澳大利亚牧牛山项目公司

**Wild Cattle Hill Pty Ltd**

CATTLE HILL
Wind Farm

# Annual Environmental Review 2022

Review period: 1 July 2021 to 30 June 2022

*Prepared in satisfaction of State EPN 10105/1 Condition G10*

**Prepared By:** Goldwind Australia

**On behalf of:** Wild Cattle Hill Pty Ltd

**Document No:** CH-PM-REP-0128

**Date:** October 2022

## Document Information

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## Document History

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| DRAFT | 30/09/22 | Draft for Review | David Rogers (GWA) | Jeff Bembrick (GWA) |
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## Regulator Distribution List

| Title | Company / Organisation | Purpose |
|---|---|---|
| Director | Environment Protection Authority Tasmania | Compliance with EPN |
| Secretary, Post Approvals Branch | Department of Agriculture, Water and Environment | For Information |
| General Manager | Central Highlands Council | For Information |

## WCHPL Internal Distribution List

| Name | Organisation/Company | Relationship to WCHPL |
|---|---|---|
| Simon Williams | Operations and Maintenance Manager, Powerchina | Owner's Representative |
| Ning Chen | Managing Director Goldwind Australia (GWA) | Director WCHPL |
| Jeff Bembrick | GWA Development Compliance Manager | CHWF Compliance Manager |
| Navneet Sharma | GWA Head of Asset Management | CHWF Asset Manager |
| Paul Collins | GWA Site Service Manager | CHWF Site Manager |

# Definitions and Abbreviations

| | |
|---|---|
| **AER** | Annual Environmental Review |
| **Cattle Hill Wind Farm** | Wind Farm comprising 48 wind turbines and up to 150 MW capacity |
| **CEMP** | Construction Environmental Management Plan |
| **Central Highlands Region** | Is that described as the area north of Bothwell, east of Bronte Park and surrounds, south of Liawenee, and west of the Great Western Tiers |
| **CHC** | Central Highlands Council |
| **CHWF** | Cattle Hill Wind Farm |
| **Commissioning (EPN)** | EPN 10105/1 defines commissioning as the testing of turbines and is taken to be completed when 90% of the turbines are being operated in the course of normal commercial operations. |
| **DAWE** | Department of Agriculture, Water, and the Environment (formerly DoEE) |
| **Director** | Director of the Tasmanian Environment Protection Authority, holding office under Section 18 of EMPCA and includes a person authorised in writing by the Director to exercise a power or function on the Director's behalf. |
| **DPEMP** | Development Proposal and Environmental Management Plan |
| **DPIPWE** | Tasmanian Department of Primary Industry, Parks, Water and Environment |
| **EMOP** | Eagle Mortality Offset Plan |
| **EMPCA** | Environmental Management and Pollution Control Act 1994 |
| **EPA** | Tasmanian Environment Protection Authority |
| **EPBC** | Commonwealth Environment Protection and Biodiversity Conservation Act 1999 |
| **EPBC 2009/4839** | EPBC Approval No. 2009/4839 |
| **EPC** | Engineer, Procure and Construct |
| **EPN** | Environment Protection Notice 10105/1 (issued by Tasmanian EPA on 13 March 2019) |
| **ERP** | Emergency Response Plan |
| **FOMP** | Flora Offset Management Plan |
| **GWA** | Goldwind Australia Pty Ltd (ACN 140 108 390) |
| **Ha** | Hectare |
| **IDF** | IdentiFlight System |
| **kV** | Kilovolt |
| **MW** | Megawatt |
| **NVA** | Natural Values Atlas |
| **O&M** | Operations and Maintenance (Phase of Development) |
| **OEMP** | Operations Environmental Management Plan (approved under Condition G11 of EPN 10105/1) |
| **PCA** | Powerchina Australia Development Pty Ltd. |
| **RMPAT** | Resource Management and Planning Appeal Tribunal |
| **SCADA** | Supervisory Control and Data Acquisition |
| **TasNetworks** | Own, operate and maintain the electricity transmission and distribution network in Tasmania. |
| **TFS** | Tasmanian Fire Services |
| **The Land** | Described as that situated immediately east of Lake Echo and off Bashan Rd, approximately 3km southwest of Waddamana in central Tasmania, including part or all of titles 135246/1; 29897/1; 29897/3; 29897/5; 248810/1; 135247/1; 135247/2; 29888/4; and 29897/6 |
| **The Proponent** | Wild Cattle Hill Pty Ltd (WCHPL) ACN 610 777 369 |
| **WTE** | Tasmanian Wedge-tailed Eagle (*Aquila audax fleayi*) |
| **WBSE** | White-bellied Sea-eagle (*Haliaeetus leucogaster*) |
| **WCHPL** | Wild Cattle Hill Pty Ltd (ACN 610 777 369). |

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# *Managing Director's Statement*

*This is the Fifth Annual Environmental Review (AER) for the Cattle Hill Wind Farm, located in Tasmania's Central Highlands.*

*The AER has been prepared in accordance with the requirements of Condition G10 of Environment Protection Notice 10105/1 issued by EPA.*

*This AER will be made publicly available through publication on the Cattle Hill Wind Farm website (www.cattlehillwindfarm.com).*

*As required under Condition G10, this AER has been prepared for submission to the Director of the Environment Protection Authority within 3 months of the end of the review period (1 July 2021 – 30 June 2022).*

*I acknowledge and endorse the contents of this review.*

Jie Yao

Managing Director, Powerchina, on behalf of Wild Cattle Hill Pty Ltd

30 September 2022

Ning Chen

Managing Director, Goldwind Australia, on behalf of Wild Cattle Hill Pty Ltd

30 September 2022

# 1. Introduction

## 1.1 Purpose of this document

This Annual Environmental Review (AER) 2022 has been prepared in accordance with requirements of Environment Protection Notice (EPN) No. 10105/1 Condition G10, which requires annual reporting of project performance against environmental requirements outlined in the project's regulatory approvals, and their implementation via relevant approved management plans.

The report has been prepared by Goldwind Australia (GWA) on behalf of the proponent, Wild Cattle Hill Pty Ltd (WCHPL).

This AER covers the period between 1 July 2021 and 30 June 2022 (the review period) and has been prepared in accordance with State EPN 10105/1 Condition G10 (provided in full as Appendix A).

## 1.2 Cattle Hill Wind Farm

The Cattle Hill Wind Farm (CHWF) has an installed total capacity of approximately 148.5MW and is allowed by the Grid operator to export up to 144 MW to the Grid when wind conditions allow for maximum generation.

Over a year, the CHWF can provide enough clean energy to supply almost one third of Tasmania's residential housing energy demand (around 63,500 Tasmanian homes)[1].

Completion of the project boosted Tasmania's renewable energy supply by approximately 5% and further contributed to Tasmania's goal of becoming 100% powered by renewable by the year 2022.

Approval of CHWF as an accredited power station in 2020 also allowed the Australian Government's Large-scale Renewable Energy Target of securing an additional 33,000-gigawatt hours of renewable energy to be surpassed.

## 1.3 Proponent Details

Wild Cattle Hill Pty Ltd (WCHPL) is the proponent for the project, and the 'Responsible Person' under State EPN 10105/1. Shareholders for WCHPL are:

- Powerchina, and
- Goldwind Australia (see definitions for further details).

## 1.4 Structure of this Report

This AER provides a review of performance against environmental obligations outlined in the project's regulatory approvals and implementation of associated approved management plans.

Table 1.1 provides a reference to sections of this AER which address Condition G10 requirements.

[1] *2016 Census data for Tasmania recorded a total of 241,744 houses 197,575 of which were occupied and 32,135 unoccupied,*

*Table 1.1: AER Reporting Requirements and where they are addressed in this document*

| Condition G10 reference and Summary of Reporting Requirements | | AER Ref |
|---|---|---|
| 1.1 | Statement by General Manager or equivalent acknowledging contents of AER | Preface |
| NA | Project Context | Sections 1-3 |
| 1.2 | List of complaints received from the public and description of any actions taken as a result | Section 4.1 |
| 1.3 | Environment-related procedural or process changes implemented during the review period | Section 4.3 |
| 1.4 | Amounts of waste produced and treatment methods implemented during the review period | Section 4.4 |
| 1.5 | Non-trivial environmental incidents and/or noncompliance with permit conditions | Section 4.5 |
| 1.6 | Summary of monitoring data and record keeping required by conditions of EPN | Section 5 |
| 1.7 | Breaches of limits specified in conditions | Section 5 |
| NA | Community Engagement | Section 6 |
| 1.8 | Other issues | Section 7 |
| 1.9 | Summary of fulfilment of environmental commitments | Section 8 |
| 1.10 | Summary of any community consultation and communication | Section 6 |
| 1.11 | Potential changes to the activity over the next 12 months | Section 9 |

# 2 Project Overview

## 2.1 Project Location

CHWF is located in Tasmania's central highlands, immediately east of Lake Echo and approximately 3km southwest of Waddamana. The site is within a sparsely populated and relatively isolated part of the Central Highlands Council municipal area, on land which ranges from 700-920 metres above sea level (Figure 2.1).

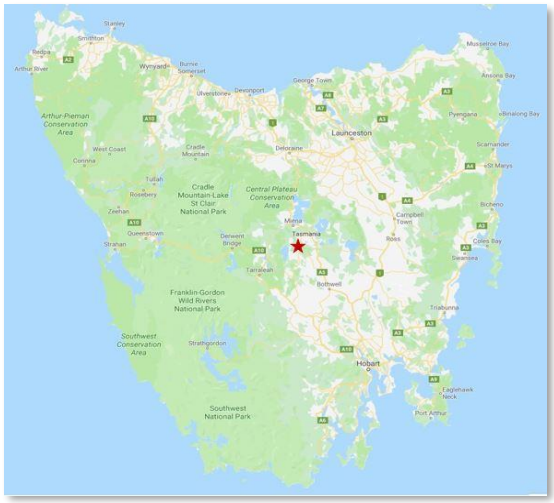



*Figure 2.1: Cattle Hill Wind Farm location*

The site is approximately 35 kilometres south of the township of Miena and is bordered geographically by Lake Echo to the West, and the Ouse River valley to the east, where the former Waddamana Power Station remains as a heritage site and museum.

The site is accessible by unsealed roads from the northeast, east and south, which following completion of construction of the project, have returned to their former low traffic levels.

CHWF is connected to Tasmania's electricity supply network by a short section (approximately 250 metres) of 220 kV overhead line between the wind farm substation and the TasNetworks high voltage electricity transmission network easement, which traverses through the site.

In addition to operation and maintenance of CHWF, activities undertaken on the land include farming, operation and maintenance of the TasNetworks transmission line, and scattered residential dwellings.

## 2.2 Project Background

CHWF has had a long planning history; subject to a planning application based on a Development Plan and Environmental Management Plan (DPEMP, 2010) that led to initial approval by Tasmanian State and Local Regulators on 15 December 2011 that was amended by RMPAT in April 2012 and, and an EPBC Referral (EPBC 2009/4839) to the (now) Commonwealth Department of Agriculture, Water and Environment (DAWE) and subsequent EPBC approval in December 2014.

The initial development approval was issued to NP Power Pty Ltd, then transferred to One Wind Australia Pty Ltd and followed by Tasberry Holdings Pty Ltd in 2016. WCHPL (the current proponent) acquired the project in October 2017 and redesigned aspects of it in accordance with a series of Commonwealth, State and Local development approvals (see Section 2.5).

WCHPL has substantially condensed the project footprint from its original proposal for a 100-turbine layout to a more compact 48 turbine layout, with increased tower height and higher capacity turbines, resulting in a more efficient project, with significantly reduced environmental impact.

## 2.3 Infrastructure Components

During the period of the previous AER, temporary construction facilities, including two batching plants, the main construction compound, and two water offtakes, were removed and are in the final stages of rehabilitation. The permanent infrastructure components of the CHWF which will remain throughout the life span of the project are described in Table 2.1 and shown on the wind farm layout map (Figure 2.2).

*Table 2.1: CHWF Infrastructure (Operations Phase)*

| Component | Description |
|---|---|
| Turbines and towers | The CHWF consists of 48 wind turbines with a generating capacity of 148.5 MW. The turbines utilise Goldwind Permanent Magnet Direct Drive technology, and have a tip height of 170 m above ground level, a hub height of 100 m and rotor diameter of 140 m. Near the base of each tower is an external kiosk-style 33kV transformer and two banks of cooling fans. Cooling fluid circulates between the cooling fan units and internal areas of the tower and turbine. No aviation safety lighting is required on the wind turbines. Lighting is provided at the entry to each tower. The turbines are off-white/grey with non-reflective finish. |
| Hardstands | Hardstands formed during construction are used for large cranes and component laydown at each turbine site and are retained and maintained to allow for maintenance activities during the operation of the wind farm. |
| Substation and switchyard | An on-site substation within a security fenced compound receives, 33 kV cables from each of the wind farm's five collector groups, via a 33-kV switch room. Voltage is stepped up to 220kV by a bunded 33kV/220 kV transformer before connecting to the Tas Networks 220 kV OH transmission line via a switchyard, overhead gantry and short section of overhead 220kV line and cut-in poles. Beneath the substation is an earthing grid for electrical protection. |
| O&M facility | The Operations and Maintenance (O&M) facility is a permanent facility which will be used for operation and maintenance functions throughout the life of the project. The facility includes offices and amenities, a carpark, storage and maintenance buildings, a workshop, laydown area, and fire safety infrastructure. |
| Underground cables | A network of 33kV underground cables links each of the 48 turbines to the onsite substation. Where possible, these cables were installed adjacent to access tracks to minimise disturbance |
| Internal access tracks | A network of internal access tracks has been established to provide all weather access to all turbine sites and the substation and has been designed to facilitate over-dimensional deliveries. |
| IdentiFlight avian detection system | The CHWF includes 16 IdentiFlight (IDF) pole mounted avian protection units installed as part of an Australian first technology trial aiming to avoid or significantly reduce collision risks for the Tasmanian Wedge-tailed Eagle. The IDF units are connected to the wind farm's electrical and communication systems and integrated with the CHWF SCADA system, and send signals to curtail any turbine, if an eagle is at risk of entering the turbine's Rotor Swept Area (RSA) based on its speed and trajectory, which is tracked in real time. |
| External road upgrades | To allow large component deliveries such as turbine blades, nacelles, tower sections and generators during construction, as well as provide safe access for maintenance of components during operations, significant upgrades to approximately 30 kilometers of external roads were undertaken. These works were completed during the previous review period, prior to the over-dimensional transport of Wind Turbine components. The upgraded roads having now been handed back to and accepted by CHC. |

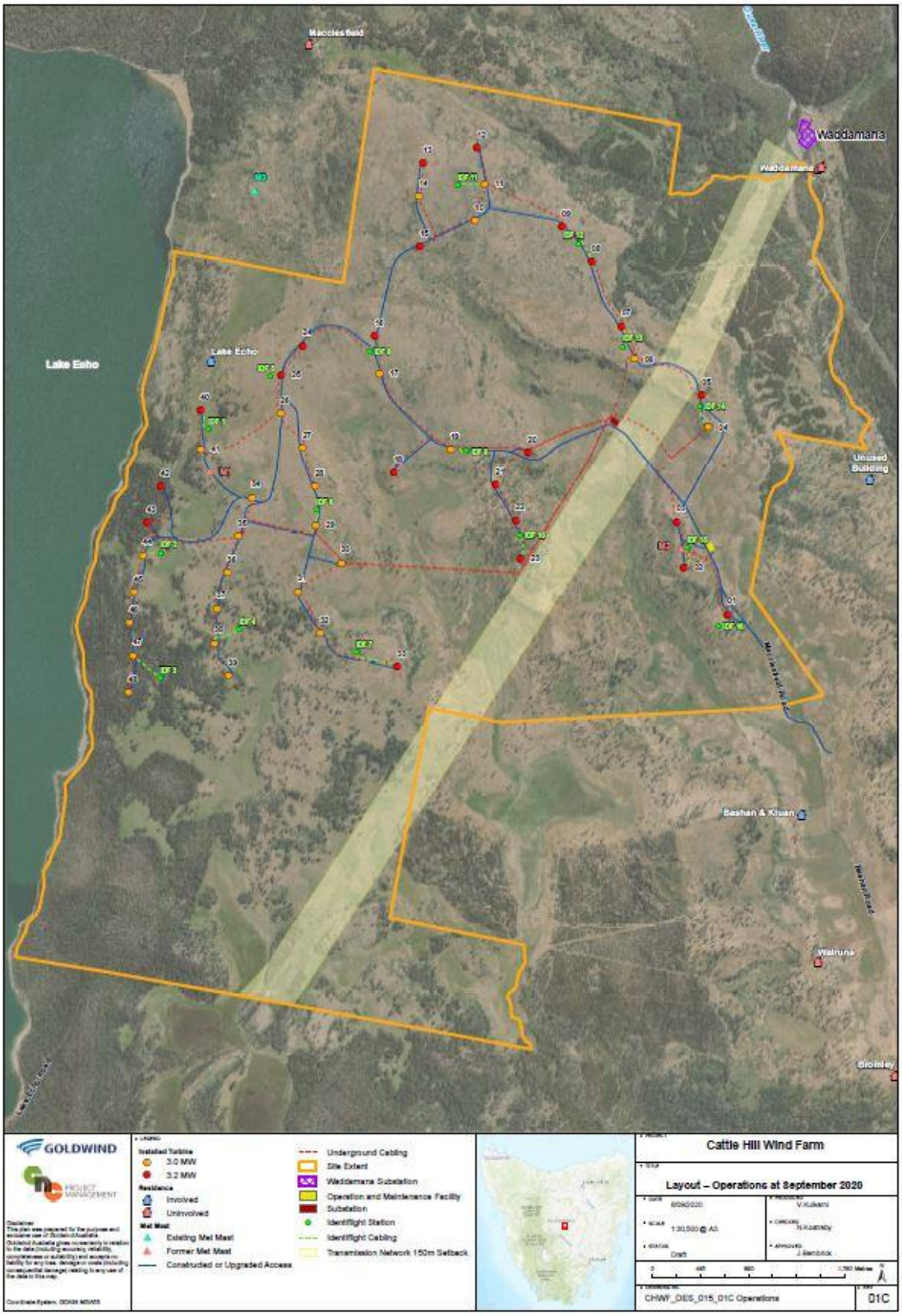



*Figure 2.2: Cattle Hill Wind Farm Final (As-Built) Layout*

## 2.4 Site Environmental Constraints

The site is in a high wind and low rainfall area, which has been largely cleared for agricultural purposes (grazing and cattle) but retains areas of woodland and conservation significant vegetation and habitat, some which is protected within existing or new covenant areas. The following planning and environmental constraints have been incorporated into the design of the CHWF and are to be adhered to by all persons on site, for the operational life of the facility:

- A pre-existing 'Lake Echo' conservation covenant which has limits on the placement of infrastructure. DPIPWE has authorized designated activities within the covenant.
- A 1,000 m buffer zone from Wedge-tailed Eagle or White-bellied Sea Eagle nests which were known as of December 2017, when the wind farm design was finalized via the EPA Approved Design Report).
- A 60 m buffer for eagle high risk collision zones
- An infrastructure buffer of 100 m from the high-water mark of Lake Echo
- An infrastructure buffer of 150 m from the nearest transmission line on the site (Figure 2.2)
- A 30 m buffer from known mammal dens and nests
- A 30 m buffer around listed flora and habitat to be protected
- Avoidance of disturbance of Highland Poa and orchid habitat within the 'Lake Echo' covenant, except as permitted by Permits to Take and/or the Covenant Authorisation
- Avoidance of disturbance of Highland Poa and orchid habitat within the new proposed covenant areas on site, that are required under the EPBC Approval
- Avoidance of disturbance of Discaria habitat under the new Discaria covenant area
- A 50 m buffer zone around European (Huts) and Aboriginal cultural heritage sites (TASI sites)
- Animal carcasses from hunting and culling, collisions with turbines, and farming activities must be removed from within 500 m of turbines and placed in DAWE approved carcass disposal pits
- No shooting of native animals is allowed within the Lake Echo covenant and all shooting is prohibited within 200 metres of turbines
- Carbon Credits Forest (Forests Alive) project (administered by the Commonwealth Clean Energy Regulator). Approval has been obtained to modify vegetation within this area to allow for construction of the wind farm and for the purpose of carcass monitoring beneath turbines however for any other purpose, no clearance of vegetation is allowed.

Following the detailed design process, two additional areas were identified to offset impacts to the below Commonwealth and State species which could were unable to be avoided in design:

- A conservation covenant (Bashan Ledge) for protection of Commonwealth listed orchid species
- A conservation covenant for protection of State listed species *Discaria pubescens*

The area and extent of the above covenants was finalized during the previous review period, and the Bashan ledge covenant is in the final stage of being fenced off during the current review and will be completed during the next review period. Both the orchid and *Discaria pubescens* covenants are formally registered on property titles as protective covenants.

## 2.5 Regulatory Approvals

CHWF was developed and will operate in accordance with the Commonwealth, State, and Local approvals, with related approved management plans and internal processes to support effective implementation of requirements (summarized in Table 2.2).

*Table 2.2: CHWF regulatory approvals and related management plans and processes*

| Primary approval | Related management plans and processes |
|---|---|
| **EPBC Approval Notice 2009/4839**<br>issued by the Commonwealth Department of Agriculture, Water and Environment (DAWE) on 15 December 2014 | • Weed Management Strategy and Plan<br>• Flora Offset Strategy<br>• Flora Offset Management Plan<br>• Collision Avoidance and Detection Plan<br>• Annual Compliance Reporting |
| **State Environmental Protection Notice EPN 10105/1**<br>issued by the Tasmanian EPA on 13/03/2019<br>(Varies condition of the CHWF Permit DA 2010/19) | • Design Report<br>• Construction Environmental Management Plan<br>• Active Eagle Nest CEMP and Eagle Nest Monitoring Plan<br>• Eagle Nest Productivity Monitoring Plan<br>• Post Commissioning Eagle Utilisation Monitoring Plan<br>• Bird and Bat Mortality Monitoring Plan<br>• Eagle Mortality Offsets and Offset Plan<br>• Hunting and Culling Management Plan<br>• Complaints Register<br>• Emergency Response Plan<br>• Turbine Shutdown Management Plan<br>• Operational Environmental Management Plan<br>• Post Commissioning Noise Survey<br>• Annual Environmental Review |
| **Planning Permit DA 2010/19**<br>to use and develop land to establish wind farm, issued by Central Highlands Council (CHC) on 15 December 2011, RMPAT decision April 2012 as amended on 25/10/18 | • Traffic Management Plan<br>• Approval of Signage<br>• Approval of colours / finishing on towers and turbines<br>• Building permits (permanent buildings) |
| **Authorisation for Conservation Covenant CPR 8065**<br>for wind farm infrastructure within the Private Land Conservation Program, issued by DPIPWE on 4/06/18 | • Permits to Take and provision of GIS data for listed species recorded prior and during construction activities<br>• Rehabilitation Management Plan |
| **Planning Permit DA 2017/56**<br>for installation of IdentiFlight, issued by CHC on 30/01/18 | • Location and Design in accordance with the Permit<br>• Building permits for IdentiFlight towers |
| **Planning Permit DA 2017/57**<br>For installation of meteorological monitoring masts, issued by CHC on 25/01/18 | • No longer required – No new met masts installed. |
| **Planning Permit DA 2018/31**<br>for road widening and upgrade works on Waddamana, Macclesfield and Bashan Roads, issued by CHC 24/08/18 | • Traffic Management Plan<br>• Road Safety and Directional Signage<br>• Permit to Take (Threatened Flora Species) |
| **Permits to Take (PTT) native flora and / or fauna**<br>issued under the *Threatened Species Act* and / or Products of Wildlife (Dens and Burrows) issued under the *Nature Conservation Act*. | • Any amendments to existing PTTs or new PTTs required based on final design and ecological surveys<br>• Reporting to DPIPWE at end of PTT period |

# 3 CHWF Project Status

## 3.1 Design Changes during the review period

No design changes occurred during the current review period.

## 3.2 Final (As-Built) Layout

Figure 2.2 shows the final (as-built) layout, incorporating all previous changes arising from the detailed design process, as approved by EPA and without temporary construction facilities.

## 3.3 Activities Undertaken within Review Period

Key activities for the CHWF undertaken during the reporting period are summarised in Table 3.1 with reference to relevant sections of this AER.

*Table 3.1: Activities undertaken within review period of this AER*

| Key Activities Undertaken within Current Review Period | Date / Timeframe |
|---|---|
| Implementation of mitigation actions for WTE mortality at Turbine 45 | October 2021 |
| GWA became a signatory to the National Packaging Covenant | October 2021 |
| Completion of the 18-month IdentiFlight trial | February 2022 |
| Site meeting with EPA representatives | February 2022 |
| CHWF Internal Environmental and Compliance Audit | February 2022 |
| Public reporting of findings of the IdentiFlight trial | March 2022 |
| EPA operational compliance audit of CHWF | May 2022 |
| Finalization of Decommissioning and Rehabilitation Plan for the CHWF | June 2022[2] |
| Eagle Utilization Monitoring during seasonal periods in accordance with EUMP | Aug, Dec 2021, Feb, May 2022 |
| Ongoing carcass monitoring in accordance with Bird and Bat Mortality Monitoring Plan | Throughout review period |
| On-site and off-site nest checks required by Eagle Nest Productivity Monitoring Plan | Sept and Mid Nov 2021 |
| Ongoing operation and maintenance of IDF | Throughout review period |
| Notifications in accordance with Condition FF11. | As required |
| Ongoing community engagement activities | Throughout review period |

[2] *Approval of DRP received outside current review period*

# 4 General Environmental Management

## 4.1 Complaints made by the public during the review period

Management of enquiries and complaints for the project is undertaken in accordance with the CHWF Complaints Management System, which has been developed to meet the requirements of *AS/NZS 10002:2014 – Guidelines for Complaint Management in Organisations*, and outlines the processes and associated timeframes for:

- registering all enquiries and complaints
- collecting information and responding to enquiries and complaints
- addressing and resolving complaints; and
- mediation if resolution is not reached.

The system includes a dedicated database which is used to store, track, and manage all complaints.

No complaints were recorded in the complaint management system throughout the review period.

### 4.1.1 Management Actions undertaken in response to complaints

No management actions were undertaken in response to complaints within the review period, as no new complaints were received.

## 4.2 Incidents

During the review period, one reportable environmental incident was recorded in Goldwind's CHWF incident management system and was subject to a formal incident investigation according to Goldwind internal incident management procedures (discussed in the following section).

### 4.2.1 Environmental Incidents Notified to Regulators

One incident (below) triggered the requirement for reporting to EPA under Condition FF11 of EPN 10105/1 concerning impacts dead or injured birds or bats (described below).

**Deceased Wedge-Tailed Eagle near Turbine 46 found 23 September 2021**

A deceased Wedge Tailed Eagle was found near Turbine 46 (T46) on 22 September 2021. Summary details of the incident are:

- The deceased bird was an adult male Wedge Tailed Eagle (WTE) with dark plumage, found 90 metres east of T 46 at approx. 10.25am on 22 September 2021.
- The body showed few signs of external damage that are typically associated with a rotor strike, suggesting it could have been an impact with a slow-moving rotor, higher up on the blade.
- The necropsy, undertaken on 13 October 2021, provided additional details of the internal injuries, and confirmed the damage to the bird was not inconsistent with a slow-moving blade strike, an impact from a fall from height, or a collision with a vehicle.
- At the time of the find, based on the level of rigor mortis, an incident on the morning of September 22 is not ruled out but several days prior to the find have been investigated for signs of an impact.

The WTE mortality follows a similar WTE mortality detected near neighbouring Turbine 45 on 28 June 2021, during the previous review period. The incident investigation undertaken for the June mortality revealed a blind spot due to tall trees between IDF-2 and Turbines 45 and 46, the extent of which was not fully appreciated, and had been masked by the high eagle activity and IDF curtailments in this area being seemingly effective until the mortality occurred.

The incident investigation revealed that the lower portion of the Rotor Swept Area of Turbine 45, and to an even greater extent, Turbine 46, was only partially visible to IDF Stations 2 and 3 which observe these turbines. Heat maps of bird tracks at different altitudes indicated that IDF-2 and 3 would not have visibility of a low flying bird in the forest, rising from the ground, or flying just above canopy level, when approaching from the south, southwest or west.

### 4.2.2 Management Actions resulting from Incident Investigations

Following this incident, the following mitigating actions have been recommended:

**Actions Implemented**

- Increase Time to Collision setting and increase Time to Clear setting for Turbines 45 and 46 (implemented on 3 October 2021).
- Removal of stand of trees near IDF-2 and within the CMZ of T44 (agreed to by landowner on 24 September 2021 and removed in October 2021).

This completes the primary mitigation action in response to the WTE mortality near Turbine 45 discussed in the 2021 AER.

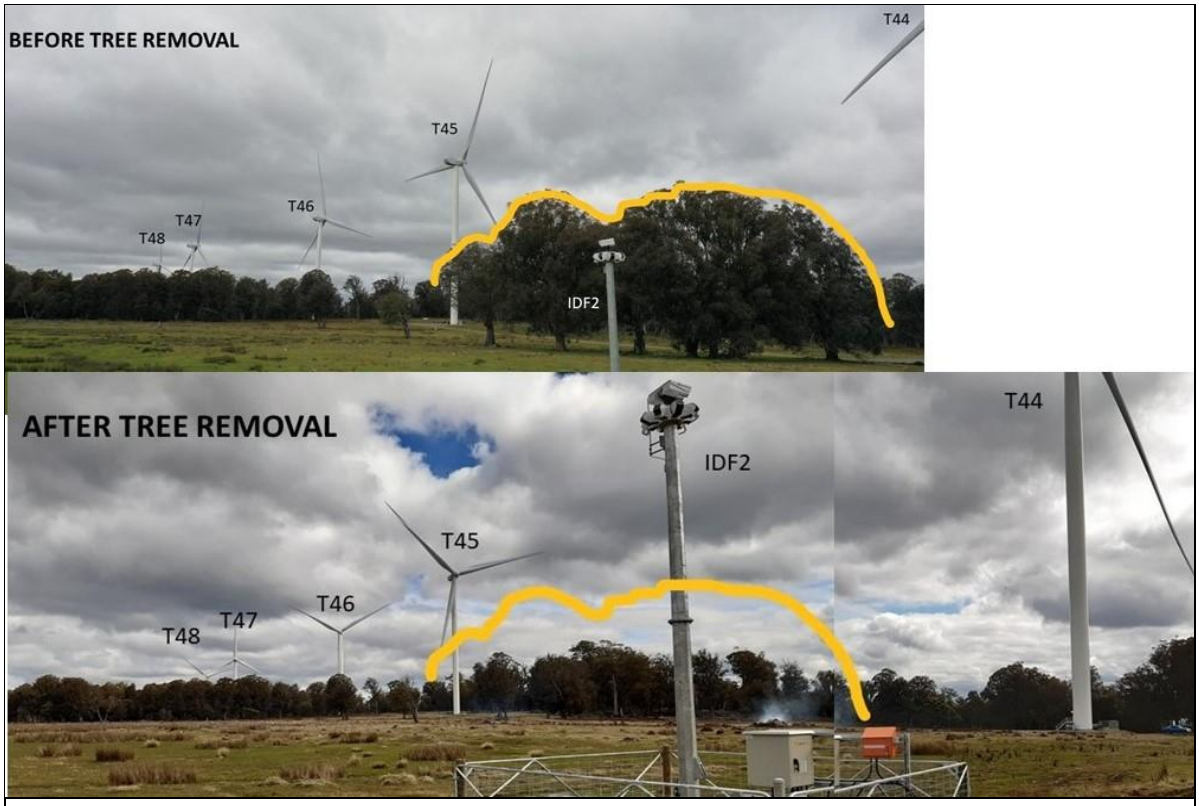
Table 4.1 summarises actions proposed following each mortality to date showing the actions which have been implemented and their effectiveness addressing the root cause, and actions which are still under review and further consideration.

*Table 4.1: Mitigation Actions Proposed following previous WTE mortalities and Status of Implementation*

| | Cause | Actions Proposed | Implementation Status |
|---|---|---|---|
| 1 (T2) | Human Error | Revise turbine and SCADA controls to prevent manual override of IDF stop. | Implemented – root cause eliminated at all turbines. |
| 2 (T45) | Tree occlusion | Removal of trees causing occlusion of T45 from IDF-2 | Implemented during October 2021 – significant improvement in IDF-2 visibility for T45 |
| | | Revise curtailment settings at target turbines | Implemented new settings in place designed to maximize eagle protection |
| | | Targeted removal of vegetation outside Carbon Forest area to improve visibility | Ongoing |
| 3 (T46) | Tree occlusion | Additional IDF station on 30m tower between T45 and T46 | In progress |
| | | Thinning of forest by removal of <15mm diameter trees | Ongoing |

Photograph 4.1 shows before and after shots of the mitigation actions undertaken for Incident 2, which occurred at T45 in June 2021 during the previous review period. The mitigation included removal of seven trees obstructing the IDF-2 visibility of Turbine 45 (following landowner approval) and was completed in October 2021.

This clearing has provided a noticeable improvement of the visibility of Turbine 45 and the surrounding airspace from IDF-2 and is considered to have been effective. At the time of writing, there has been no recurrence of an incident at T45 in 365 days (one year).




*Photograph 4.1 – View from IDF2 to T45 to T48 showing clearing completed following Incident 3.*

## 4.3 Waste Management

### 4.3.1 Waste volumes generated during review period

Waste volumes generated during the review period were similarly low to the previous year and are expected to remain low now the wind farm is in operations phase, with only a small Warranty Operations and Maintenance team present on site.

Table 4.2 summarizes waste volumes generated during the review period.

*Table 4.2: Total Waste Volumes Generated during Review Period*

| Category | Volume | Treatment / Disposal Method |
|---|---|---|
| Solid Wastes | | |
| General waste | 156 cubic metres | Launceston Landfill |
| Liquid Wastes | | |
| Sewerage from amenities | N/A | AWTS System on Site – Serviced and Maintained by Professional Plumbing |
| Controlled Wastes | | |
| Hydrocarbon (total) | Zero | N/A |
| Empty oil drums | Zero | N/A |
| Waste grease | Six drums | Delivered to Tasmania Oil for disposal. |

### 4.3.2 Waste Strategies Implemented with review period

The approach to managing waste on site remains focused on avoiding, reducing, and reusing waste, in accordance with the waste hierarchy, as outlined in the approved OEMP but due to the low volumes and absence of local recycling facilities options are limited.

As a voluntary initiative, Goldwind became a signatory to the National Packaging Covenant during the review period and is currently working to identify opportunities to reduce waste and remove plastic waste streams across its supply chain. This is expected to have a flow on effect to CHWF.

### 4.3.3 Inventory of Hazardous Goods

Condition H4 of EPN 10105/1 requires an inventory to be kept of all environmentally hazardous materials stored and handled on The Land, specifying the location of storage facilities and maximum quantities of hazardous materials held. This is provided in Appendix C.

As most of the hazardous materials held on site during construction of the wind farm have since been removed, only minor volumes of hazardous materials are held on site; these are limited to those required to operate and maintain the wind farm.

Site works procedures include requirements for handling and storage of hazardous substances, availability of spill kits and spill response processes, containment and collection if required.

## 4.4 Changes to environmental procedures or processes within the review period

No changes to environmental procedures and processes were adopted during the review period.

## 4.5 Compliance breaches

There were no compliance breaches reported during the review period.

# 5 Implementation of Environmental Management Plans

## 5.1 Management Plans required by approval conditions

The CHWF operates in accordance with various management plans approved by State and Commonwealth regulators. Table 5.1 outlines the plans relevant to the operations phase and implementation activities undertaken within the review period

*Table 5.1: Approved Management Plans and associated Implementation Actions within Review Period*

| Condition reference / Title of Plan | | Approval | Activities Within Current Review Period |
|---|---|---|---|
| Plans required by State EPN | | | |
| DC2 | Decommissioning and Rehabilitation Plan | 29/07/22 | • Finalisation of DRP following comments from EPA<br>• (Approval from EPA received outside review period) |
| G9 | Emergency Response Plan | 03/04/20 | • No requirements within review period |
| G11 | EMP (Operations) | 06/08/19 | • Ongoing implementation of management plans<br>• Site Environmental Inspections |
| FF5 | Eagle Nest Productivity Monitoring Plan | 30/10/17 | • On site nest checks and off-site nest checks (activity and productivity) undertaken within review period. |
| FF6 | Post Commissioning Eagle Utilization Management Plan | 06/02/18 | • Eagle monitoring completed for the Aug, Oct, Dec and Feb seasonal survey periods |
| FF7 | Hunting and Culling Management Plan | 20/11/18 | • Collation of Records provided by Shooting Groups |
| FF10 | Bird and Bat Mortality Monitoring Plan | 26/03/19 | • Surveys of all turbines bimonthly and drive by surveys of all turbines weekly throughout review period |
| FF15 | Eagle Mortality Offset Plan[3] | 21/12/18 | • Annual payment of $75,000 made to Fund<br>• Round 4 eagle research applications received |
| FF16 | Turbine Shutdown Management Plan | 24/08/18 | • TSMP not triggered within review period |
| Plans required by Commonwealth EPBC Approval | | | |
| 6A | Collision Avoidance Detection Plan | 29/05/18 | • IdentiFlight in operation throughout review period<br>• IDF trial report finalised in March 2022 |
| 22 | Weed Management Strategy | 14/12/17 | • Monitoring of weed cover<br>• Treatment of weeds as required |
| 23 | Flora Offset Management Plan | 10/08/19 | • Monitoring required by FOMP undertaken<br>• Process of securing covenants on title ongoing |

Activities relating to the above plans are discussed in more detail in the following sections.

[3] *Also addresses EPBC conditions 16 – 19 (inclusive)*

## 5.2 Management Plans required by State EPN

### 5.2.1 CHWF Operational Environmental Management Plan

The OEMP describes the elements of the Environmental Management System (EMS) which Wild Cattle Hill Pty Ltd (WCHPL) is implementing and continually reviewing and improving to avoid, mitigate and manage potential environmental impacts during operation of the CHWF. High level objectives (and intended outcomes) of the OEMP are to:

- Protect the environment by preventing or mitigating adverse environmental impacts.
- Facilitate efficient conduct of activities in accordance with environmental conditions.
- Assist the organization in the fulfilment of compliance obligations.
- Enhance environmental performance.
- Communicate environmental information to relevant interested parties.

The OEMP has been developed to enable the project to achieve these outcomes by:

- Establishing an EMS framework to enable WCHPL to protect the environment and respond to changing environmental conditions in balance with the project operational requirements.
- Setting out details of each relevant environmental aspect (specific issues) and the management controls for potential impacts in respect of each specific issue
- Establishing objectives and targets for environment protection and biodiversity conservation.
- Compiling all relevant environmental aspects, management strategies, and compliance requirements associated with CHWF operations in a summarised form, in single clearly presented and accessible reference document.

Specific actions from the OEMP undertaken during the review period are summarized in the following sections:

### 5.2.2 Eagle Nest Productivity (in and around wind farm site) Monitoring Plan (Condition FF5)

Condition FF5 required the preparation and approval of an Eagle Nest Productivity Monitoring Plan (ENPMP) prior to construction. The Plan has been approved by EPA and is being implemented. This has involved identification and checking of on-site and off-site nests as described below:

#### On Site Nest Checks

On-Site nest activity checks were conducted on foot in September and November 2021, by VDC in accordance with *Forest Practices Authorities Fauna Tech Note No. 1 - Eagle nest searching, activity checking and nest management*[4] All nests were approached and examined from previously established vantage locations that avoided disturbance of any resident Eagles.

The results are shown in Figure 5.1

[4] *http://www.fpa.tas.gov.au/__data/assets/pdf_file/0012/110208/Fauna_Tech_Note_1_Eagle_nest_management_May_2015.pdf*

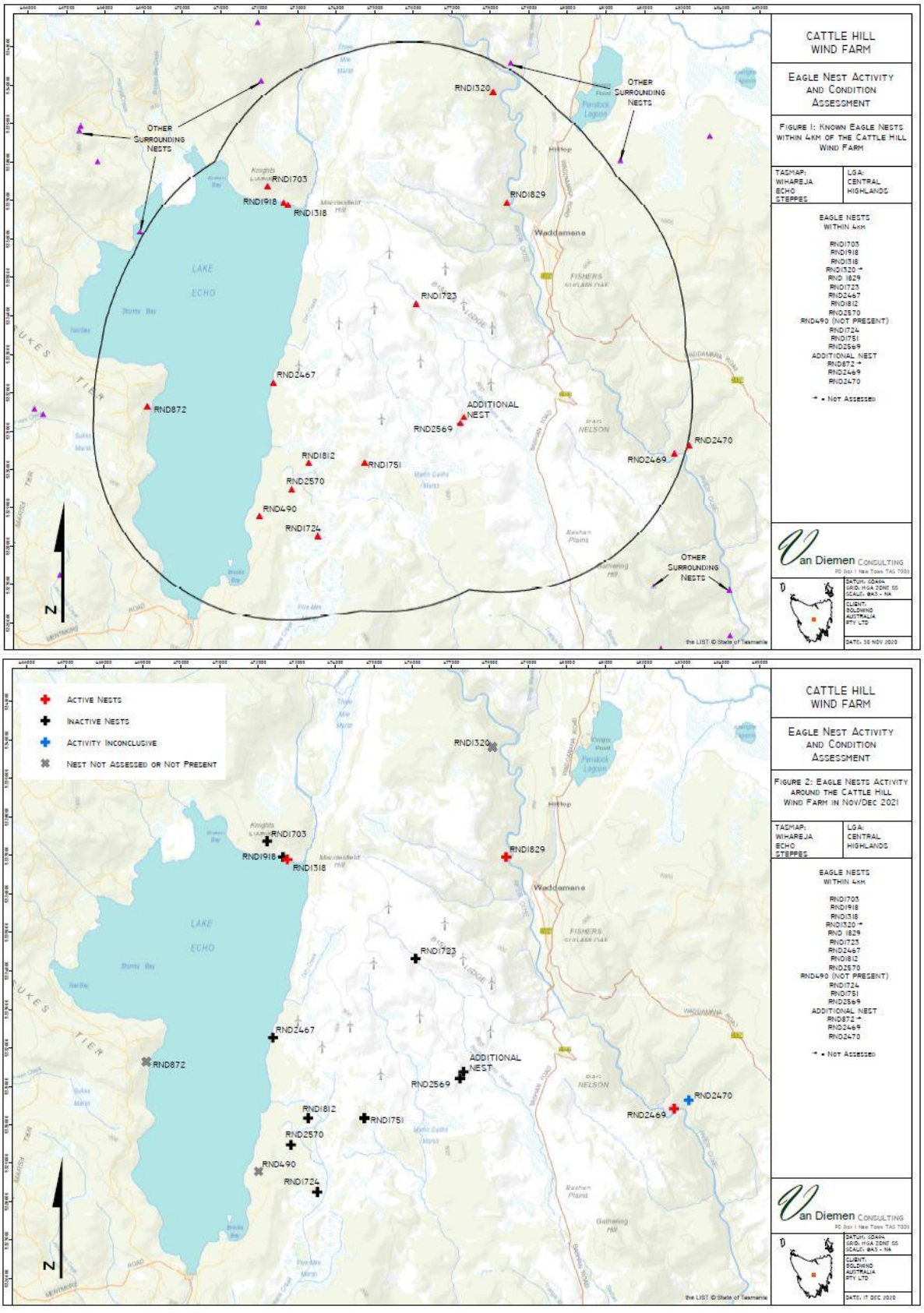



*Figure 5.1 – Known nests within 4km of CHWF and nest activity status in 2021*

**Offsite Nest Checks**

Observations outside Cattle Hill windfarm (> 2km of a wind turbine) were checked by light plane in October and December 2021. All nests identified during the October 2021 Activity Check were rechecked in late December 2021, as well as sites where a nest could not be seen and for which there was no obvious reason for nest loss (such as trees burned after bushfires). Observations on Productivity were made on 24/12/21 by Nick Mooney from a Cessna 172 (Par Avion).

### 5.2.3 Post Commissioning Eagle Utilization Monitoring Plan (Condition FF6)

The Post Commissioning Eagle Utilization Monitoring Plan (EUMP) was developed to meet the requirements of Condition FF6 of EPN 10105/1 and commitment 67 of the DPEMP, which specifies a period of two years of post-commissioning eagle monitoring to be undertaken, for comparison with the monitoring undertaken at pre-construction stage. Monitoring required by the EUMP is undertaken at the following periods:

- Breeding season (8 days in mid-November)
- Breeding season (3 days in mid-December)
- Post breeding (4 days in late February)
- Non-breeding (5 days in early May)
- Display period (6 days in Mid-August).

Monitoring was carried out by Wildspot at pre-established locations to enable comparison with the earlier monitoring before the wind farm was established (also undertaken by Wildspot).

### 5.2.4 Hunting and Culling Management Plan (Condition FF7)

The Hunting and Culling Management Plan (HCMP) was developed in accordance with Condition FF7 of EPN 10105/1 and Commitment 126 of the DPEMP. In parallel, Conditions 3 and 4 of the EPBC approval required the location of four carcass disposal areas within the wind farm to be approved by the Commonwealth Minister administering the *EPBC Act 1999*. These pits were established prior to construction of the wind farm at the approved locations more than 500 meters from the nearest wind turbine and are referred to as (Top Ridge, Mushroom, Bashan, and Five Mile). Placement away from turbines was designed to reduce Eagle Collision risk.

During the previous review period, a change to the management of carcass pits occurred in consultation with DAWE and EPA, to enable compliance with the *Animal Health Act*. The pits, predominantly used by Hunting and Shooting groups operating on behalf of the landowners, had previously been left open, with the view that this would provide a similar food source for eagles to that prior to the wind farm, however they are now covered following use within 48 hours (or sooner) to comply with the requirement of the *Animal Health Act* for covering of carcasses.

### 5.2.5 Bird and Bat Mortality Monitoring Plan (BBMMP) (Condition FF10)

The BBMMP addresses requirements of EPN Condition FF10 and has been approved by EPA. The Plan stipulates requirements for monitoring at Carcass Monitoring Zones (CMZ) beneath each turbine, and the procedures to be carried out following discovery of any injured or dead bird or bat species. During the review period, the following monitoring was carried out:

- Drive-by surveys of all 48 wind turbines circling each turbine at 45m and 80m transects, undertaken on a weekly basis ('Phase 1 surveys').
- Detailed surveys of 24 turbines per month using trained detection dogs ('Phase 2 surveys')
- Pulse surveys of the inner 60m carcass monitoring zone within 3 days of each Phase 2 survey.

Results from all carcass monitoring during the review period are summarized in Tables 5.2 - 5.5.

*Table 5.2: Phase 1 Bird Finds 1 July 2021-30 June 2022*

| Bird Species | Count | Percentage |
|---|---|---|
| Unidentifiable Bird | 8 | 17% |
| Brown Falcon | 7 | 15% |
| Australian Magpie | 6 | 13% |
| Silvereye | 5 | 11% |
| Striated Pardalote | 4 | 9% |
| Common Starling | 2 | 4% |
| Tree Martin | 2 | 4% |
| Forest Raven | 2 | 4% |
| Grey Currawong | 1 | 2% |
| Grey Teal | 1 | 2% |
| Blue-Winged Parrot | 1 | 2% |
| Horsfield's Bronze-cuckoo | 1 | 2% |
| Welcome Swallow | 1 | 2% |
| Pacific Black Duck | 1 | 2% |
| Wedge Tailed Eagle | 1 | 2% |
| Grey Fantail | 1 | 2% |
| Yellow Tipped Pardalote | 1 | 2% |
| Spotted Pardalote | 1 | 2% |
| **Total** | **46** | **100%** |

*Table 5.3: Phase 1 Bat Finds 1 July 21 - 30 June 22*

| Bat Species | Count | Percentage |
|---|---|---|
| Unidentifiable Bat | 4 | 29% |
| Large Forest Bat | 4 | 29% |
| Southern Forest Bat | 3 | 21% |
| Gould's Wattled Bat | 2 | 14% |
| Chocolate Wattled Bat | 1 | 7% |
| **Total** | **14** | **100%** |

*Table 5.4: Phase 2 Bird Finds 1 July 21 - 30 June 22*

| Bird Species | Count | Percent of Total |
|---|---|---|
| Eurasian skylark | 16 | 19% |
| Grey Currawong | 10 | 12% |
| Unidentified Bird | 10 | 12% |
| Tasmanian Silvereye | 8 | 10% |
| Common Starling | 8 | 10% |
| Brown Falcon | 5 | 6% |
| Striated Pardalote | 3 | 4% |
| Green Rosella | 3 | 4% |
| Eastern Rosella | 3 | 4% |
| Flame Robin | 2 | 2% |
| Spotted Pardalote | 2 | 2% |
| Australian Magpie | 2 | 2% |
| Australasian Pipit | 2 | 2% |
| Noisy Miner | 1 | 1% |
| Yellow Throated Honeyeater | 1 | 1% |
| Richard's Pipit | 1 | 1% |
| Fan-tailed Cuckoo | 1 | 1% |
| Tree Martin | 1 | 1% |
| Blue Winged Parrot | 1 | 1% |
| Crescent Honeyeater | 1 | 1% |
| White Faced Heron | 1 | 1% |
| Shining Bronze Cuckoo | 1 | 1% |
| Black Faced Cuckoo-Shrike | 1 | 1% |
| **Total** | **84** | **100%** |

*Table 5.5: Phase 2 Bat Finds 1 July 21 - 30 June 22*

| Bat Species | Count | Percent of total |
|---|---|---|
| Large Forest Bat | 11 | 44% |
| Gould's Wattled Bat | 6 | 24% |
| Chocolate Wattled Bat | 3 | 12% |
| Southern Forest Bat | 2 | 8% |
| Little Forest Bat | 2 | 8% |
| Unidentified Bat | 1 | 4% |
| **Total** | **25** | **100%** |

*Figure 5.2: The Eurasian Skylark, an introduced species, was the most frequent bird detected by carcass monitoring in 2022.*

CHWF's bird and bat mortality monitoring includes all bird and bat carcasses found within the 120m CMZ of each turbine by surveyors and detection dogs conducting Phase 1 and Phase 2 monitoring, and all incidental finds reported by site staff during the course of normal wind farm operation and maintenance activities.

Bird species data captured includes all carcasses, featherspots, and feathers for native and introduced species. Though introduced species are not required to be publicly disclosed, WCHPL has elected to report all data in the interest of transparency.

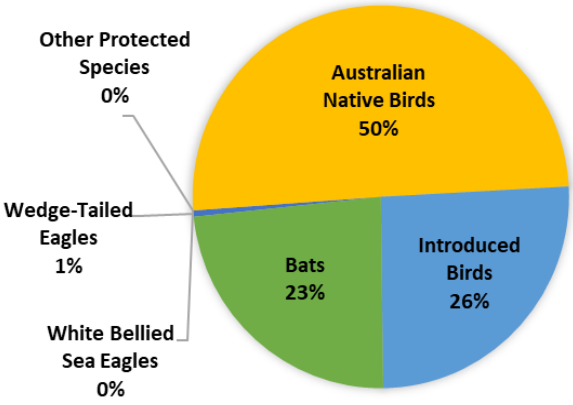



*Figure 5.3: Proportion of carcass finds by category.*

Figure 5.3 shows the proportion of total carcass and feather finds during the current review period. Total mortalities for the current review period included one Wedge-Tailed Eagle, zero White Bellied Sea Eagles, zero other protected species, and the following proportional increases/decreases from the previous AER review period:

- Eagle mortalities decreased by 50%
- Native bird species mortalities increased by 27%
- Native bat species mortalities decreased by 20%
- Introduced species mortalities increased by 180%

Data from the total period of monitoring to date (to the end of the current review period) indicate operation of the CHWF results in approximately:

- 0.1 Wedge Tailed Eagle mortalities per turbine per year
- 0.0 White Bellied Sea Eagle Mortalities per turbine per year
- 1.7 native bird species mortalities per turbine per year
- 1.0 introduced bird species mortality per turbine per year
- 0.7 native bat mortalities per turbine per year

These figures are well below the industry average bird/bat mortalities for large turbines[5] of 5-7 birds per turbine/year and 7-10 bats per turbine/year respectively.

Despite the significant increase in eagle utilization and eagle nests within and outside the CHWF site since pre-construction monitoring was conducted, eagle mortalities remained below predicted mortality levels of 2.1 per year.

### 5.2.6 Eagle Mortality Offset Plan (Condition FF15)

The approved Eagle Mortality Offset Plan (EMOP) developed in accordance with Condition FF15 of EPN 10105/1 outlines the following measures designed to offset eagle impacts associated with operation of the wind farm:

[5] *VIC ARI 2020 data*

- Placement of a 20ha conservation covenant around five WTE nests outside the wind farm (implemented prior to construction of the wind farm based on predicted mortalities)
- Placement of a 20ha conservation covenant around an additional WTE nest for every WTE mortality in excess of five mortalities
- Annual payments to the Tasmanian Wedge Tailed Eagle research fund established for the project[6].

During the review period, no additional eagle nests were covenanted as total WTE mortalities remained below five, and annual contributions to the WTE research fund were made as required.

**Eagle Research supported during the Review Period**

The WTE research fund is independently managed by NRM South and allows qualified researchers to apply for funding to support WTE research meeting fund objectives.

The major project supported during the review period was full funding for an ongoing assessment of Tasmanian Wedge-tail Eagles in the Tasmanian Midlands using high-frequency GPS telemetry by:

- Dr James Pay (UTas) Project Lead.
- Dr Amelia Koch (FPA)
- Prof Elissa Cameron (University of Canterbury)
- Jason Wiersma (FPA) and
- Dr Todd Katzner (USGS).

This project will provide information on the spatial ecology and resource use of adult Tasmanian wedge-tailed eagles in the agricultural area of the Tasmanian Midlands. Furthermore, the data from this project will be combined with data from other GPS-tracked eagles across Tasmania to provide a state-wide understanding of how the species uses different landscapes. The insight into the importance of different habitats and the spatial modelling of this information will address two research priorities identified in the Tasmanian wedge-tailed eagle recovery plan (Threatened Species Section, 2006) and by the Technical Advisory Committee.

The NRM South 2022 Annual Research Fund report is provided in full as Appendix E to this AER.

Further details can be found at: https://www.nrmsouth.org.au/wedge-tailed-eagle-research-fund/

### 5.2.7 Turbine Shut Down Management Plan (Condition FF16)

The approved Turbine Shut Down Management Plan (TSMP) developed in response to Condition FF16 of the State EPN outlines how turbine shutdown provisions will be used to mitigate eagle collision risk associated with operation of the wind farm, and consists of two main elements:

- Tracking wind turbine shut down hours against a 12-month rolling average target of 4,292 hours;
- Actions to be implemented if maximum predicted mortalities are breached[7].

Turbine shut down hours are tracked daily and used as indicators of project efficiency and seasonal eagle activity within the wind farm.

[6] *Joint requirement of the EMOP (EPN Condition FF15 3.3) and EPBC Approval Notice Condition 17*
[7] *Outlined in Attachment 3 of State EPN 10105/1*

## 5.3 Management Plans required by Commonwealth EPBC Approval

### 5.3.1 Collision and Detection Avoidance Plan

The Collision Avoidance and Detection Plan (CADP) was developed in response to Condition 6A of EPBC Approval 2009/4839 and together with Conditions 1 to 5 and 10 to 20 of the EPBC Approval, provide a range of measures to protect the Wedge-tailed Eagle. The EPBC Conditions complement provisions of the EPN that provide protection for the Wedge-tailed Eagle.

The CADP is specific to the Tasmanian WTE and WBSE and its development was supported by a report on strategies for monitoring bird and bat collisions, required by Condition G9 of the State EPN. That report assessed current best practices and technologies at wind farm sites for mitigating risks to WTE and led to the selection of IdentiFlight for the 18-month trial required by the CADP, which was followed by a publicly available report of the findings (February 2022) which can be accessed here: Assessment of the IdentiFlight Avian Detection System (cattlehillwindfarm.com)

At the end of the current review period, development of a revised CADP based on the findings of the IdentiFlight trial had commenced, outlining the intention to continue to operate IdentiFlight on an ongoing basis for reduction of eagle risk, based on the effectiveness of the system to date.

### 5.3.2 Flora Offset Management Plan

The Flora Offset Management Plan (FOMP) required by Condition 23 of EPBC Approval Notice 2009/4839 was approved during the 2020 AER review period on 27 July 2019.

The FOMP includes specific monitoring and management conditions and requirements for three areas which were identified for protective covenants to offset potential impacts to EPBC listed orchid species Liawenee Greenhood (*Pterostylis pratensis*) and Crowded Leek Orchid (*Prasophyllum crebriflorum)* associated with construction of the wind farm.

Two of the three protective covenants are located outside the CHWF, and one is within the CHWF in an elevated area dominated by Highland Poa grasslands to the west of Turbine 7 (Bashan Ledge Covenant). At the time of writing, the Bashan Ledge Covenant is in the final stage of enactment with protective fencing being established around the covenant area. Once fully enacted, the provisions of the covenant are designed to protect the following conservation significant values in perpetuity:

- Known occurrence of Highland Poa grassland - a State threatened vegetation community
- Known habitat for crowded leek orchid (Prasophyllum crebriflorum)
- Known habitat for Liawenee greenhood (Pterostylis pratensis)
- Known habitat for Ptunarra brown butterfly (Oreixenica ptunarra) a State and EPBC listed invertebrate.
- Known occurrence of clover glycine (Glycine latrobeana) a State and EPBC Vulnerable listed herb
- Foraging and denning habitat for the State and EBPC listed Tasmanian devil (Sarcophilus harrisii)
- Foraging and denning habitat for the spotted-tailed quoll (Dasyurus maculatus maculatus)
- Foraging and denning habitat for the Eastern quoll (Dasyurus viverrinus)
- Foraging habitat for the State and EBPC listed white bellied sea eagle (*Haliaeetus leucogaster*)
- Foraging habitat for the State and EBPC listed wedge-tailed eagle (*Aquila audax fleayi*).

During the review period, quarterly orchid monitoring was undertaken by VDC, with results showing a healthy population of orchids, with increased numbers from the previous year.

### 5.3.3 Weed Management Strategy

To control potential for weed infestation and propagation the following measures were implemented during the review period in accordance with the CHWF Weed Management Strategy:

- Annual and targeted weed treatment in accordance with approved methodologies outlined in the Weed Management Plan.
- Implementation of site requirements to ensure all machinery was brought onto site in clean condition; free of weed propagules, dirt, or vegetative matter.
- Site monitoring and reporting in accordance with the OEMP.

## 5.4 Other Environmental Actions undertaken within Review Period

### 5.4.1 State Listed Discaria Species Covenant

An covenant has been established within the CHWF for protection of the Spiky anchor plant (*Discaria Pubescens*) to account for potential impacts during construction of the wind farm. Spiky anchor plant is listed as endangered under the *Threatened Species Protection Act 1995*.

At the time of writing, the Discaria covenant was in the process of being registered on landowner title to formalize the covenant.

### 5.4.2 Environmental Audits

An internal environmental audit (February 2022) was undertaken within the review period to review environmental performance and compliance with approval conditions and key management plans.

This was followed by the first operational compliance audit of the wind farm, undertaken by EPA in May 2022.

Both audits indicated a high level of compliance and no non-compliances identified.

# 6 Community engagement

## 6.1 Community Engagement Activities within the review period

Local engagement activities within the review period remained affected by the COVID-19 pandemic, however the launch of the CHWF Community Fund and some local events were still able to take place. The 1800 number, info@ email and project address remained available to contact the project representatives.

### 6.1.1 Project website

The project website (www.cattlehillwindfarm.com.au) was updated periodically throughout the review period with relevant announcements including details on applying for the Community Fund and successful projects after award, information about the Clean Energy Council Open Day and the project newsletter.

### 6.1.2 Dedicated communication channels

A dedicated 1800 phone number and email address for the project was maintained throughout the review period, with 62 enquiries being received via these communication channels. Responses to enquiries was managed in accordance with the project's Enquiries and Complaints Handling Plan.

A project newsletter was produced and distributed in July 2021 and March 2022, offering an overview of project updates such as site information, community support initiatives and CHWF events.

### 6.1.3 Project updates in local publications

Project-related advertisements were placed in the local newspaper the Highland Digest as below.

- July 2021 – advising the inaugural Community Fund would soon open for applications.
- August 2021 – encouraging applications for the inaugural Community Fund.
- October 2021 – advising of the upcoming Clean Energy Open Day site tour.

### 6.1.4 One-on-one meetings

Representatives from the project maintain engagement with a wide range of stakeholders, including neighbours within the near vicinity of the project, local government, the broader community, interested persons, wildlife groups and representatives and members of the public. One-on-one meetings are undertaken on an ad hoc basis as required.

### 6.1.5 Media events and announcements

A media release was produced to launch the inaugural round of the annual Community Fund in August 2021. This included general information about the Fund and encouraged local groups to apply, noting the Fund's aims and application timeframes. The release also highlighted that CHWF had been recognised through the Clean Energy Council Innovation Award for Identiflight.

## 6.2 Community Investment and Funding Initiatives

### 6.2.1 Local Business Participation Program

CHWF operates under a Local Business Participation Program which facilitates engagement of local suppliers and spans the construction and operations phases.

### 6.2.2 Community events and participation

CHWF hosted 15 fourth year Engineering students and academics from the University of Tasmania in September 2021. The students were taken through how the wind farm is operated and maintained on a site tour with the Site Manager and shown the Identiflight system. The field trip was a part of the student's undergraduate study unit "Renewable and Sustainable Energy" and provided a valuable insight into a large-scale renewable energy project.

CHWF hosted more than 80 visitors at the Clean Energy Council Open Day held on site on 31 October 2021. This offered community members the opportunity to learn more about renewable energy and site-specific initiatives such as Identiflight. The day featured a mini-bus tour of CHWF and barbeque with project staff on hand to provide an overview of how the Wind Farm works and answer questions. A selection of photos from the day are included below.

*Photograph 6.1: CHWF Site Manager giving an overview of the wind farm operations during the bus tour*

*Photograph 6.2: Construction and operational equipment display*

*Photograph 6.3: CHWF Site tech explaining operations at the wind farm in the marquee*

*Photograph 6.4: CHWF team members giving merchandise to visitors*

### 6.2.2 Community Fund

CHWF launched its annual Community Fund in August 2021.

A dedicated website page provided information on how to apply including Fund guidelines, application information and templates to assist local groups. The funding process was run through SmartyGrants, with applications open from 23 August 2021 to 24 September 2021.

The Round was advertised in local newspaper the Highland Digest and shared online via e-newsletter and local communication channels. Information was also provided to Council to spread the word and encourage applications through local channels.

Online Q&A sessions were offered to provide further assistance to applicants to attempt to make the process as accessible as possible. In person information sessions were not possible due to COVID-19.

Seven applications for funding were received and an Assessment Panel consisting of six community members and one CHWF representative determined the successful applicants.

CHWF was pleased to support five community projects through Round One of the Fund:

- Steppes Hall – Maintenance works
- Bothwell Golf Club – Storage facility
- Bothwell Golf Club – Youth training
- Great Lakes Community Centre – Greenhouse and Men's Shed
- Bothwell Wellness Group – Weekly exercise class.

Round Two of the Community Fund will take place in the next review period – during the first half of 2022 feedback was sought from participants on any improvements that could be made to the Fund process and the Guidelines were reviewed ahead of opening the next Round.

A selection of photos from successful applicants are included below.

*Photograph 6.5: Steppes Hall – Maintenance project*

*Photograph 6.6: Members of the Great Lakes Community Centre*

# 7 IdentiFlight Update

## 7.1 Project Overview and Current Status

The IdentiFlight system installed at CHWF is designed to detect eagle movements and shut down turbines when eagles are approaching turbines, to reduce the risk of collision. The system was installed as part of a technology trial in accordance with the Commonwealth Approved Collision Avoidance and Detection Plan (CADP) required by Condition 6A of the project EPBC Approval.

At the end of the current review period, IdentiFlight had been in continuous operation for 955 days (2.62 years) comprising 259 days of partial turbine operation during wind farm commissioning, and 696 days of full wind farm operation.

Figures 7.1 – 7.3 below show eagle activity and curtailments to reduce risk of collision during the review period. The charts highlight the peak eagle activity period at CHWF (September – November) and the period of lower eagle activity (May - July)

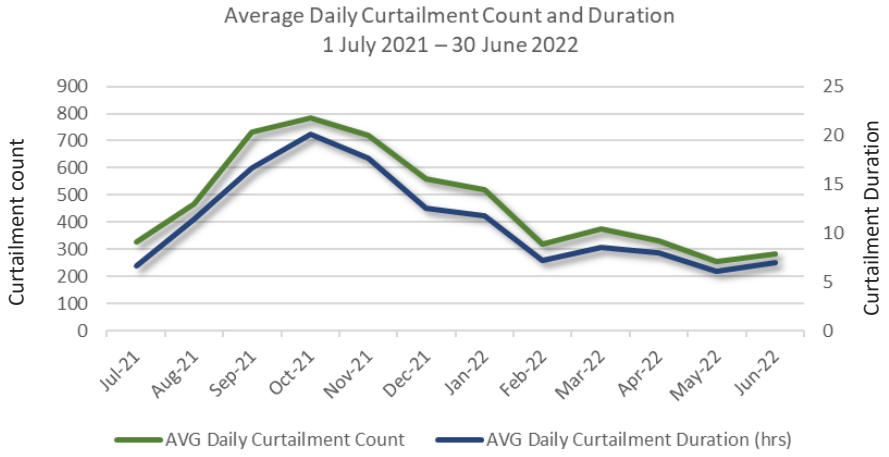



*Figure 7.1 – Average Daily Curtailment Count and Duration – 1 July 2021 – 30 June 2022*

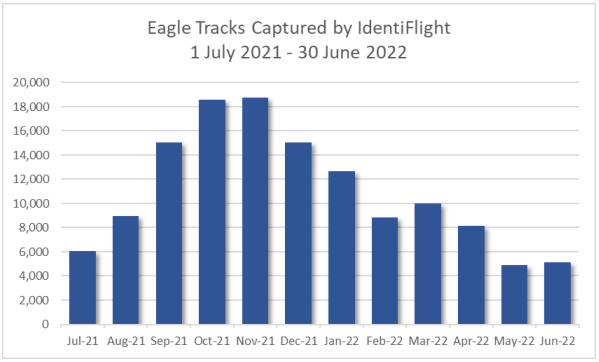



*Figure 7.2 – Eagle Tracks Captured within Review Period*

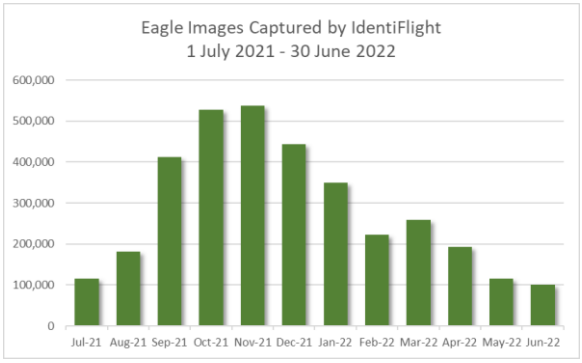



*Figure 7.3 – Eagle Images Captured within Review Period*

# 8 Fulfillment of general commitments

The project OEMP (operations phase) outlines general and specific environmental management commitments for the project which are based on the conditions of approval for the CHWF. General commitments considered to have been fulfilled (within the review period) are shown in Table 8.1.

A more detailed review of specific commitments is provided in Appendix D.

*Table 8.1 Fulfillment of general environmental commitments*

| General Environmental Commitment | Fulfilled |
|---|---|
| Comply with the GWA environmental policy | ✓ |
| Conduct environmental risk workshop in advance of operations phases commencing | ✓ |
| Ensure staff and contractors are aware of all planning and environmental constraints | ✓ |
| Periodically evaluate compliance with the conditions of approval | ✓ |
| Ensure all staff and contractors are appropriately trained and qualified to carry out their duties | ✓ |
| Implement the CHWF complaints plan and maintain records of complaints | ✓ |
| Make relevant information available to the public including via the CHWF website | ✓ |
| Maintain adequate records to demonstrate compliance with Commonwealth, State and Local approvals | ✓ |
| Maintain all biodiversity related data on the Cattle Hill Project GIS and the Natural Values Atlas | ✓ |
| Maintain inventory of hazardous goods stored and used on site | ✓ |
| Notify all significant environmental incidents to appropriate regulators within specified timeframes | ✓ |
| Carry out regular site environmental inspections for monitoring compliance with conditions of approval | ✓ |
| Carry out program of environmental and compliance audits during operations | ✓ |
| Submit Annual Environmental Review to the Director, EPA each year by 30 September | ✓ |
| Submit annual EPBC compliance summary report to the Commonwealth by 11 November each year | ✓ |
| Carry out other statutory notifications within the timeframes specified in the OEMP | ✓ |
| Conduct annual reviews and identify opportunities to improve performance | ✓ |
| Implement all plans in accordance with the approved versions | ✓ |

# 9 Changes to the Activity over the next 12 months

The major activities that will occur at the wind farm over the next 12 months are ongoing implementation of the Operational Environmental Management Plan, ongoing site management and inspections, ongoing implementation of the IdentiFlight system and ongoing implementation and review of approved management plans required by the conditions of approval:

A major focus for the site will be continuing to refine and improve the effectiveness of the IdentiFlight technology to mitigate the risk of collision of eagles with wind turbines, following identification of a number of 'blind spots' within the forested section of the wind farm, where tall trees limit the ability of IdentiFlight cameras to see eagles. This is considered to present increased risk during the colder months when eagles are flying at lower altitudes

Key activities to be undertaken between 1 July 2022 and 30 June 2023 are shown below:

### Operational Activities

- Ongoing inspections and maintenance of wind farm infrastructure
- Ongoing maintenance of SCADA and Communications infrastructure.

### IdentiFlight Activities

- Ongoing tracking and monitoring of IdentiFlight data
- Ongoing inspections and maintenance of IdentiFlight infrastructure
- Ongoing assessment of opportunities to improve performance and reduce risk to eagles
- Completion of rollout of the White Bellied Sea Eagle Neural Network across the wind farm
- Installation of upgraded magnetic calibration targets throughout the site
- Software updates and improvements initiated by IDF, as required
- Ongoing sharing of lessons with and interested stakeholders.

### Activities required by EPN 10105/1

- Ongoing implementation of the EMP (Operations) required by (Condition G11)
- Three-year review of the EMP (Operations) required by (Condition G11)
- Ongoing monitoring required by the Bird and Bat Mortality Monitoring Plan (Condition FF10)
- Three-year review of the Bird and Bat Mortality Monitoring Plan (Condition FF10)
- Ongoing monitoring required by the Eagle Nest Productivity Monitoring Plan (Condition FF5)
- Reporting following completion of the two-year period of monitoring required by the Eagle Utilisation Monitoring Plan (Condition FF6)
- Ongoing record keeping required by the Hunting and Culling Management Plan (Condition FF7)
- Notifications and reporting of incidents as required.

### Activities required by EPBC Approval Notice 2009/4839

- Finalisation of the revised Collision Avoidance and Detection Plan (Condition 6c).
- Ongoing implementation of the Weed Management Strategy (Condition 22).
- Ongoing monitoring in accordance with the Flora Offset Management Plan (Condition 23)
- Notifications and Incident Reporting as required.

# APPENDIX A

## EPN Condition G10 requirements for Annual Environmental Review

# Requirements for Annual Environmental Review

*1 Unless otherwise specified in writing by the Director, a publicly available Annual Environmental Review for the activity must be submitted to the Director each year within three months of the end of the reviewing period. Without limitation, each Annual Environmental Review must include the following information:*

*1.1 a statement by the General Manager, Chief Executive Officer or equivalent for the activity acknowledging the contents of the Annual Environmental Review;*

*1.2 subject to the Personal Information Protection Act 2004, a list of all complaints received from the public during the reviewing period concerning actual or potential environmental harm caused by the activity and a description of any actions taken as a result of those complaints;*

*1.3 details of environment-related procedural or process changes that have been implemented during the reviewing period;*

*1.4 a summary of the amounts (tonnes or litres) of both solid and liquid wastes produced and treatment methods implemented during the reviewing period. Initiatives or programs planned to avoid, minimise, re-use, or recycle such wastes over the next reviewing period should be detailed;*

*1.5 details of all non-trivial environmental incidents and/or incidents of non compliance with permit or environment protection notice conditions that occurred during the reviewing period, and any mitigative or preventative actions that have resulted from such incidents;*

*1.6 a summary of the monitoring data and record keeping required by these conditions. This information should be presented in graphical form where possible, including comparison with the results of at least the preceding reviewing period. Special causes and system changes that have impacted on the parameters monitored must be noted. Explanation of significant deviations between actual results and any predictions made in previous reviews must be provided;*

*1.7 identification of breaches of limits specified in these conditions and significant variations from predicted results contained in any relevant DPEMP or EMP, an explanation of why each identified breach of specified limits or variation from predictions occurred and details of the actions taken in response to each identified breach of limits or variance from predictions;*

*1.8 a list of any issues, not discussed elsewhere in the review, that must be addressed to improve compliance with these conditions, and the actions that are proposed to address any such issues;*

*1.9 a summary of fulfilment of environmental commitments made for the reviewing period. This summary must include indication of results of the actions implemented and explanation of any failures to achieve such commitments;*

*1.10 a summary of any community consultation and communication undertaken during the reviewing period; and*

*1.11 strategic consideration of potential changes to the activity during the next 12 months that may have potential environmental impacts.*

# APPENDIX B

## Photographs from the current review period

# Photographs taken during review period

*Photograph B1: CEC Open Day – Gift Distribution*

*Photograph B2: CEC Open Day Marquee and Attendees*

*Photograph B3: CEC Open Day – Site Manager Talk*

*Photograph B4: Calibration target for IDF*

*Photograph B5: New vegetation growth in the forested section*

*Photograph B6: IDF-3 Location*

*Photograph B7: Photo from IDF-3 clearing area highlighting visibility limitations of T46*

*Photograph B8: Site visit with Don Mills, President of IDF*

# APPENDIX C

## Hazardous Substances Inventory

# Hazardous Substances Inventory, CHWF Operations Phase

| Chemical Name | Storage QTY | UN No | Haz Chem Code | DG Class | Location |
|---|---|---|---|---|---|
| 50GM Pressol Graphite | 25g | - | - | - | Workshop |
| Atherton Chemicals Protek Priming Fluid Red | 125ml | 1193 | 2YE | 3 | |
| Atherton Protek Type N Clear Solvent Cement | 125ml | 1133 | 3YE | 3 | |
| BASF Storm Secure Wax Block Rodenticide | 1.5kg | - | - | - | |
| Cabac EJCC/220 | 880g | - | - | - | |
| ChemTools R28 Nickel Antiseize | 500g | - | - | - | |
| Chemtools SG Silver GAL Aerosol | 800g | 1950 | - | 2.1 | |
| Jif – Lemon | 500ml | - | - | - | WOM cleaners' cabinet |
| Citro Clean Multipurpose Cleaner | 500ml | 1993 | 3Y | 3 | |
| CRC 3013 Soft Seal – Aerosol | 400g | 1950 | - | 2.1 | Workshop |
| CRC 3055 808 Silicone Spray | 5.2kg | 1950 | 2YE | 2.1 | |
| Dow Corning Molykote P-74 Paste | 20kg | - | - | - | |
| Epirez Safe Step100 | 4L | 1263 | 3Y | 3 | |
| Galmet ColdGal Aerosol | 400g | 1950 | - | 2.1 | |
| Hogans Tradesman Touch Up Paint | 400g | 1950 | - | 2.1 | |
| Inox-mx3 | 70L | 1950 | - | 2.1 | |
| Liberty Unleaded Petrol | 20L | 2103 | 3YE | 3 | Workshop DG cabinet |
| Shell Omala S4 GX 150 | 60L | - | - | - | |
| Loctite 243 | 750ml | 3082 | 3Z | 9 | Workshop |
| Molykote G-N Paste | 10.5kg | 3077 | - | 9 | |
| Total Oil Equivis ZS 32 | 205L | - | - | - | |
| WD-40 Aerosol | 400g | 1950 | 2YE | 2.1 | |
| Petroleum Hydrocarbon | 500ml | - | - | - | |
| PEM Cutting Oil | 4L | - | - | - | |
| Quick Spray | 6 cans | 1950 | 2YE | 2.1 | |
| Wire Rope & Cable Lubricant | 570g | 1950 | - | 2.1 | |
| Wax and Grease Remover | 5 litres | 1268 | 3YE | 3 | |
| Galmet Ironize | 2L | - | - | - | |
| Diesel | 20 litres | 3082 | 3Z | 9 | |
| Kerosene | 1 pack | 2623 | 1Z | 4.1 | |
| Lubricant | 1.53kg | - | - | - | |
| Lubricant | 2.4kg | - | - | - | |
| Bossweld Nozzle Dip Gel | 400g | - | - | - | |
| Acetone | | 1090 | 2YE | 3 | |
| CRC NF Contact Cleaner | 300g | 1950 | 2Y | 2.2 | |
| CRC 5.56 Multipurpose | 400g | 1950 | 2YE | 2.1 | |
| Hunters Settling Day Insect Spray | 300g | 1950 | 2YE | 2.1 | |
| LB 8060 Silver Grade Anti-seize | 20g | 1910 | - | - | |
| Anticorrosive Bright Silver Finish | 1kg | 1950 | - | 2.1 | |
| Diggers Acetone | 7L | 1090 | 2YE | 3 | |
| Recochem Acetone | 20L | 1090 | 2YE | 3 | |
| Isopropanol | 14L | 1219 | 2YE | 3 | |
| Methylated Spirits | 3L | 1170 | 2YE | 3 | |
| Petroleum Gas Liquefied | 5kg | | | 2 | |

# APPENDIX D

## Summary of Fulfilment of Commitments

| Description of Specific Commitment | Timing | Approval Ref | How is Commitment addressed? | Complies ? | Responsibility |
|---|---|---|---|---|---|
| An Animal (non-eagle) injury and death response procedure will be implemented during operation of the wind farm to maximise the likelihood of an injured animal surviving. | Commencement of operations | EPN FF10 Commitment 84 | Animal (non-eagle) Injury and Death Procedure in place via OEMP and relationships with rehabilitation providers established | Complies | WCHPL |
| The approved BBMMP will be implemented during operations and will include a carcass monitoring zone (CMZ) of 110m radius from the centre of each tower. | Commencement of operations | EPN FF10 Commitment 72 Commitment 85 | Operations commenced within review period. CMZ were established at all turbines and Phase 1 surveys commenced during commissioning of Turbines. | Complies | WCHPL |
| Collisions with all bird and bat species will be monitored and recorded as part of the BBMMP. | Commencement of operation | EPN -FF10 Commitment 86 | All collisions are being monitored and recorded as per BBMMP (Phase 1 drive by surveys commenced prior to the review period and Phase 2 from August 2020 | Complies | WCHPL |
| Following any injured or dead animal data recorded will be as per the Animal (non-eagle) Injury and Death Procedure and the carcass will undergo post-mortem assessment if possible | Commencement of operations | EPN FF10 Commitment 87 | Animal (non-eagle) Injury and Death Procedure in place via OEMP. Two Eagle mortalities occurred during the Review Period and a Necropsy was undertaken for each mortality. | Complies | WCHPL |
| If eagle mortalities in any one year exceed the values in Attachment 3 of EPN10105/1, Submit Plan with further mitigation actions to Director | If threshold values exceeded | EPN FF12 Commitment 42 | Two Wedge-tailed Eagle mortalities were identified on site within current review period (less than the 5 in Attachment 3) | Complies | WCHPL |
| The approved Collision Avoidance Detection Plan will be implemented including an 18-month trial of the Identiflight system. The results of the trial will be publicly communicated. | Commencement of operations | EPBC 6A1 - 14 EPN FF9 | Trial will be completed outside review period and discussed within next AER with findings publicly communicated. | Complies | WCHPL |
| Eagle monitoring data and assessments to be provided to EPA within periodic reports or on request | Annually by 30 September | EPN F10 Commitment 72 | Eagle monitoring information included within this AER and ongoing. Final report due at end of two-year monitoring period. | Complies | WCHPL |
| An annual Eagle Nest Productivity monitoring program will be carried out to check known WTE and WBSE nests onsite and within 10km of the wind farm. | Commencement of operations | EPBC 16-19 EPN FF5 Commitment 69 | Eagle Nest Productivity monitoring program commenced in October 2020 (offsite nests) and November 2020 (onsite nests) and will continue as per the approved plans. | Complies | WCHPL |
| Two years of post-commissioning eagle utilisation monitoring will be undertaken to determine whether the wind farm has changed eagle utilisation patters at the site. | Following commissioning | EPN FF6 Commitment 67 | Eagle utilisation monitoring commenced in November 2020 the first seasonal monitoring period following commencement of operations and will be completed in November 2022. | Complies | WCHPL |
| As an offset for potential impacts to Tasmanian WTEs WCHPL will implement the EMOP that provides funding for eagle research | Prior to completion of commissioning | EPBC 16-19 EPN FF15 Commitment 41 | Eagle Research Fund established, and Fund is receiving applications; independently administered by NRM South. Refer Section 5.2.6 of this AER. | Complies | WCHPL |

| Description of Specific Commitment | Timing | Approval Ref | How is Commitment addressed? | Complies ? | Responsibility |
|---|---|---|---|---|---|
| 20-ha covenants will be secured for 5 active eagle nests during commissioning and, one additional nest protected for each eagle mortality arising from wind farm operations thereafter. | Covenants in place by 30 Sep 2019[8] | EPBC 16-19 EPN FF14, FF15 Commitment 129 | All 5 covenants secured by Tasmanian Land Conservancy | Complies | WCHPL |
| WCHPL will ensure hunting and vermin control activities continue on site through the life of the wind farm, in such a way as to maintain a similar volume of food source as currently occurs. | At all times during operation | EPN FF7 | Ongoing requirement as of August 4, 2020. | Complies | WCHPL |
| A 40km/hr speed limit will be adopted on site to minimise risk of fauna collisions | At all times during operation | EPN G11 Commitment 83 | 40 km/hr speed limit imposed for operations period and signage installed. | Complies | WCHPL |
| Woodpiles will not be left more than 18 months before burning, and burning will take place in autumn to coincide with the non-breeding period for quolls and devils | At all times during operation | EPN G11 Commitment 78 | No woodpiles burnt within review period and no woodpiles left for more than 18 months. | Complies | WCHPL |
| A data collection form for Mammal Den/Nest Observations will be used to standardise data collection for den/nest observations | At all times during operation | EPN G11 Commitment 80 | Data collection form in place as part of the OEMP but not required within review period. | Complies | WCHPL |
| Ecological checks of woodpiles to be burned will occur within 14 days of burning. If the checks identify evidence of use by a quoll or devil EPA and DPIPWE will be consulted for advice. | At all times during operation | EPN G11 Commitment 83 | No woodpiles burnt within review period. | N/A | WCHPL |
| Avoidance and mitigation measures from Tables 8-7 and 8-8 of the DPEMP will be included in site Biodiversity Training modules. | At all times during operation | EPN G11 Commitment 82 | Addressed in induction training presentation provided to service team. | Complies | WCHPL |
| Requirements for *Pterostylis pratensis; Prasophyllum crebrinorum; Glycine latrobeana and Discaria pubescens* will be integrated into each Turbine CMZ Vegetation Management Plan | At all times during operation | EPN G11, F10 Commitment 91- | All known occurrences are mapped in the VCA and excluded on site however none have been found within the CMZ of any turbine. | Complies | WCHPL |
| Flora & Fauna training provided as part of the OEMP will include management of *Ptunarra brown butterfly; Pterostylis pratensis; Prasophyllum crebriflorum; Glycine latrobeana; and Discaria pubescens* | At all times during operation | EPN G11 Commitment 92 | Addressed in induction training presentation provided to service team. All team members have also completed Bonorung fauna handling training. | Complies | WCHPL |
| A qualified botanist will permanently delineate the path of least impact through MSP and MGH communities to be used for carcass searches. Only 1 person will enter these communities per search. | Prior to Carcass Monitoring | EPN G11 Commitment 95 | MSP and MGH communities avoided for the purpose of carcass monitoring following surveys by qualified ecologist | Complies | WCHPL |

[8] EPA 28/6/19

| Description of Specific Commitment | Timing | Approval Ref | How is Commitment addressed? | Complies ? | Responsibility |
|---|---|---|---|---|---|
| Forest areas within CMZs or adjacent to wind farm infrastructure will not be cleared; but modified to ensure ground visibility then managed as native vegetation with trees saplings and seedlings (<5% canopy cover). | At all times during operation | EPN G11 Commitment 96 | Forest areas within or adjacent to CMZ have not been cleared. | Complies | WCHPL |
| Vegetation management strategies for each vegetation type will be developed, listing vegetation management actions, needs and monitoring for each WTG's CMZ | At all times during operation | EPN G11 Commitment 98 | Implemented via Vegetation Management Guidelines (internal project document) | Complies | WCHPL |
| Known locations for Pterostylis pratensis, Prasophyllum crebriflorum, Glycine latrobeana, and Discaria pubescens within the site will be uploaded to the NVA and CHWF GIS to aid in management of these features. | Commencement of operations | Commitment 104, 105, 106, 107, 108 | All ecological survey data undertaken by VDC uploaded to NVA | Complies | WCHPL |
| A 50m exclusion zone will be applied around known *Discaria pubescens* plants to avoid potential for damage or disturbance due to maintenance or other site activities. | At all times | EPN FF1 Commitment 36 | Implemented via CEMP and OEMP provisions and included within Staff and contractor inductions, training and awareness. | Complies | WCHPL |
| No access will be permitted to the on-site Flora and Discaria offset areas | At all times | - | Implemented via OEMP and related internal processes, including site and staff induction and awareness training. Fencing the flora offset is in process (was pegged out during the review period). | Complies | WCHPL |
| A wheel wash will be included within the site O&M compound and all Heavy vehicles will be washed down before entering 'Lake Echo' in accordance with DPIPWE Washdown Guidelines (2004). | At all times | EPBC Cond. 22 EPN G11 Commitment 100 | Washdown facility established at Construction compound but removed at completion of construction. Arrangements for washing wheels established for O&M Compound. | Complies | WCHPL |
| A weed treatment program will be implemented in accordance with the approved WMP, in conjunction with regular HSE inspections of previously disturbed areas to monitor for any weed outbreaks | At all times | EPBC Cond. 22 EPN G11 | Monitoring and control program established | Complies | WCHPL |
| Soil and water management will generally be in accordance with the Forest Practices Code 2000 and Waterways and Wetlands Works Manual: EBPG for works in waterways and wetlands in Tasmania, 2003. | At all times | EPN G11 | The OEMP addresses Soil and water management | Complies | WCHPL |
| Drains and culverts will be inspected regularly, and a maintenance schedule adopted to ensure all drains have adequate controls and are functioning effectively, including drainage around hardstands. | At all times | EPN G11 | Drains inspected generally in accordance with the maintenance schedule outlined in the OEMP | Complies | WCHPL |
| Areas that are designated as needing rehabilitation will be identified as Rehabilitation Management Units' (RMU) to enable rehabilitation to be documented and tracked to monitor success of rehabilitation. | At all times | EPN G11 Commitment 99 | A tracking system was established for post-construction rehabilitation | Complies | WCHPL |

| Description of Specific Commitment | Timing | Approval Ref | How is Commitment addressed? | Complies ? | Responsibility |
|---|---|---|---|---|---|
| Rehabilitation of disturbed areas will focus on re-establishing suitable conditions for recolonization by Pterostylis pratensis; Prasophyllum crebriflorum; Glycine latrobeana; and Discaria pubescens. | At all times | EPN G11 Commitment 102 | Rehabilitation practices differ for covenant areas and support natural regeneration | Complies | WCHPL |
| Rehabilitation activities near disturbed areas of Pterostylis pratensis; Prasophyllum crebriflorum; or Glycine latrobeana must be undertaken in a manner compatible with these species. | At all times | EPN G11 Commitment 103 | Rehabilitation practices differ for covenant areas and support natural regeneration | Complies | WCHPL |
| The Pre-Construction Unanticipated Discovery Plan will be implemented as part of the OEMP | At all times | EPN FF6 FF8 FF10 Commitment 49 | Unanticipated Discovery provisions included within OEMP | Complies | WCHPL |
| A 50m exclusion zone will be established to protect existing European and Aboriginal heritage sites for the duration of operations | At all times | EPN G11, LO4 Commitment 44 | Implemented via OEMP and related internal processes, including site and staff induction and awareness training | Complies | WCHPL |
| The safe storage, transfer, use and disposal of hazardous materials and dangerous goods during wind farm operations will include requirements in s4.9 of the OEMP (based on s 6.7.4 of the DPEMP). | At all times | EPN H1 - H4 Commitment 20 | Implemented via OEMP and related internal processes, including site and staff induction and awareness training | Complies | WCHPL |
| An inventory of all dangerous goods and hazardous substances will be held on site and kept current, showing the location and maximum volume of each substance with SDSs held at points of use. | At all times | EPN H1 - H4 | Refer Appendix C to this AER report. | Complies | WCHPL |
| All dangerous goods / substances will be stored in impervious bunded areas or self-bunded containers. | At all times | EPN H1 - H4 | Dangerous goods / substances stored in impervious bunded areas and minimal volumes required for operations. | Complies | WCHPL |
| A post commissioning noise survey will be carried out within 3 months of commissioning to verify noise predictions | within 3 months of commissioning | EPN N2 Commitment 16 | VIPAC engaged to carry out the noise monitoring as required – report completed and forwarded to EPA. No noise issues identified. | Complies | WCHPL |
| Special audible characteristics (SACs) including infrasound will be included in post-commissioning noise monitoring if noise complaints are received | If noise complaints are received | EPN N2 Commitment 17 | No noise complaints received | Complies | WCHPL |
| Noise management during operation will be in accordance with Section 4.10 of the OEMP | During operations | EPN G11, N1 Commitment 14 | Noise operations comply with requirement and no complaints received. | Future | WCHPL |
| An onsite sewerage system will be installed to the satisfaction of Council's Senior Environmental Health Officer in the Substation and/or O&M compound prior to commencement. . | First quarter of operations | EPN G7 G11 Commitment 9 | Onsite sewerage system installed to the satisfaction of CHC at the O&M compound prior to commencement of commissioning | Complies | WCHPL |

| Description of Specific Commitment | Timing | Approval Ref | How is Commitment addressed? | Complies ? | Responsibility |
|---|---|---|---|---|---|
| All waste sewerage will be disposed of by a licenced waste disposal contractor. | Quarterly or as needed | EPN OI11 Commitment 18 | Sewerage disposed of by a licenced waste disposal contractor on an as-needed basis | Complies | WCHPL |
| Liquid waste management will be undertaken consistent with Section 4.11 of the OEMP. | At all times | EPN G11, OI1 Commitment 12 | Liquid waste management undertaken in accordance with OEMP provisions. | Complies | WCHPL |
| Management of solid and controlled waste during operations will be consistent with Section 4.11 of the OEMP. | During operations | EPN WM1, OI1 Commitment 18 | Solid waste management undertaken in accordance with OEMP provisions. | Complies | WCHPL |
| Any over dimensional deliveries to site will be undertaken to the satisfaction of the responsible authority. | If required | Commitment 57 | No O/S deliveries undertaken within review period. | Complies | WCHPL |
| During operations heavy vehicle movements within the wind farm will be minimised between dusk and dawn. | At all times | EPN G7 Commitment 29 | No heavy vehicle movements occurred within review period, but requirement is in place. | Complies | WCHPL |
| Management and maintenance of internal access tracks will be included within the OEMP. | At all times | EPN G11 Commitment 52 | Provision for management of internal tracks included within OEMP | Complies | WCHPL |
| Dust suppression will be applied on an as needed basis to ensure prevention of environmental nuisance to surrounding residents. | At all times | OEMP | Dust suppression undertaken on an as-needed basis, Reduced requirement during Operations. | Complies | WCHPL |
| All vehicles and equipment will be maintained in line with manufacturers recommendation to prevent smoke, odours and fumes. | At all times | OEMP | Vehicle management provisions in place | Complies | WCHPL |
| The ERP will be finalised in consultation with the TFS, SES, and EPA before operations commence. | Prior to operations | EPN G9 | ERP finalised in consultation with SES, TFS, and EPA and approved prior to operations commencing | Complies | WCHPL |
| The Fire Response Plan will be amended post-commissioning in consultation with the TFS. | Prior to operations | EPN G9 Commitment 66 | FRP developed as part of ERP based on consultation with TFS and approved before commissioning commenced | Complies | WCHPL |
| As-built locations, maximum heights and elevations (AHD) of all wind turbines installed will be provided to CASA, ASA and the RAAF | Prior to completion of commissioning | Commitment 61 | As built locations provided to ASA and CASA as part of Tall Structures reporting | Complies | WCHPL |

# APPENDIX E

## Wedge Tailed Eagle Research Fund 2022 Annual Report (NRM South)

NRM SOUTH
NATURAL RESOURCE MANAGEMENT

Image credit: James Pay

# WEDGE-TAILED EAGLE RESEARCH FUND

## 2022 ANNUAL REPORT

*Prepared for Wild Cattle Hill Pty Ltd.*

SEPTEMBER 2022

# CONTENTS

# GLOSSARY

| | |
|---|---|
| ANU | Australian National University |
| DCCEEW | Commonwealth Department of Climate Change, Energy, the Environment and Water |
| EMOP | Eagle Mortality Offset Plan |
| FPA | Forest Practices Authority |
| NRET | State Department of Natural Resources and Environment Tasmania |
| TAC | Technical Advisory Committee |
| UTas | University of Tasmania |
| WTE | Wedge-tailed Eagle, *Aquila audax fleayi* |

# INTRODUCTION

This is the third Annual Report for the Wedge-tailed Eagle (WTE) Research Fund ('The Fund'). The Fund has been operating in accordance with requirements and is enabling the support of high-quality research on Tasmanian Wedge-tailed Eagles. It is unlikely this research would have been supported without The Fund. The projects being supported will provide valuable advances in the understanding of the WTE population in Tasmania, which will assist with achieving the conservation outcomes for the subspecies.

# BACKGROUND

The Cattle Hill Wind Farm was approved by Tasmanian State Regulator in 2012 and by the Commonwealth Department of Environment and Energy (now the Department of Climate Change, Energy, the Environment and Water, DCCEEW) in December 2014. A requirement of the approval of the Cattle Hill Wind Farm (as described in the relevant permit conditions) was to develop an offset plan for wedge-tailed eagles (Aquila audax fleayi, WTE).

An Eagle Mortality Offset Management Plan (EMOP) was developed and subsequently approved to satisfy these requirements. The EMOP comprises two components, with the second component describing the Tasmanian WTE Research Fund. The EMOP required that The Fund needed to be established and administered by an independent organisation. NRM South was selected as the administering body for The Fund and a Services Agreement was signed between NRM South and Wild Cattle Hill Pty Ltd on 23rd August 2019.

# OBJECTIVE OF THE FUND

The Fund is designed to offset the impact of WTE mortalities (or injured WTE that cannot be released into the wild) due to collisions with wind turbines at the Cattle Hill Wind Farm. The Fund will only support research relating to the Tasmanian sub-species of WTE and projects based in Tasmania.

The primary purpose of The Fund is to support high quality ecological or other relevant scientific research on Tasmanian WTE, the results of which will assist with the management and protection of the sub-species. The intention is that The Fund continues for the medium term (at least 10 years), hence not all funds will be expended each year. Research will be supported that is scientifically rigorous, conducted by high quality scientists, and which is in accordance with the objectives of the Threatened Tasmanian Eagles Recovery Plan 2006-2010 or any subsequent eagle Recovery Plan.

# PRIORITIES FOR THE FUND

Research supported by The Fund will be consistent with the published recovery objectives of the "Threatened Tasmanian Eagles Recovery Plan 2006-2010" or a subsequently approved version of the Recovery Plan. The EMOP notes that DoEE (now DCCEEW) have indicated they require The Fund to support key scientific research on the sub-species and not other activities, although the State component of The Fund may support education activities.

Suitably qualified researchers[1] will be eligible to apply for funds to support relevant research on WTE consistent with the below priorities. Critical research that can demonstrate a sound experimental design and statistical rigour will be viewed most favourably.

The initial priorities for funding support are:

- Demography of the WTE. This could include studies into the size of the state population (such as an evidence-based population census), fecundity, survival of different age classes, and immigration and emigration intra- and inter-state. Such ecological data could be used to update a Population Viability Analysis.
- The collection of data that will allow an evaluation of the sub-species conservation status against IUCN criteria.
- Quantification of anthropogenic impacts to WTE, such as collisions with vehicles, powerlines, shooting or poisoning, and the development of mitigation measures to reduce these impacts. • Disturbance to nesting WTE. This includes studies into determining the anthropogenic factors that impact on breeding, and quantification of these such as the distance, duration and types of factors that result in impacts to breeding success.
- Strategies to monitor nesting behaviour of WTE. Nests are currently very difficult to monitor due to the need to limit disturbance to breeding birds, hence automated strategies to monitor nests without disturbing eagles will be supported.
- Studies into why WTE collide with wind turbines and strategies to reduce collision rates. Published studies indicate WTE actively respond to and avoid wind turbines, but occasionally collide. Any insights into why they occasionally collide may assist with strategies to minimise collisions.
- Other scientific studies where it can be demonstrated that the research will provide a demonstrable benefit to the sub-species.
- The priorities for funding support may be revised by the panel following any reviews of the EMOP.
- Studies on WTEs required for commercial developments (i.e. conditions of a permit, outside offsets) or studies that are the responsibility of Local, State (including Government Business Enterprises) or Commonwealth Government will not be supported.

# ADMINISTRATION OF THE FUND

NRM South's role is ensure that The Fund is established and administered as described in the Eagle Mortality Offset Plan (EMOP).
Specifically, NRM South's role is to:

- Be responsible for receipt, management and audit of WTE Research Fund.
- Assist with the identification and selection of panel members. The Panel members selected will be agreed by the Tasmanian EPA and delegate of the Commonwealth DCCEEW.
- Host, recruit and administer/support a panel, as prescribed by the EMOP, to prioritise, assess and distribute research funds – approximately two meetings per year.
- Administer reimbursement of panel members reasonable travel costs and hourly payment for attendance at annual meetings.
- Advertise, administer and coordinate research applications, and in conjunction with the panel develop and maintain the assessment process.
- Contract and administer the research funds on behalf of the research panel, including coordination of progress and final reports.
- Provide panel advice and reports to Wild Cattle Hill Pty Ltd and any other contributors to The Fund for preparation and submission to the Regulator (if required).

[1]Must hold a postgraduate degree in science and evidence of the successful publication of relevant, high quality research in peer-reviewed scientific journals or experience and qualifications deemed by the panel to be evidence of equivalent merit. However, proposals to support high quality Honours research will also be considered.

# GOVERNANCE OF THE FUND

The Fund is overseen by an independent Technical Advisory Committee (TAC, referred to in the EMOP as a "Panel").

As described in the EMOP, the TAC comprises:

- A representative of the Department of NRET (currently Dr Rachael Alderman, Threatened Species and Conservation Programs Environment).
- A representative from the administering body, NRM South (Dr Cindy Hull).
- A representative of the DCCEEW (as an observer, Dr Ivan Lawler), and
- At least two scientists experienced in wildlife ecology, with a strong background in research and publishing (Dr Phil Bell and Dr Sarah Munks, both independent consultants with extensive experience working on eagles). These roles were filled following advertising and a competitive selection process.

The role of the Technical Advisory Committee (TAC) is to:

- Review funding applications and select those to be supported.
- Monitor the progress of grant recipients, and
- Determine whether to accept research reports (i.e. whether they fulfill the requirements of support).

Individual members of the Technical Advisory Committee are expected to:

- Actively participate in the review, monitoring and reporting of the Research Fund.
- Attend, either in person or by teleconference, twice annual meetings, and additional meetings, if required.
- Provide reliable, relevant, technical and contemporary advice.
- Comply with relevant NRM South Policies and Procedures, including the Code of Conduct, and any specific requirements of The Fund including Confidentiality; and
- Be an advocate for the research Fund's outcomes.

# ACHIEVEMENTS DURING 2022

The third year of The Fund built on the achievements of previous years.

Details of the achievements:

1. The third deposit to The Fund was received from Wild Cattle Hill Pty Ltd.
2. NRM South reviewed and updated the application process and guidelines for The Fund, which were sent to the TAC for their comment. Some changes were made to the guidelines, clarifying the GST component in grants (as there had been some confusion with one grant recipient during the year).
3. NRM South also reviewed the process and selection criteria for assessing the applications to The Fund, which the TAC reviewed prior to their finalisation. The assessment criteria were simplified by reducing the number of questions around the applicants' qualifications and experience because all applications being received are from high quality applicants, so some of these criteria were not assisting in selecting applications.
4. The third round of grants was advertised in June 2022. Three applications were received and the Fund was once again significantly over-subscribed.
5. Two online meetings were held and out of session work conducted by the TAC. During the meetings, the application details, assessment criteria and the grant applications received were discussed. (Each member of the TAC independently reviewed all applications prior to the discussion of them). Successful recipients were selected.
6. All applicants to The Fund were notified of the outcome of their application. The TAC selected one project for immediate funding and provided the other two applicants the opportunity to rescope and resubmit their applications, to allow them to better align them with the objectives of the Fund.
7. The Funding Agreement contract was reviewed and updated, including with input from an external legal representative.
8. A Funding Agreement has been prepared and provided to the successful grant recipient.

# PROJECTS SUPPORTED IN 2022

Three applications were received in response to the 2022 grant round, with The Fund being oversubscribed by 2.5 times.

The TAC unanimously supported the project "Investigation the spatial ecology and habitat use of Tasmania wedge-tail eagles in the Tasmanian Midlands using high-frequency GPS telemetry" for full funding from:

- Dr James Pay (UTas) Project Lead.
- Dr Amelia Koch (FPA)
- Prof Elissa Cameron (University of Canterbury)
- Jason Wiersma (FPA) and
- Dr Todd Katzner (USGS).

This project will provide information on the spatial ecology and resource use of adult Tasmanian wedge-tailed eagles in the agricultural area of the Tasmanian Midlands. Furthermore, the data from this project will be combined with data from other GPS-tracked eagles across Tasmania to provide a state-wide understanding of how the species uses different landscapes. The insight into the importance of different habitats and the spatial modelling of this information will address two research priorities identified in the Tasmanian wedge-tailed eagle recovery plan (Threatened Species Section, 2006) and by the Technical Advisory Committee.

The TAC agreed that there was merit in the two other applications to the Fund, but both required finessing before they could be supported.

The first was "Engagement that works: building up science and reducing threats for the Tasmanian wedge-tailed eagle" from:

- Dr Clare Hawkins (Bookend Trust, Pennicott Foundation) Project Lead.
- Dr. Angela Dean, University of Queensland.

The TAC saw merit in this project but had some concerns that it did not sufficiently make the case for alignment with the objectives of the Fund, which are quite prescriptive (and relate to the original permit condition on the Cattle Hill Wind Farm). They sought more evidence of how the project would generate tangible benefits to WTEs at its completion. The TAC offered the applicants the opportunity to refocus the project and provide a stronger indication of its alignment with the Fund's objectives, particularly how it will create tangible benefits to the management of WTEs. They allowed six weeks for a resubmission of the application for consideration for funding. In addition, given that the Where, Where Wedgie project which received support from the WTE Research Fund in 2021 had not been completed (it was due for completion in April 2022), it was a requirement for the 2021 project to be completed before additional support could be provided.

And

"Comprehensive analysis of the ecotoxin threat to Tasmanian Wedge-Tail Eagles" from:

- Dr De Stojanovic (ANU)
- Dr James Pay (UTas)
- Dr Catherine Young (ANU), and
- Adam Cistern (ANU).

The TAC also saw merit in this project, particularly the random sampling to understand background levels of ecotoxins but had some reservations about aspects of the project, including:

- The threat to WTE needed to be articulated more clearly. While lead is the implied ecotoxin of concern, the project needed to more clearly identify the ecotoxin the project was focussing on.

- The management implications that would result from quantifying the ecotoxin levels needed to be described. That is, how would this study translate into direct benefits to WTE?
- How would the study manage for seasonal changes in WTE diet and environmental conditions on the presence of ecotoxins in samples?
- The salary allocated to Dr Young required more clarity ($50,100 GST exclusive) particularly given that $27,806 was allocated for inkind contribution from other researchers. The TAC would like this to be reconsidered as it did not appear to provide good value for money.

The TAC also offered the applicant the opportunity to rescope the project as a pilot to demonstrate validity of the method and address the above concerns. Six weeks was provided to rescope and resubmit the project (including reassessing the budget) for consideration by the TAC.

# STATUS OF FUNDED PROJECTS » 2020

The project selected for funding in 2020 ("Investigating the spatial ecology and habitat use of the Tasmanian wedge-tailed eagle in unmodified landscapes using high-frequency GPS telemetry" from Professor Cameron and Dr James Pay (UTas), Dr Amelia Koch and Jason Wiersma (FPA), Dr Todd Katzner (US Geological Society)) was completed and the final report received. All payments have been made to the recipients.

## FINAL REPORT ON THE PROJECT

As indicated previously, the project has experienced delays, which have been outside the control of the investigators. The GPS units were ordered but issues were encountered as detailed in the 2021 Annual Report. The investigators sought an extension from the WTE Fund, which the TAC reviewed and then granted.

The following is a summary from the project team of what has been achieved on the project:

Sites were selected based on the following criteria (see Figure 1) –

1. Large areas of reserved land – We selected areas >30 $km^2$ to maximise the area of the home-range of each GPS-tracked eagle that is over reserved land.
2. Known eagle nests or adult eagle activity - The behaviour of adult wedge-tailed eagles is strongly associated with nesting locations (including outside of the breeding season). We therefore selected study areas based on known wedge-tailed eagle nests, with evidence of activity within the last five years (DPIPWE, 2021).
3. GSM data coverage - The GPS transmitters used for this project require mobile phone data signal to transmit the data back to the research team. We therefore targeted areas with reasonable coverage as adult eagles are unlikely to travel large distances from the place of capture.
4. Accessibility - The field work for this research is equipment intensive and requires vehicle access to areas where trapping is attempted.

Five GPS transmitters were deployed. All analyses and data summaries provided were based on data collected from the date the GPS-transmitters were attached until May 25th, 2022. During this period, we collected 246,563 location fixes from the five GPS-tracked eagles.

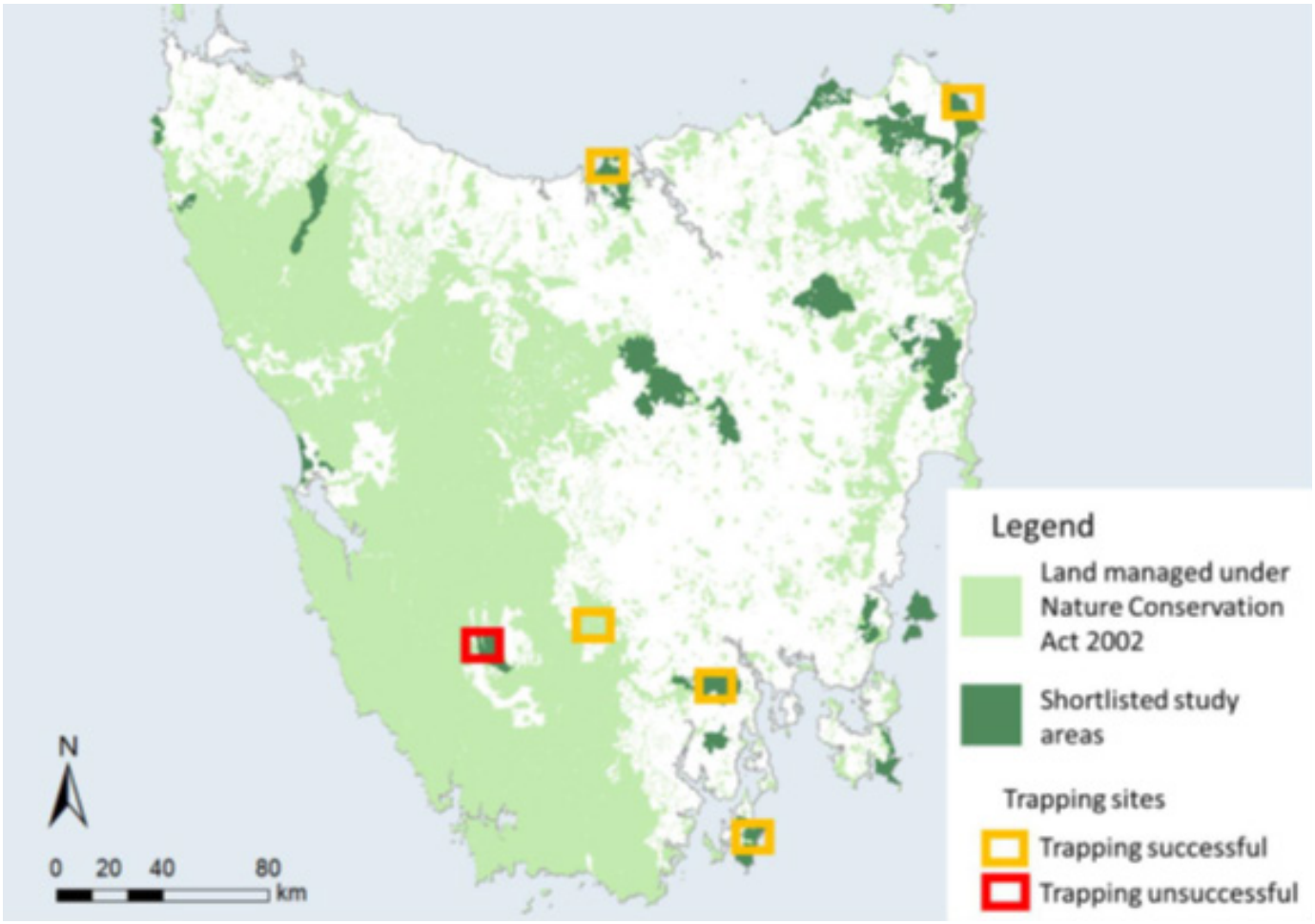



*Figure 1: Map of Tasmania highlighting areas managed under the Nature Conservation Act 2002 and areas short-listed as study sites for this project. Squares indicate the locations that we trapped during the project field work. We carried out trapping at six locations, with one location being unsuccessful.*

Some of the key results were:
The 50% UD (core home range) size was similar for William (5.2 $km^2$), Floki, (5.0 $km^2$) and Bruny (3.9 $km^2$), whereas Blodwyn (9.5 $km^2$) and Giolla (10.7 $km^2$) had much larger 50% UDs (which were also larger than any of the other adult wedge-tailed eagles we are tracking). The mean 50% UD was 6.9 km2, which is slightly larger than the 5.1 $km^2$ mean for resident birds we are tracking in other areas of Tasmania. The 95% UDs followed a similar pattern, with William (19.8 $km^2$), Floki (16.9 $km^2$), and Bruny (19.8 $km^2$) having smaller 95% UDs than Blodwyn (39.2 $km^2$) and Giolla (33.7 $km^2$). The mean 95% UD for the five eagles in this project was 25.9 $km^2$, which is also slightly higher than the 21.8 $km^2$ mean for resident birds we are tracking in other areas of Tasmania. However, UDs are sensitive to the number of fixes and time period used to calculate them (Girard et al., 2002). A full year of GPS data for each individual will allow us to make more defensible conclusions on the UDs of the birds tracked for this project, as well as comparisons with the other birds we are tracking in more anthropogenically modified landscapes. Once we have the larger dataset, we will also be able to assess the landscape and landcover characteristics of the 95% and 50% UDs, and assess how these influence UD size and if the amount of reserved land within the UD influences UD size and shape.

The eagles showed a strong avoidance for landcover classifications of non-native vegetation, residential, and other natural, which were also habitat types that contributed very small areas within the available habitat areas of the eagles. Eagles with any plantation forest within their available habitat area (Blodwyn, Giolla, and Floki) also avoided this landcover type. Dry eucalypt and wet eucalypt forests were generally used by the eagles proportional to their availability, whereas Blodwyn and Giolla selected for areas of non-eucalypt forest. There was a lot of individual variation in how the eagles used other landcover categories. Selection ratios for agricultural areas were particularly varied between individuals, with the selection ratio values strongly driven by the availability of agricultural areas within the available habitat area.

In the respect of the Fund, this project is completed, but the GPS units are continuing to track the eagles and obtain valuable data. Dr Pay has committed to providing the WTE Research Fund the final analysis of the data when it is in (anticipated to be in second half of 2023).

## » 2021

Two projects were supported in 2021, one ("Estimating the population size of the Tasmanian wedge-tailed eagle (*Aquila audax fleayi*) using modern genetic techniques") was fully funded and is due to be completed at the end of September 2022, and the second ("Monitoring wedge-tailed eagle population trends") was partially supported. The latter project was due for completion in April 2022, but has been delayed due to illness and other issues. The final payment for both projects will be made when final reports are received.

# NEXT STAGE IN THE FUND

The funding agreement for the new project (Pay et al. Midlands GPS tracking) will be finalised in the next few weeks. If rescoped projects are received from the two other applicants, they will be reviewed by the TAC and determined if they will be supported.

It is anticipated that the next round of grants will be advertised in the first half of 2023. The documents relevant to this next round will be reviewed prior to the next funding round.

Each year the learnings from the previous round of grants are evaluated and then used to inform the approaches for the upcoming year. Some of the key learnings from the 2022 include:

- The number of applications to the Fund is declining each year. This was discussed at a TAC meeting. It was agreed that it may be necessary to be more proactive in driving research in key areas by actively supporting Honours or Postgraduate studies studying specific topics.
- Some applicants were confused about how to manage GST in their applications. The guidelines and application form were made clearer about how to document GST, but it was also decided to provide additional funds for the GST component to all successful grant recipients as some had not adequately budgeted for it. This had a small impact on the amount of funds available in the 2022 round.
- There were further minor refinements to the assessment criteria to assist with selecting projects.

# FINANCIAL STATEMENT

| **Details** | **2021** | |
|---|---|---|
| | *Contribution* | *Costs* |
| Funds received (incl. GST) | $94,578.94 | |
| Bank interest | $7.12 | |
| Set up administration cost (15%) | | $0 |
| Ongoing administration (8%) | | $6,878.47 |
| Advertising for grants | | $95 |
| Graphics design for application and advertisements | | $250 |
| Milestone payments to grant recipients | | $52,036.36 |
| GST paid | | $5,263.14 |
| Total | $94,586.06 | $64,522.97 |
| Carried forward | | $118,248.14* |

**majority allocated to grant recipients. Remaining funds will be allocated to future grant rounds*