

- Explain methodologies used to identify and characterise impacts.
- Clearly state the impacts that are expected to result from the development in terms of the aspect of the proposal involved and the environmental receptor affected.
- Characterise those impacts in terms of:
    - The magnitude of impacts, quantified where possible, including spatial extent and timeframe;
    - The vulnerability of the affected environmental receptors to harm or nuisance;
    - Sources of the impacts and pathways by which the impact may occur;
    - Probability of occurrence (if not 100%);
    - The range of scenarios in which the impact may occur, including plausible worst-case consequences;
    - Reversibility of impacts;
    - Any predicted indirect effects; and
    - Any aspects of other proposals examined cumulatively.
- With reference to the project description and alternatives described in the EIS, state what measures to avoid or reduce impacts have been considered as part of this assessment, and which of these have been incorporated into the proposal.

Impact evaluation

Impact evaluation is the determination of the significance of impacts. Proponents should support conclusions about the significance of impacts using a structured argument that clearly describes the magnitude of the impact, the sensitivity of the affected receptors, and how they relate.

Mitigation and Monitoring

Mitigation (planning and design considerations, pollution control technology and management practices) and monitoring are measures additional to those considered during the impact assessment to reduce the impact of the proposal. In presenting mitigation and monitoring the proponent should:

- Describe the measures proposed;

- Describe how mitigation measures function to avoid or reduce the impacts;
- Explain how measures accord with existing guidance, accepted practice or best practice environmental management as defined in EMPCA;
- Discuss contingencies for the breakdown/malfunction of equipment or processes;
- Describe any anticipated impacts resulting from the mitigation actions and how these will be addressed; and
- Identify where control measures are to be carried out, operated and/or maintained by a third party, and how this will be achieved.

Residual impacts

Residual impacts are those that remain after all proposed avoidance and mitigation measures have been taken into account. When assessing residual impacts, the proponent should:

- Revisit the first evaluation of impact, taking into account the effects of the measures to reduce the magnitude of the impacts and present a revised statement of significance.

Appendix C: Other issues and agency contacts

In addition to a permit under LUPAA and EMPCA, there may be other legal requirements to allow your proposal to proceed, including other permits, licences or landowner consent. You may also need to contact other Government agencies to obtain information for the purpose of assessment.

Your proposal may have been referred to other agencies by EPA. If assessments or approvals outside of the Board's responsibilities are required, you should engage with the respective agency to progress them. The following list identifies some of the agencies you may need to contact:

Conservation Assessments
Department of Natural Resources and Environment Tasmania
Telephone: (03) 6165 4396
Email: conservationassessments@nre.tas.gov.au
Website: www.nre.tas.gov.au/conservation

Purpose: Natural values including flora, fauna, and geoconservation values, or permits to deal with threatened species.

Heritage Tasmania
Department of Natural Resources and Environment Tasmania
Telephone: (03) 6165 3700
Email: enquiries@heritage.tas.gov.au
Website: www.heritage.tas.gov.au

Purpose: Historic cultural heritage, including State-level site listings, impacts and permits as required under the Historic Cultural Heritage Act 1995. Where works are proposed in or near a heritage place entered on the Tasmanian Heritage Register or likely to be of heritage significance to the whole of Tasmania, and a permit is required under the Land Use Planning and Approvals Act 1993, the proposal will be referred to Heritage Tasmania by the planning authority. There may also be additional sites listed under local planning schemes, impacts on which are assessed by the relevant planning authority.

Aboriginal Heritage Tasmania
Department of Premier and Cabinet
Telephone: 1300 487 045
Email: aboriginalheritage@dpac.tas.gov.au
Website: www.aboriginalheritage.tas.gov.au

Purpose: Aboriginal heritage, including desktop assessment, artefact survey requirements, permits and advice.

Parks and Wildlife – Property Services
Department of Natural Resources and Environment Tasmania
Telephone: (03) 6169 9015
Email: PropertyServices@parks.tas.gov.au
Website: www.parks.tas.gov.au

Purpose: Impacts on parks and reserves managed by Parks and Wildlife, or Crown land.

Agriculture and Water
Department of Natural Resources and Environment Tasmania
Telephone: 1300 368 550
Email: Water.Enquiries@nre.tas.gov.au
Website: www.nre.tas.gov.au/water

Purpose: Water licences and works impacting natural waterway flow (e.g. dams or fords).

Transport Services
Department of State Growth
Telephone: (03) 6166 3369
Email: permits@stategrowth.tas.gov.au
Website: www.transport.tas.gov.au

Purpose: State roads, including where any proposal requires works on or access from a State-managed road.

Mineral Resources Tasmania
Department of State Growth
Telephone: (03) 6165 4800
Email: info@mrt.tas.gov.au
Website: www.mrt.tas.gov.au

Purpose: Mining Leases.

Appendix D: Example of project description summary table

Location and Planning Context

Location	State the address of the site, and CTs and PIDs (as applicable) for all titles on which the activity will take place.
Land zoning	Describe the land zoning of the site and surrounds. If rezoning of the site is required, provide details.
Land tenure	Provide the land tenure of the proposal.
Use Class and Permissibility	If a permit is required under LUPAA, provide the Use Class of the proposed activity and Permissibility of the activity with reference to the relevant Planning Scheme.

For extractive industries only, delete if not required

Mining lease	
Lease area	
Bond	State the amount of any bond required by MRT (for extractive industries)

Existing site

Land Use	Describe the existing land use of the site and surrounds.
Topography	Describe the topography of the site and surrounds.
Geology	Describe the geology of the site, including the likely presence of potentially acid forming (PAF) material. Describe any geoconservation values on or near the site, e.g. karst.
Soils	Describe the potential to encounter acid sulphate soils and or contaminated soil (from past activities, as relevant).
Hydrology	Describe groundwater and surface drainage (including waterways, lakes, wetlands and coastal areas) Describe the waterbodies and aquatic values on site and in the surrounding area. State the distance from the activity to the nearest waterbody.
Natural Values	List the threatened fauna, flora and vegetation communities, including potential habitat for any such species, that are known to occur on or near the site (use the Natural Values Atlas, TASVEG 4.0 or results of any relevant survey). State the vegetation types on and near the site.
Potential Hazards	Provide a brief assessment of the vulnerability of the site to natural hazards (e.g. flooding, seismic activity, fire, landslips or strong winds) or climate change.

Local Region

Climate	State the annual rainfall and predominant wind direction.
Surrounding land zoning, tenure and uses	Describe the surrounding land use, distance to the nearest residences in other ownership, note any conservation reserves or recreation areas in the area, and provide a coastal description if the coast is nearby.
Species, sites or areas of conservation significance	Provide information on species, sites or areas of landscape, aesthetic, wilderness, scientific or otherwise special conservation significance which may be affected by the proposal. Relevant information resources include the LIST (*www.thelist.tas.gov.au*) and the Natural Values Atlas (*https://www.naturalvaluesatlas.tas.gov.au*).

Proposed Infrastructure

Major equipment	List all existing and proposed plant, machinery, or other major equipment (distinguish between existing and proposed).
Other infrastructure	List the existing and proposed buildings, structures, access roads, internal haul roads (can refer to the Site Plan) (distinguish between existing and proposed).

Inputs

Water	Include quantities and characteristics.
Energy	Include quantities and characteristics.
Other raw materials	Include quantities and characteristics.

Wastes and Emissions

Liquid	Include quantities and characteristics.
Atmospheric	Include quantities and characteristics.
Solid	Include quantities and characteristics.
Controlled wastes	Include quantities and characteristics.
Noise	Include major sources of noise emissions.
Greenhouse gases	Provide a brief description of changes to greenhouse gas emissions that will be caused by the proposal.

Construction, Commissioning and Operations

Proposal timetable	Provide a brief timetable outlining the proposed timeframe(s) for construction, commissioning and commencement of operations. Include significant milestones if applicable.
Construction hours	e.g. xx-xx Monday to Friday xx-xx Saturday
Operating hours (ongoing)	e.g. xx-xx Monday to Friday xx-xx Saturday

Other Key Characteristics

Other	Describe any additional characteristics relevant to the proposal/environment that are likely to provide important context as part of this summary.

ENVIRONMENT PROTECTION AUTHORITY