

# CATTLE HILL Wind Farm



## Annual Environmental Review 2021

Review period: 1 July 2020 to 30 June 2021

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

**Prepared By:** Goldwind Australia



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



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## Definitions and Abbreviations

<b>AER</b>	Annual Environmental Review
<b>Cattle Hill Wind Farm</b>	Wind Farm comprising 48 wind turbines and up to 150 MW capacity
<b>CEMP</b>	Construction Environmental Management Plan
<b>Central Highlands Region</b>	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
<b>CHC</b>	Central Highlands Council
<b>CHWF</b>	Cattle Hill Wind Farm
<b>Commissioning (EPN)</b>	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.
<b>DAWE</b>	Department of Agriculture, Water, and the Environment (formerly DoEE)
<b>Director</b>	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.
<b>DPEMP</b>	Development Proposal and Environmental Management Plan
<b>DPIPWE</b>	Tasmanian Department of Primary Industry, Parks, Water and Environment
<b>EMOP</b>	Eagle Mortality Offset Plan
<b>EMPCA</b>	Environmental Management and Pollution Control Act 1994
<b>EPA</b>	Tasmanian Environment Protection Authority
<b>EPBC</b>	Commonwealth Environment Protection and Biodiversity Conservation Act 1999
<b>EPBC 2009/4839</b>	EPBC Approval No. 2009/4839
<b>EPC</b>	Engineer, Procure and Construct
<b>EPN</b>	Environment Protection Notice 10105/1 (issued by Tasmanian EPA on 13 March 2019)
<b>ERP</b>	Emergency Response Plan
<b>FOMP</b>	Flora Offset Management Plan
<b>GWA</b>	Goldwind Australia Pty Ltd (ACN 140 108 390)
<b>Ha</b>	Hectare
<b>IDF</b>	IdentiFlight System
<b>kV</b>	Kilovolt
<b>MW</b>	Megawatt
<b>NVA</b>	Natural Values Atlas
<b>O&amp;M</b>	Operations and Maintenance (Phase of Development)
<b>OEMP</b>	Operations Environmental Management Plan (approved under Condition G11 of EPN 10105/1)
<b>PCA</b>	Powerchina Australia Development Pty Ltd.
<b>RMPAT</b>	Resource Management and Planning Appeal Tribunal
<b>SCADA</b>	Supervisory Control and Data Acquisition
<b>TasNetworks</b>	Own, operate and maintain the electricity transmission and distribution network in Tasmania.
<b>TFS</b>	Tasmanian Fire Services
<b>The Land</b>	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
<b>The Proponent</b>	Wild Cattle Hill Pty Ltd (WCHPL) ACN 610 777 369
<b>WTE</b>	Tasmanian Wedge-tailed Eagle ( <i>Aquila audax fleayi</i> )
<b>WBSE</b>	White-bellied Sea-eagle ( <i>Haliaeetus leucogaster</i> )
<b>WCHPL</b>	Wild Cattle Hill Pty Ltd (ACN 610 777 369).

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## Managing Director's Statement

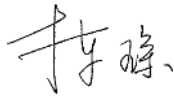
*This is the Fourth Annual Environmental Review (AER) for the Cattle Hill Wind Farm located in Central Highlands of Tasmania.*

*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](http://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 2020 – 30 June 2021).*

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



Chen Chen

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

7 September 2021

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John Titchen

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

8 September 2021

# 1. Introduction

## 1.1 Purpose of this document

This Annual Environmental Review (AER) 2021 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 2020 and 30 June 2021 (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 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)<sup>1</sup>.

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 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 during 2020.

During the reporting period for this AER 2021, the Cattle Hill Wind Farm (CHWF) in Tasmania's Central Highlands underwent a significant transition with the completion of commissioning activities for the wind farm and IdentiFlight system, and commencement of the first full wind farm operations on 4 August 2020.

## 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).

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<sup>1</sup> 2016 Census data for Tasmania recorded a total of 241,744 houses 197,575 of which were occupied and 32,135 unoccupied,

## 1.4 Structure of this Report

This Annual Environmental Review (AER) 2020, provides a review of performance against environmental requirements and commitments outlined in the project's regulatory approvals and implemented via a series of approved management plans.

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

*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

The 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).

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.

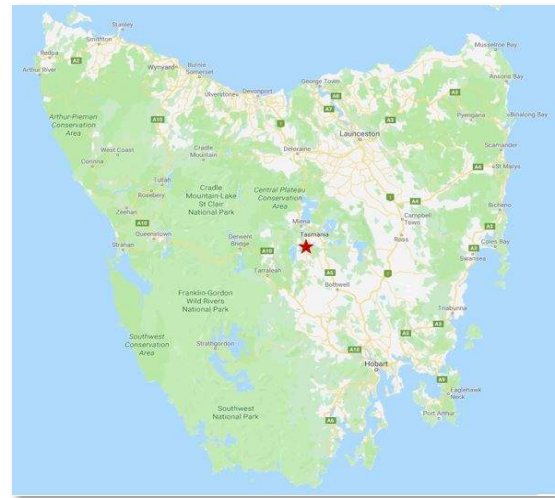


Figure 2.1: Cattle Hill Wind Farm location

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.

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

### 2.2 Project Background

The 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 bundled 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 eagle collision avoidance system	The CHWF includes 16 IdentiFlight (IDF) pole mounted avian protection units which have been installed as part of an Australian first technology trial which aims to avoid or minimise 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 eagle speed and trajectory.
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. DPIPW 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
- 50 m buffer zones for 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 not 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 both offsets was finalized during the previous review period, and the Orchid offset was fenced off during the current review period (completed in May 2021). Both the orchid and *Discaria pubescens* offsets are in the process of being 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
<b>EPBC Approval Notice 2009/4839</b> issued by the Commonwealth Department of Agriculture, Water and Environment (DAWE) on 15 December 2014	<ul style="list-style-type: none"> <li>• Weed Management Strategy and Plan</li> <li>• Flora Offset Strategy</li> <li>• Flora Offset Management Plan</li> <li>• Collision Avoidance and Detection Plan</li> <li>• Annual Compliance Reporting</li> </ul>
<b>State Environmental Protection Notice EPN 10105/1</b> issued by the Tasmanian EPA on 13/03/2019 (Varies condition of the CHWF Permit DA 2010/19)	<ul style="list-style-type: none"> <li>• Design Report</li> <li>• Construction Environmental Management Plan</li> <li>• Active Eagle Nest CEMP and Eagle Nest Monitoring Plan</li> <li>• Eagle Nest Productivity Monitoring Plan</li> <li>• Post Commissioning Eagle Utilisation Monitoring Plan</li> <li>• Bird and Bat Mortality Monitoring Plan</li> <li>• Eagle Mortality Offsets and Offset Plan</li> <li>• Hunting and Culling Management Plan</li> <li>• Complaints Register</li> <li>• Emergency Response Plan</li> <li>• Turbine Shutdown Management Plan</li> <li>• Operational Environmental Management Plan</li> <li>• Post Commissioning Noise Survey</li> <li>• Annual Environmental Review</li> </ul>
<b>Planning Permit DA 2010/19</b> 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	<ul style="list-style-type: none"> <li>• Traffic Management Plan</li> <li>• Approval of Signage</li> <li>• Approval of colours / finishing on towers and turbines</li> <li>• Building permits (permanent buildings)</li> </ul>
<b>Authorisation for Conservation Covenant CPR 8065</b> for wind farm infrastructure within the Private Land Conservation Program, issued by DPIPW on 4/06/18	<ul style="list-style-type: none"> <li>• Permits to Take and provision of GIS data for listed species recorded prior and during construction activities</li> <li>• Rehabilitation Management Plan</li> </ul>
<b>Planning Permit DA 2017/56</b> for installation of IdentiFlight, issued by CHC on 30/01/18	<ul style="list-style-type: none"> <li>• Location and Design in accordance with the Permit</li> <li>• Building permits for IdentiFlight towers</li> </ul>
<b>Planning Permit DA 2017/57</b> For installation of meteorological monitoring masts, issued by CHC on 25/01/18	<ul style="list-style-type: none"> <li>• No longer required – No new met masts installed.</li> </ul>
<b>Planning Permit DA 2018/31</b> for road widening and upgrade works on Waddamana, Macclesfield and Bashan Roads, issued by CHC 24/08/18	<ul style="list-style-type: none"> <li>• Traffic Management Plan</li> <li>• Road Safety and Directional Signage</li> <li>• Permit to Take (Threatened Flora Species)</li> </ul>
<b>Permits to Take (PTT) native flora and / or fauna</b> issued under the <i>Threatened Species Act</i> and / or <i>Products of Wildlife (Dens and Burrows)</i> issued under the <i>Nature Conservation Act</i> .	<ul style="list-style-type: none"> <li>• Any amendments to existing PTTs or new PTTs required based on final design and ecological surveys</li> <li>• Reporting to DPIPW at end of PTT period</li> </ul>

## 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 within the review period

The activities undertaken within the review period included the following:

#### Rehabilitation of disturbed areas (01 July 2020-30 June 2021)

All temporary facilities have now been decommissioned and removed from the site and are in the process of rehabilitation and ongoing weed management.

#### Commencement of full wind farm operations

- Completion of commissioning of all wind turbines occurred on 3 August 2020, and commencement of first full operations occurred on 4 August 2020 and was notified to Commonwealth, State, and Local regulators.

#### Compliance activities

Commencement of operations triggered commencement of a number of compliance activities and ongoing monitoring programs in accordance with the project approvals. These included:

- Completion of noise monitoring requirement in accordance with Condition N2 of the EPN
- Environmental Risk Workshop – Operations. In accordance with the approved EMP (Operations) (OEMP) an environmental risk workshop was undertaken with all operations staff attending.
- Commencement of Phase 2 Carcass Monitoring in accordance with the Bird and Bat Mortality Monitoring Plan (BBMMP) approved by EPA under Condition FF10 occurred from July 2020, ahead of full operations commencing in August 2020.
- Eagle Nest activity and productivity checks, in accordance with the approved Eagle Nest Productivity Plan (ENPP) (under Condition FF5), commenced in October 2020 following commencement of full wind farm operations in August 2020.
- Eagle Utilisation Monitoring in accordance with the approved Eagle Utilisation (within the wind farm) Monitoring Plan (EUMP) (under Condition FF 6), commenced in November 2020, the first monitoring period following commencement of wind farm operations in August 2020.

#### Identiflight activities

A separate Planning Permit for Identiflight infrastructure was issued by CHC on 30 January 2018. The infrastructure was installed within 2019 and operated first operated from 19 November 2019.

Review and improvement of the Identiflight System has been ongoing and maintenance of the IDF infrastructure and its operation is a significant component of CHWF activities. Refer Section 7.1 for further details.

## 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, two reportable environmental incidents were recorded in Goldwind's CHWF incident management system, out of four incidents in total. All incidents were investigated according to Goldwind internal incident management procedures. The reportable environmental incidents are discussed in the following section.

#### 4.2.1 Environmental Incidents Notified to Regulators

Two incidents (involving Wedge-tailed Eagles) referred to below triggered the requirement for reporting to EPA under Condition FF11 of EPN 10105/1 concerning impacts dead or injured birds or bats, listed under the *Threatened Species Protection Act 1995*. A third injured Wedge-tailed Eagle was found to the south of CHWF but was unrelated to CHWF operation. Site staff transported the Eagle to Bonorong Wildlife Sanctuary for assessment, but they were unable to rehabilitate it.

#### Wedge-Tailed Eagle Mortality near Turbine 2 found 9 September 2020

On 9 September 2020, after 295 days of partial operation during commissioning (132 days with all 48 turbines operating but prior to full operations) and just over one month of full operations, the project's first WTE mortality was identified during Phase 1 carcass searches at Turbine 2. At the time of the incident, the adjacent IDF Station (IDF 16-1) which has partial coverage of Turbine 2, was down, which was initially thought to be a contributing factor but after investigation ruled out. The IDF station with primary coverage of Turbine 2 (IDF 2-15) was operating and following investigation, it was found that IDF 2-15 had issued a curtailment signal for Turbine 2, which was accidentally overridden by an operator manually restarting the turbine. This incident was notified to regulators within 24 hours of the Eagle being found, a necropsy carried out and details of the incident, the likely cause, and corrective actions reported to EPA and DAWE.

After the Incident Investigation and Root Cause Analysis, a number of system improvements were arranged including variation to the Turbine Control procedures to prevent recurrence as discussed in Section 4.2.2. The nature of the incident means that it arose from operator error and not a failure of IDF and is not expected to be repeated.

#### **Wedge-Tailed Eagle Mortality near Turbine 45, found 30 June 2021**

On 30 June 2021, after 334 days of full operations, a deceased WTE was found near Turbine 45. Following an internal incident investigation by GWA and IDF, and performance of a necropsy, it could not be verified with certainty that the mortality was due to a turbine collision, however due to the proximity of the Eagle to Turbine 45 it is believed the bird may have been struck by a slow-moving rotor, at a time when possibly distracted by something else, such as prey.

On this occasion, following extensive review of IDF data, no eagle tracks were identified which could have resulted in the mortality. Following further investigation, it is believed a cluster of trees in between IDF 44-2 and GW 45 combined with the angle and approach of the bird, resulted in obstruction of the Identiflight viewfield such that it limited IDF's ability to detect the bird and issue a curtailment signal in time to prevent the collision. Review of options to improve Identiflight coverage and effectiveness is ongoing.

#### **4.2.2 Management Actions resulting from Incident Investigations**

Following the WTE mortality on 9 September 2020 near Turbine 2, the following actions were taken:

- As an initial action for the Eagle Mortality at Turbine 2, a turbine no restart protocol was developed, which required operators to check for eagles before manually restarting turbines.
- Subsequently, SCADA controls were added, to prevent manual override of an IDF curtailment.

As a result of the second action, turbines can no longer be manually restarted during an active IDF turbine curtailment, which is expected to prevent recurrence of this issue.

Following the WTE mortality near Turbine 45 (found on 30 June 2021), the following actions were taken:

- Further assessment of vegetation with potential to obstruct Identiflight visibility and limit effectiveness of IDF has been undertaken in July 2021. Specific proposals for targeted vegetation removal of 6 to 7 trees was discussed with the landowner however, permission to clear the trees has not yet been provided and investigation of alternative options is required.
- Other mitigation actions are being explored, including relocating the IDF 2 unit to another location on higher ground, heightening the IDF 2 tower or, installing an additional IDF tower as well as the existing IDF2. The feasibility and benefit of these options is under investigation.
- Separate from Identiflight improvements, another Eagle Risk mitigation measure could involve painting part of one or more blades to increase Eagle awareness of the rotating blades and reduce the risk of collision. Examples of turbines at other international locations, with a blade partly painted black, has indicated this reduces potential for collisions.



### 4.3 Waste Management

#### 4.3.1 Waste volumes generated during review period

Waste volumes generated during the review period were in proportion to the size of the workforce on site, which has declined after the last turbine was installed in February 2020, and for much of the review period, there were lower numbers on-site either focused on removal of temporary facilities and rehabilitation after practical completion of civil and electrical works or, involving the small Warranty Operations and Maintenance team managing CHWF operations. As a result, waste volumes have declined significantly.

Permanent amenities were established for the Operations and Maintenance facility using a system approved by Central Highlands Council, in accordance with the conditions of approval.

Table 4.1 summarizes waste volumes generated during the review period.

*Table 4.1: Total Waste Volumes Generated during Review Period*

Category	Volume	Treatment / Disposal Method
<b>Solid Wastes</b>		
General waste	156 cubic metres	Launceston Landfill
<b>Liquid Wastes</b>		
Sewerage from amenities	N/A	AWTS System on Site – Serviced and Maintained by Professional Plumbing
<b>Controlled Wastes</b>		
Hydrocarbon (total)	Zero	N/A
Empty oil drums	Zero	N/A
Waste grease	Three 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.

A key objective for wind farm sites is containment to avoid wind-blown waste, of items such as packaging materials.

During the review period, GWA staff met with DAWE representatives to explore a number of wind farm initiatives and opportunities (11 May 2021) including opportunities for re-use of end of life or damaged wind turbine blades (Fig 4.1). A number of potential re-use options arose from the discussion, including aqua-farming and use of blades as artificial reef structures which are being explored further. The issue of 'End of Life' recycling of fiberglass composite components such as



*Fig 4.1 Meeting with DAWE representatives to discuss options for end-of-life blade re-use / recycling (May 2021).*

blades is being investigated by the Clean Energy Council's Working Group on Recycling (which GWA is part of) and solutions are expected to be developed long before CHWF Turbine 'End of Life' estimated as approximately 2045.

#### 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. Overall, the quantities of hazardous substances for an operating wind farm site are low and are able to be readily managed

Appendix C provides a copy of the inventory of hazardous materials stored and / or used on site within the review period. As the majority of the hazardous materials (fuel and oil) held on site during civil works and turbine installation, were removed following completion of the project's construction phase, only relatively minor volumes of hazardous materials are now held on site; these are limited to those required for operations phase activities associated with operating and maintaining 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.

No reportable spills occurred during the reporting period.

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

During the review period the following changes were made to environmental procedures and processes adopted for the project:

- Review of implementation of the CHWF OEMP for the operating project
- Delivery of Environmental Risk Workshop for Operations Phase, as outlined in the OEMP (undertaken November 2020)
- Completed the update of Site Hazardous Substance and Waste Registers following transition from construction to operations phase.
- Review of site inspection processes including trialing new format for inspections
- Optimization of Identiflight turbine curtailment prescription criteria for Eagle protection
- Following incident reviews for two Eagle mortalities, implement a range of improvements to ensure optimal effectiveness of Identiflight to reduce Eagle collision risks.
- Commencement of Phase 2 surveys and Pulse Surveys required by the BBMMP
- Preparation of the draft Decommissioning and Rehabilitation Plan required by DC2 of the EPN
- Progression of arrangements for two new Offset areas within the project area
- Maintenance of Carcass Monitoring Zones to enable effective surveys around turbines
- Site rehabilitation progressed to an advanced stage

#### 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: Operational Management Plans and associated Implementation Activities Undertaken within Review Period

Condition reference / Title of Plan		Approval	Activities Undertaken within review period
Plans required by State			
DC2	Decommissioning and Rehabilitation Plan (DRP)	Pending	<ul style="list-style-type: none"> <li>Development of DRP required by conditions DC2 and DC3 (submitted to EPA outside review period)</li> </ul>
G9	Emergency Response Plan (ERP)	03/04/20	<ul style="list-style-type: none"> <li>No monitoring required within current review period</li> </ul>
G11	EMP (Operations) (OEMP)	06/08/19	<ul style="list-style-type: none"> <li>Pre-operations risk workshop</li> <li>Ongoing site rehabilitation</li> <li>Implementation of Fauna signage</li> <li>Site Environmental Inspections</li> </ul>
FF5	Eagle Nest Productivity (in and around wind farm site) Monitoring Plan	30/10/17	<ul style="list-style-type: none"> <li>Commencement of Monitoring in accordance with methodology agreed by EPA</li> </ul>
FF6	Post Commissioning Eagle Utilization Management Plan	06/02/18	<ul style="list-style-type: none"> <li>Commencement of Monitoring in November</li> <li>Relocation of S1 monitoring location as agreed with EPA</li> </ul>
FF7	Hunting and Culling Management Plan	20/11/18	<ul style="list-style-type: none"> <li>Collation of Records provided by Shooting Groups</li> <li>Carcass Pit inspections</li> </ul>
FF10	Bird and Bat Mortality Monitoring Plan	26/03/19	<ul style="list-style-type: none"> <li>Carcass searches ongoing throughout review period</li> <li>IDF monitoring processes developed</li> </ul>
FF15	Eagle Mortality Offset Plan <sup>2</sup>	21/12/18	<ul style="list-style-type: none"> <li>Annual payment of \$75,000 made to Fund</li> <li>Round 2 eagle research applications received</li> </ul>
FF16	Turbine Shutdown Management Plan	24/08/18	<ul style="list-style-type: none"> <li>Tracking of Wind Turbine Shut Down Hours occurred throughout review period</li> </ul>
Plans required by Commonwealth			
6A	Collision Avoidance Detection Plan	29/05/18	<ul style="list-style-type: none"> <li>IdentiFlight in operation throughout review period</li> <li>Various optimisations and reviews conducted</li> <li>Monitoring results indicate level of performance</li> </ul>
22	Weed Management Strategy	14/12/17	<ul style="list-style-type: none"> <li>Monitoring of weed cover</li> <li>Treatment of weeds as required</li> </ul>
23	Flora Offset Management Plan	10/08/19	<ul style="list-style-type: none"> <li>Monitoring required by FOMP undertaken</li> <li>Process of securing covenants on title still in progress</li> </ul>

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

<sup>2</sup> 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 in order to avoid, mitigate and manage potential environmental impacts during operation of the Cattle Hill Wind Farm (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 Cattle Hill Wind Farm operations in a summarised form, in single clearly presented and accessible reference document.

Specific actions from the OEMP which were undertaken during the review period included:

#### **Induction Training**

Induction training tailored for operational activities was provided to the Service team including:

- Awareness of all site constraints and exclusions
- Awareness of key commitments and implementation timeframes
- Notification timeframes for environmental incidents or changes to operations status
- Fauna handling training
- Weed management procedures and record keeping requirements
- Rehabilitation monitoring and performance acceptance criteria.

#### **Site procedures and processes**

The following procedural activities were undertaken within the review period.

- EWMS Review
- Waste Register update
- Hazardous Substances Update
- Environmental Record Keeping Review
- Environmental Inspection Procedure Review

#### **Specific Issues Management**

Environmental aspects described in the OEMP were managed during the Reporting Period.

### 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:

#### Identification of nests

Both on- and off-site nests have been identified from surveys conducted as part of the DPEMP, surveys conducted for Condition FF4 (Eagle nest searches of the Central Highlands Region) and any other sources available (such as the NVA, Natural Values Atlas maintained by DPIPW, or the FPA). Only viable nests will be used in any given year (nests of a sufficiently good condition that an eagle may use it to breed). Unviable nests are those that have no evidence of recent use or are falling from the tree. The details in FPA 2015 will be used as an indication of a viable nest). Nests have been allocated as, on-site (within 2 km of a wind turbine) or, off-site (further than 2 km from a wind turbine and within up to 10km of the boundary of the wind farm).

The surveys commenced during the first breeding season after the wind farm was fully commissioned (second half of 2020).

#### On Site Nest Checks

On-Site nest activity checks were conducted on foot in November 2020, by VDC in accordance with the Forest Practices Authorities Fauna Tech Note No. 1 - Eagle nest searching, activity checking and nest management<sup>3</sup>. All nests were approached and examined from previously established vantage locations that avoided disturbance of any resident Eagles.

The nest checks indicated nest activity was similar to the nest activity in the 2018/19 nest activity assessment and during 2019/20 season (from general observations), with the main difference being that both RND 2467 and Additional Nest were inactive in this season.

Active nests this season included RND 1724 and RND 1829 (both just outside the wind farm). Fig 5.1 shows RND1724 with an adult and likely chick in the nest.



Fig 5.1 RND1724 with adult and chick

#### Offsite Nest Checks

Observations outside Cattle Hill windfarm (> 2km of a wind turbine) were checked by light plane in October and December 2020. All nests identified during the 15/10/20 Activity Check were rechecked in late December 2020, 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 29/12/20 by Nick Mooney from a Cessna 172 (Par Avion). Weather was clear and still with low cloud cover, almost perfect conditions. The results are shown in Figure 5.2.

<sup>3</sup> [http://www.fpa.tas.gov.au/\\_data/assets/pdf\\_file/0012/110208/Fauna\\_Tech\\_Note\\_1\\_Eagle\\_nest\\_management\\_May\\_2015.pdf](http://www.fpa.tas.gov.au/_data/assets/pdf_file/0012/110208/Fauna_Tech_Note_1_Eagle_nest_management_May_2015.pdf)



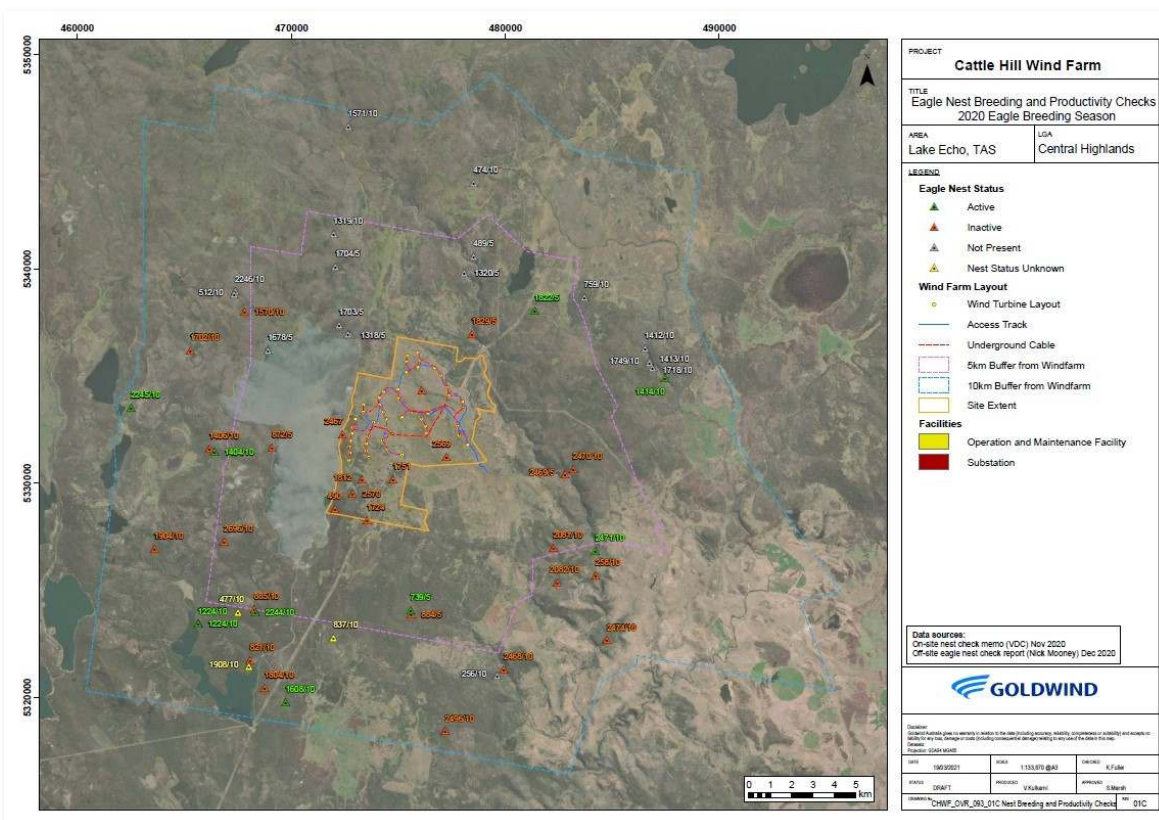
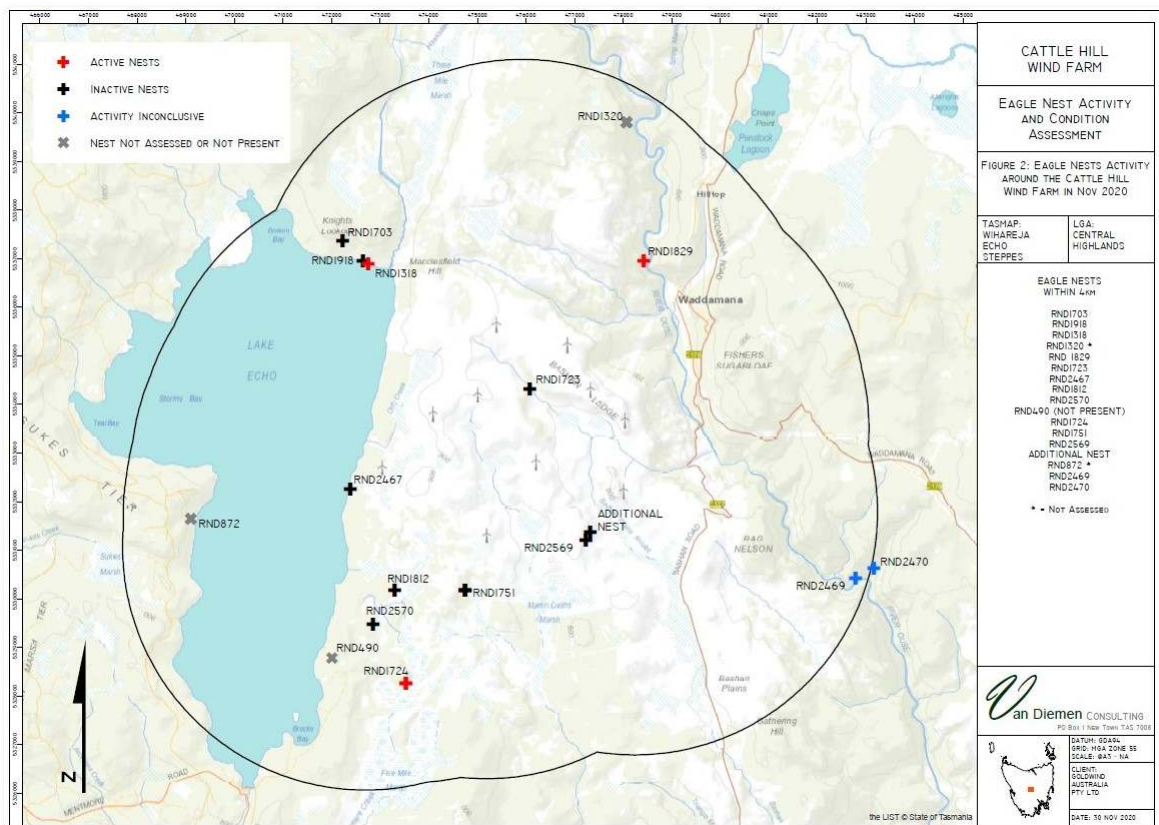


Fig 5.2 Onsite (above) and offsite (below) nest checking results, 2021

### 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 in accordance with the EUMP commenced in November 2020, the first monitoring period following the commencement of wind farm operations, and 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 is being undertaken by Wildspot, at six pre-established locations within the wind farm to enable comparison with the earlier monitoring before the wind farm was established (also undertaken by Wildspot).

One of the pre-established observation points was subsequently identified as unsuitable (due to establishment of a covenant and to avoid impacts on the protected vegetation) and an alternative observation location was identified by Wildspot, notified to EPA, and is now in use.

During the review period, two of the monitoring locations were amended in consultation with EPA to bring a previously established monitoring point closer to turbines, and to avoid incursion and impacts in an area which is now protected by way of a nature conservation covenant for EPBC listed orchids (discussed in Section 5.3.2).

The eagle utilization monitoring will also be used for comparison and validation of the capabilities of the IdentiFlight system which also detects and tracks eagles within the wind farm (discussed in Section 7).

### 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 metres 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.

There has been no noticeable impact to eagles as a result of this change as there is an abundance of food sources already within the wind farm locality. The potential for attraction for Eagles to the pits is reduced by covering of the carcasses and may assist reduction of Eagle Collision Risk.

#### 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 is subject to review at 3 years and after 5 years and stipulates requirements for monitoring at the Carcass Monitoring Zones (CMZ) beneath each of the 48 turbines, and the procedures to be followed in the event of discovery of any injured or dead birds or bats.

The following monitoring is undertaken:

1. Drive-by surveys of all 48 wind turbines on a weekly basis using a low impact vehicle circling each turbine at 45m and 80m transects (Phase 1 surveys).
2. Full surveys of 24 turbines on a monthly rotating basis, to complete all 48 turbines every two months (Phase 2 surveys)
3. Surveys of the inner 60m carcass monitoring zone for 24 turbines, undertaken within 3 days following each Phase 2 survey (Pulse surveys).

The monitoring results will be used to quantify the direct impact of the wind farm to birds and bats by the methods set out in the BBMMP. Results of monitoring will also provide data to support the 18-month Identiflight (IDF) trial (EPBC Condition 6c) to assess IDF effectiveness (see Section 7).

Phase 1 surveys continued throughout the review period, and Phase 2 and Pulse surveys commenced in August 2020, together with full operations commencing. The Phase 2 survey team undertook site familiarization prior to the commencement of site surveys and reporting processes.

To support effectiveness of the mortality monitoring and by extension, robustness of evaluation of the effectiveness of Identiflight (which is not designed to detect collisions), detection dogs are being trialed to supplement the Phase 2 surveys, an initiative which represented the first use of detection dogs on wind farms in Tasmania (Fig 5.3).



*Fig 5.3 – Zorro, one of the detection dogs used for carcass monitoring at CHWF*

The detection dogs are fitted with GPS collars to track their movement on site in accordance with the defined survey parameters (Fig 5.4). The use of detection dogs has proven successful, particularly regarding detection of micro-bats. Of the total finds detected within the review period,



63% were made by detection dogs, however detection of bat carcasses was proportionately higher, with 81% of all bat finds being made by detection dogs. For birds, the detection rate was similar between human surveyor's vs detection dogs.

Fig 5.4 - GPS track of detection dog conducting pulse surveys around Turbines 46 to 48, May 2021



Combined results of Phase 1 (weekly) and Phase 2 (monthly) surveys (incorporating pulse surveys) are presented in Table 5.2 and Figure 5.5.

Table 5.2: Results of Phase 2 Surveys and Pulse Surveys - July 2020 – June 2021

Phase 1 and 2 Carcass Monitoring	2020						2021					
	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
WTE mortalities	0	0	1	0	0	0	0	0	0	0	0	1
WBSE mortalities	0	0	0	0	0	0	0	0	0	0	0	0
Other listed bird mortalities <sup>4</sup>	0	1	0	0	0	0	0	0	1	0	0	0
Non-listed bird mortalities	2	4	9	11	7	5	8	11	6	5	9	6
Bat mortalities	0	0	1	3	6	5	11	12	14	7	5	0

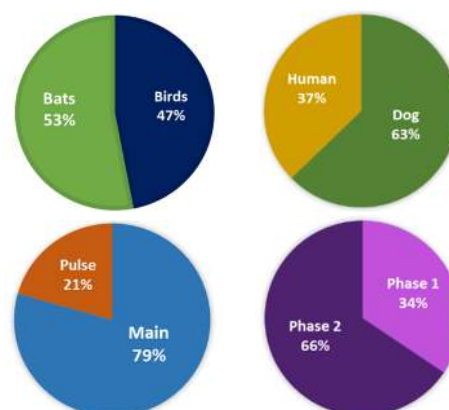
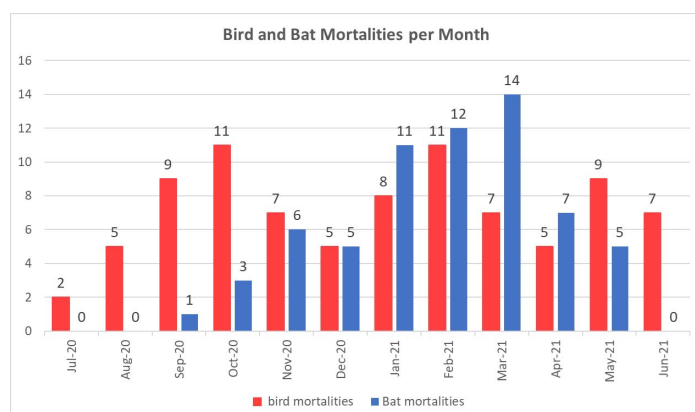


Fig. 5.5: Results of Phase 2 Surveys and Pulse Surveys - July 2020 – June 2021

Of the species identified by carcass monitoring surveys, the most frequently occurring birds and bats were the Grey Currawong (13) and the large forest bat (25) respectively.

<sup>4</sup> refers to whether species is listed under Commonwealth (EPBC Act) or State (Threatened Species Act) legislation.

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

The approved Eagle Mortality Offset Plan (EMOP) was developed in accordance with Condition FF15 of EPN 10105/1 and outlines two processes to offset the impact of WTE mortalities due to collisions with wind turbines:

- An undertaking to place a 20ha conservation covenant around one additional WTE nest for every WTE mortality in excess of five mortalities at CHWF (Condition FF14 required five nest covenants to be secured prior to commissioning of CHWF) as required in the EPN Condition FF15, (3.1); and
- Contributions to a research fund to support studies into the Tasmanian Wedge Tailed Eagle (a joint requirement of the EMOP under the EPN Condition FF15 (3.3) and also satisfying EPBC Approval Condition 17).

The first process was not triggered during the review period, as WTE mortalities were lower than five (only two for the reporting period).

The second process was established in the previous review period (prior to commissioning), with independent fund managers NRM South appointed to administer the Eagle Research Fund. The fund allows qualified researchers to apply for funding to support relevant WTE research in accordance with fund objectives. Further details about the fund can be found at:

<https://www.nrmsouth.org.au/wedge-tailed-eagle-research-fund/>

#### Projects Funded within the Review Period

During the review period the second round of funding was advertised (May 2021) and five applications were received. These applications have been reviewed and assessed by NRM South; however, the announcement of the successful applications falls outside the current review period and will be discussed in next year's AER.

The major project supported by the fund during the review period was the ongoing tracking of Wedge-tailed eagle movements fitted with GPS, being undertaken by Dr James Pay. Fig 5.6 provides a brief summary of this research.



Most of what we know about the habitat requirements for Tasmania's Wedge-tailed Eagle comes from research done at nesting sites and in human-modified landscapes. However, the first research project approved under Round One of the Wedge-tailed Eagle Research Fund will be looking into the unknown; how adult Tasmanian Wedge-tailed Eagles use areas of reserved land and wilderness.

With little information available on how eagles interact with their surroundings in Tasmania's reserve and wilderness areas, the data gathered by this project will provide valuable insights into eagle behaviour, will help researchers better understand the value of these areas to Tasmania's eagle population and will yield the first data of habitat use in areas of reserved land – such as Tasmania's Wilderness World Heritage Area.

Five adult eagles will be fitted with GPS transmitters, which will make use of the mobile phone data-network to transmit data. This allows the transmitters to collect a much higher frequency of information, and can capture a level of detail that includes the location, altitude, speed, and direction of flying birds.

*Fig 5.6 – GPS Tracking of eagles – an initiative funded by the Eagle Research fund established by WCHPL.*

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

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

- Tracking of wind turbine shut down hours against a target of 4,292 hours over a 12-month rolling average; and
- Actions to be implemented if the maximum predicted mortality levels outlined in Appendix 3 of the EPN are breached.

Within the review period, turbine shut down hours were tracked daily and used to undertake a number of IdentiFlight optimizations to improve the efficiency of curtailments. The improvement in performance as a result of these optimizations is shown in Fig 5.7 below in terms of:

- The average daily turbine curtailments per month, triggered by IdentiFlight
- The duration of the turbine curtailments per month, triggered by IdentiFlight

As indicated in Figure 5.7, Turbine shut down is trending towards the required objective.

As the maximum predicted mortality levels of 5 wedge tailed eagles within the first year of operations was not reached due to the effectiveness of the IdentiFlight system installed, no additional Turbine Shut Down measures were triggered during the review period.

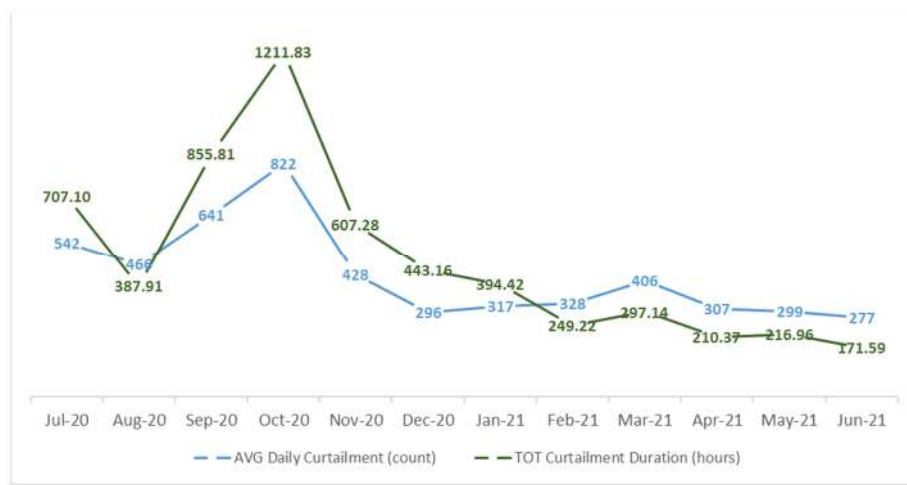


Fig 5.7 Average Monthly Curtailment Count and Total Monthly Curtailment Duration within Review Period

### 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 as required by the conditions of the CADP. Upon completion of the 18-month trial (February 2022), the results will be reported to DAWE, and the findings made publicly available.

A summary of operation of IdentiFlight during the review period is provided in Section 7.

#### 5.3.2 Flora Offset Management Plan (EPBC Condition 23)

The Flora Offset Management Plan (FOMP) required by Condition 23 of EPBC Approval Notice 2009/4839 was approved during the previous 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*) which were unable to be avoided during design and construction of the wind farm.

Two of the three proposed offsets are off-site, and one (Bashan Ledge Offset) is within the site in an elevated area west of Turbine 7. The Bashan Ledge Offset is in the final stage of registration on Title, but management actions have commenced.

The Bashan Ledge Offset contains the following conservation significant values which will be protected by way of the covenant.

- Highland Poa grassland - a State threatened vegetation community (TASVEG - GPH)
- Known and potential habitat for crowded leek orchid (*Prasophyllum crebriflorum*)
- Known and potential habitat for Liawenee greenhood (*Pterostylis pratensis*)
- Known and potential habitat for Ptunarra brown butterfly (*Oreixenica ptunarra*) a State and EPBC Vulnerable listed invertebrate species (Fig 5.8).
- Known occurrence of clover glycine (*Glycine latrobeana*) a State and EPBC Vulnerable listed herb species
- Foraging and denning habitat for Tasmanian devil (*Sarcophilus harrisii*), spotted-tailed quoll (*Dasyurus maculatus maculatus*) and Eastern quoll (*Dasyurus viverrinus*)
- Foraging habitat for white bellied sea eagle (*Haliaeetus leucogaster*) and wedge-tailed eagle (*Aquila audax fleayi*).



Fig 5.8 – Ptunarra Brown Butterfly (*Oreixenica ptunarra*)

During the review period, the Bashan Ledge Offset Area was fenced off (May 2021) and quarterly monitoring of orchids along transects within the offset was carried out by ecologists VDC in accordance with the FOMP.

### 5.3.3 Weed Management Strategy (EPBC Condition 22)

To control potential for weed infestation and propagation the following measures were implemented during the review period in accordance with the CHWF Weed Management Plan (approved under EPBC Condition 22, predominantly directed to construction but also having relevance for operations):

- A Weed Treatment Program was introduced during the construction phase. All weed treatment was undertaken in accordance with the approved Weed Management Plan.
- Requirements were introduced to ensure all machinery was brought onto site in clean condition; free of weed propagules, dirt, or vegetative matter.
- Weed control treatments have followed construction and are integrated with rehabilitation.



## 5.4 Other Environmental Actions undertaken within Review Period

### 5.4.1 State Listed Discaria Species Covenant

An offset has been proposed within the site for impacts to the Spiky anchor plant (*Discaria Pubescens*) which could not be avoided during design/construction of the CHWF. Spiky anchor plant (*Discaria Pubescens*) is listed as endangered under the *Threatened Species Protection Act 1995*.

The location of the *Discaria Pubescens* offset was identified on site by VDC during construction, in response to conditions of a Permit to Take issued by DPIPW.

At the time of writing, the Discaria covenant was in the process of being registered on landowner title to formalize the covenant. It is expected this process will be completed within the 2021/2022 review period.

### 5.4.2 Noise monitoring

Condition N2 of EPN 10105/1 requires a post commissioning noise survey to be undertaken within three months of completion of commissioning of the wind farm.

In accordance with EPN Condition N2, a noise survey was carried out for four neighbouring residence locations around the wind farm, within 3 months of the commencement of operations, to assess noise compliance at the respective residences for the relevant noise criteria established at each location.

No noise complaints have been received by members of the public or near neighbours regarding operation of the wind farm during the review period, but the survey was nevertheless a requirement of the CHWF Permit and has been addressed.

The monitoring results were analysed by VIPAC Engineers and Scientists Pty Ltd, who also undertook the original assessment for the DPEMP for CHWF. A report was prepared by VIPAC describing the monitoring results and the analysis undertaken and the report was subsequently submitted to EPA.

EPA reviewed the report and on 16 April 2021, advised by letter that the Report fulfilled the requirements of Condition N2 of the Permit.

### 5.4.3 Ongoing Site Rehabilitation

The primary objective of rehabilitation for the project is to reform disturbed areas to their long-term landform and progressively re-establish ground surfaces with a vegetative (or other appropriate) cover that is resistant to erosion and sediment loss.

Secondary objectives adopted for the project are to:

- promote rapid, successful revegetation, protect disturbed areas from erosion and reduce the risk of weed invasion; and
- in high conservation value areas (e.g., covenant and highland Poa grassland) restore conditions which promote re-establishment of pre-disturbance vegetation communities.

The CHWF Rehabilitation Management Plan outlines acceptable methods for rehabilitation in sub-areas of the wind farm, based on ecological surveys, as described in the OEMP. The plan includes relevant requirements from the Weed Management Plan, the Lake Echo covenant, site constraints,

and vegetation mapping. Rehabilitation monitoring undertaken includes site inspections to monitor progress based on the rehabilitation success criteria outlined in the OEMP (Table 5.3).

Table 5.3: Rehabilitation success criteria

Indicator	3 Months	6 Months	9 Months	12 Months	18 Months	24 Months
<b>Seeded Areas / Natural Regeneration</b>						
Native Species Richness	≥20% of pre-disturbance species richness	≥40% of pre-disturbance species richness	≥40% of pre-disturbance species richness	≥60% of pre-disturbance species richness	≥80% of pre-disturbance species richness	≥90% of pre-disturbance species richness
Weeds	≤15% weed cover	≤10% weed cover	≤10% weed cover	≤5% weed cover	≤5% weed cover	≤5% weed cover
<b>Assisted Re-vegetation Areas</b>						
Plant Survival	≥80% survival of planted stock	≥90% survival of planted stock	≥90% survival of planted stock	≥95% survival of planted stock	≥95% survival of planted stock	≥95% survival of planted stock
Plant height	Evidence of growth	Evidence of growth	Evidence of growth	Evidence of growth	Evidence of growth	Evidence of growth

#### 5.4.4 Environmental Audits

A comprehensive internal environmental audit (late November 2020, 3.5 months after commencement of operations) was undertaken within the review period to review environmental performance and compliance with approval conditions and key management plans.

The November 2020 audit was undertaken generally in accordance with the schedule outlined in the OEMP. Site access limitations due to Covid transmission risks limited scheduling of further audit inspection activities at times during the 2020/2021 AER reporting period but due to the comprehensive nature of the audit in November 2020 and to lower environmental risks following completion of construction, the level of audit was considered suitable.

The Audit resulted in a set of recommendations for improvements that are progressively being addressed. Goldwind's off-site environmental management resources were applied at times, for site inspections, ensuring site staff were aware of the respective environmental management requirements and to refine on-site procedures and documentation.


EPA and DAWE also visited the site during the Reporting Period and were able to observe CHWF Environmental Performance and also had an opportunity to obtain a presentation on the innovative Identiflight System, to see a number of the installed IDF units and observe a shutdown of operating turbines as an Eagle passed over the turbines. The visiting representatives appeared satisfied with the site environmental performance.

## 6 Community engagement

### 6.1 Consultation undertaken within the review period

Local engagement activities within the review period remained affected by the COVID pandemic, however several local sponsorships and attendance at local events were able to take place. The 1800 number, info@ email and project address remained available to contact the project representatives. Community engagement activities and initiatives undertaken within the review period are summarised in Table 6.1.

Table 6.1: Community consultation and investment activity during the review period

Description	Details
Community Engagement activities	
Project website	<p>The project website (<a href="http://www.cattlehillwindfarm.com.au">www.cattlehillwindfarm.com.au</a>) was updated periodically throughout the review period with relevant announcements including the request for application for the community fund assessment panel, upcoming newsletter, and community fund.</p> <p>A new project logo was developed and released on the website in May 2020. This is now present on all project related communications.</p> 
Dedicated communication channels	A dedicated 1800 phone number and email address for the project was maintained throughout the review period, with 61 enquiries being received via these communication channels. Responses to enquiries was managed in accordance with the project's Enquiries and Complaints Handling Plan.
Project updates in local publications	A request for applications for the community fund assessment panel was advertised in the Highland Digest in June 2021
One-on-one meetings	Representatives from the project maintain engagement with a wide range of stakeholders, including neighbors within the near vicinity of the project, 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.
Media events and announcements	The only media release during the review period was in relation to the October Central Highlands Information Day, when representatives from PCA and GWA attended the Central Highlands Information Day on the 31 October in Miena. This was a great opportunity to speak with community members and provide information on the project.
Community Investment and Funding Initiatives	
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.
Community events and participation	<p>Representatives from PCA and GWA attended the Central Highlands Information Day on the 31 October in Miena. This was a great opportunity to speak with community members and provide information on the project.</p> <p>CHWF also proudly sponsored the Bothwell Sheep Station golf tournament on the 5th of February 2021, in support of Donate Life and Bothwell District High School.</p>
Community Investment and sponsorship	The annual 'Community Fund' of \$120,000 for the operational life of the project will commence in the next review period. A community fund assessment panel of 6 community members and 1 CHWF representative has been convened. Applications for the first Round of the fund open in August 2021 and will be accompanied by a media release.

## 7 Identiflight

### 7.1 Current status

Identiflight is designed to detect eagle movements and curtail turbine operation if eagles are considered at risk of collision with turbines and is part of a technology trial being carried out in accordance with the Collision Avoidance and Detection Plan (CADP) approved by DAWE, under EPBC Condition 6A. A Planning Permit for Identiflight infrastructure was issued by CHC on 30 January 2018. The infrastructure was installed within 2019 and first IDF operation commenced from 19 November 2019 in conjunction with commissioning of the first wind turbine.

Identiflight (IDF) comprises sixteen tower-mounted camera units strategically placed throughout the site which collectively cover the areas surrounding each of the 48 wind turbines, out to approximately one kilometre from each turbine in the vertical and horizontal planes.

The project layout in Figure 2.1 shows the 16 IDF Stations that together with an associated base station and communications system, comprise the CHWF Identiflight system (IDF Stations are also shown in Figure 7.1 below). The system uses a sophisticated optical imaging system and neural network to detect and classify birds within the vicinity of turbines and, based on predetermined and established criteria settings pre-emptively signals individual wind turbines to shut down when an eagle approaches a turbine, to reduce the risk of an eagle collision with the turbine. The system is continuously monitored, refined and criteria updated based on actual site data derived from eagle behaviour and system performance.

Installed within the O&M facility is a large television screen which provides real time visibility of eagle activity and curtailments within the wind farm (shown in Figure 7.1 below).

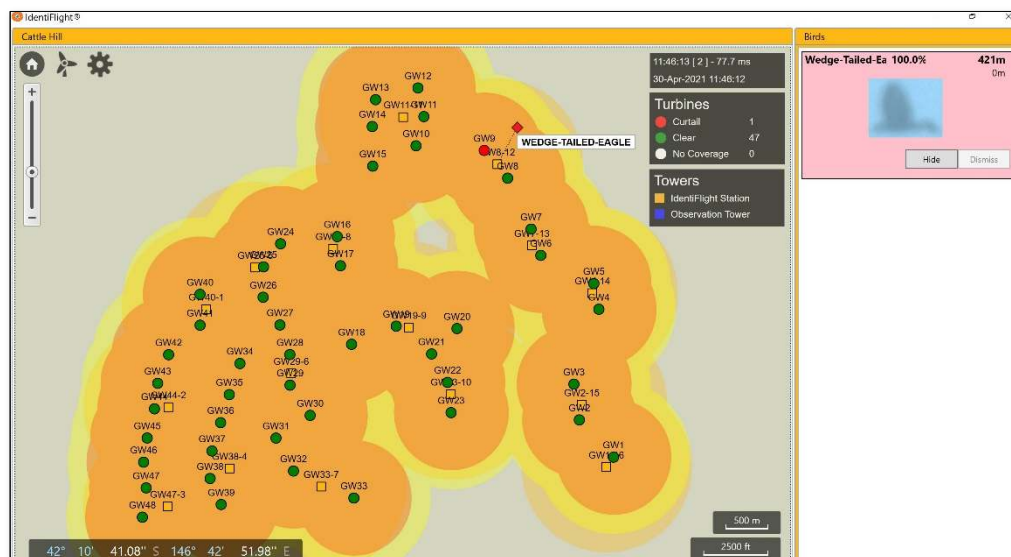


Figure 7.1: Identiflight Graphical User Interface installed within O&M Facility

Figure 7.2 shows an example of birds being tracked by the IDF system, which can be plotted as shapefiles based on measurements of the bird's speed, height, and trajectory, measured in real time, and summarised at 1 second intervals.



Figure 7.2: Example of Bird tracks captured by IDF within the wind farm



The extensive continuous monitoring of eagle movements within the vicinity of the turbines provides an extensive database of eagle behavior that can assist management of the risk of eagle collisions (Fig 7.3).

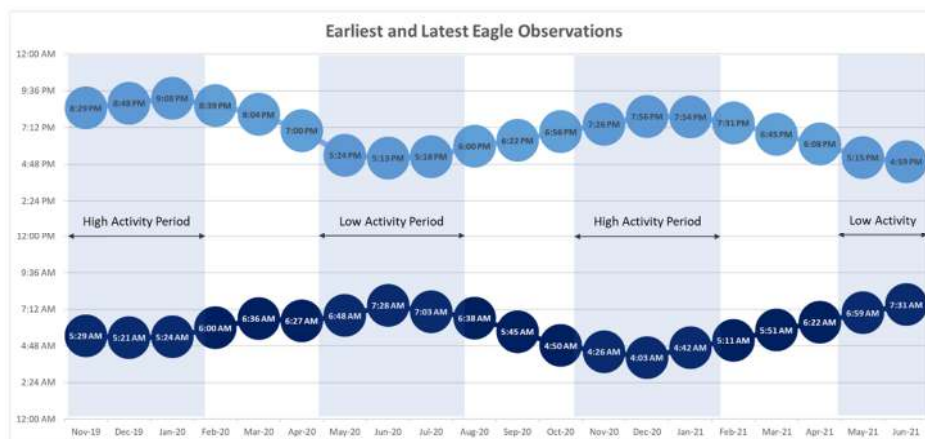


Figure 7.3: Example chart generated by IDF data showing earliest and latest eagle observations within the wind farm

Figure 7.4: Images of WBSE (Left) and WTE (right) picked up by IDF cameras



## **7.2 Identiflight activities undertaken within the review period**

The following summarizes key activities relating to the IDF trial undertaken during the review period.

- Vegetation management works were undertaken around the base of turbines where necessary to improve ground visibility for the purpose of conducting mortality monitoring surveys
- Continuous review and analysis of Identiflight records and updates on performance and effectiveness
- Adjustments to interfaces of the Identiflight and CHWF SCADA logic systems to achieve optimal responses to Identiflight information and responsive and safe operation of Turbines.
- A review of Identiflight visibility of Eagle Protection Zones around each Turbine was undertaken
- Review of improvement options for Identiflight if the visibility review indicated that improvements were necessary.
- Ongoing review and analysis of Identiflight system performance
- Ongoing review and analysis of SCADA interface and performance
- Hosted visit by representatives of DAWE, EPA, and DPIPWE (undertaken in March 2021)
- Maintenance of all Identiflight stations (completed in March and April 2021)
- Hosted workshop with representatives of DAWE (undertaken in May 2021)
- Awarded the Clean Energy Council innovation award (June 2021)

## 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 and other Management Plans required by the conditions of approval, submission of the Draft Decommissioning and Rehabilitation Plan required by DC2, ongoing site management and inspections, and completion of the IdentiFlight trial. None of these activities represent changes from the schedule of activities required by existing approvals.

A major focus for the site will be the assessment of the effectiveness of the IdentiFlight technology to mitigate the risk of collision of eagles with wind turbines, through an 18-month trial and reporting period. The findings of the trial will be publicly shared when complete.

Key activities to be undertaken between 1 July 2021 and 30 June 2022 are shown below:

### Operational activities

- Ongoing rehabilitation of areas disturbed by wind farm construction and weed control
- Ongoing inspections and maintenance of wind farm infrastructure
- Ongoing inspections and maintenance of IdentiFlight infrastructure
- Ongoing maintenance of SCADA and Communications infrastructure

### Activities to be undertaken in accordance with conditions of EPN 10105/1

- Ongoing implementation of the EMP (Operations) required by EPN Condition G11
- Continuation of monitoring in accordance with the Bird and Bat Mortality Monitoring Plan (EPN Condition FF10) including Phase 1 and Phase 2 monitoring for the Operations phase
- Continuation of monitoring required by the Eagle Nest Productivity Monitoring Plan (EPN Condition FF5)
- Completion of the two-year monitoring period specified in the Eagle Utilisation Monitoring Plan required by EPN Condition FF6 (will occur at the end of the November seasonal monitoring period).
- Continuation of implementation and record keeping required by the Hunting and Culling Management Plan (EPN Condition FF7)
- Implementation of the Turbine Shutdown Management Plan (FF16)
- Finalisation of the title registration process for protective covenants for the State listed *Discaria* species and Commonwealth listed Orchid species.
- Notifications and reporting of incidents as required.

### Activities to be undertaken in accordance with conditions of EPBC 2009/4839

- Conclusion of the 18-month IdentiFlight Trial (February 2022) required by the CADP
- Ongoing implementation of the Collision Avoidance and Detection Plan in accordance with EPBC Approval Condition 6c and review and update by August 2022.
- Ongoing monitoring in accordance with the Flora Offset Management Plan for Commonwealth listed orchid species within the three EPBC offset areas (EPBC Condition 23)
- Ongoing implementation of the Weed Management Plan.
- Notifications as required and where required, Incident Reporting.

## 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: Access Track from Substation to Turbine 20 and Western Turbine Groups*



*Photograph B2: Substation*





*Photograph B3: O&M Compound*



*Photograph B4: View west, Turbine 3 in foreground, western turbines in distance*





*Photograph B5: View north, Turbine 23 in foreground, northern turbines in distance*



*Photograph B6: View north, Turbine 40 in foreground, Lake Echo on left*



Photograph B7: Central Highlands Information Day, Miena, October 2020



Photograph B8: Meeting with DAWE representatives to discuss wind farm best practices (May 11, 2021)

## **APPENDIX C**

### **Hazardous Substances Inventory**

## Hazardous Substances Inventory, CHWF Operations Phase

*Last updated 11 August 2021*

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 patterns 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 <sup>5</sup>	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 DPIWWE 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 <i>Pterostylis pratensis</i> ; <i>Prasophyllum crebrinorum</i> ; <i>Glycine latrobeana</i> and <i>Discaria pubescens</i> 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 <i>Ptunarra brown butterfly</i> ; <i>Pterostylis pratensis</i> ; <i>Prasophyllum crebriflorum</i> ; <i>Glycine latrobeana</i> ; and <i>Discaria pubescens</i>	At all times during operation	EPN G11 Commitment 92	Addressed in induction training presentation provided to service team. All team members have also completed Bonorong 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

<sup>5</sup> 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 <i>Pterostylis pratensis</i> , <i>Prasophyllum crebriflorum</i> , <i>Glycine latrobeana</i> , and <i>Discaria pubescens</i> 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 <i>Discaria pubescens</i> 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 <i>Discaria</i> 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: EBPW 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 <i>Pterostylis pratensis</i> ; <i>Prasophyllum crebriflorum</i> ; <i>Glycine latrobeana</i> ; and <i>Discaria pubescens</i> .	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 <i>Pterostylis pratensis</i> ; <i>Prasophyllum crebriflorum</i> ; or <i>Glycine latrobeana</i> 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