Appendix Q – Public submissions response

windlab

PER public submissions report

Gawara Baya

Upper Burdekin

Report prepared for: Windlab

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Revision History

Document ID	Updated By	Changes	Date

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1 Introduction

Under section 98 of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), a draft Public Environment Report (PER) must be published, with an invitation for public comments. An invitation to comment on the Gawara Baya (Upper Burdekin) draft PER was posted on the project website and in relevant newspapers.[1] The PER was on public display and open to comment from 20 February 2023 to 5pm on 3 April 2023. Overall, 282 submissions were received within the public comment period, and another 48 were received outside of the public comment period.[2] Despite the submissions being received outside of time, Windlab has taken account of each of the submissions in finalising the Gawara Baya PER. Each submission was read by a project team member, summarised, and allocated a unique identification number (refer to the summary matrix provided at Appendix A of this document).

1.1 Summary of Submissions

Of the 282 submissions received within the public comment period, and the 48 received outside of the public comment period:

- 14 submissions were received by organisations (such as the Cairns and Far North Environment Centre and the Wet Tropics Management Authority);
- 32 submissions were standalone submissions received by individuals;
- 255 submissions were received via an online mass submission generator website and have each been considered as an individual submission; and
- 29 submissions were based on templates provided by networks and organisations.[3]

Figure 1-1 below provides an overview of the spread of submissions received across a number of sources.

[1] Being the Townsville Bulletin, the Courier Mail and the Australian.
[2] Please note that public comments received after 31 May 2023 may not be captured in published updated reports but will be read and considered by the project team.
[3] Noting 17 of these were template submissions submitted via the mass generator website submissions.

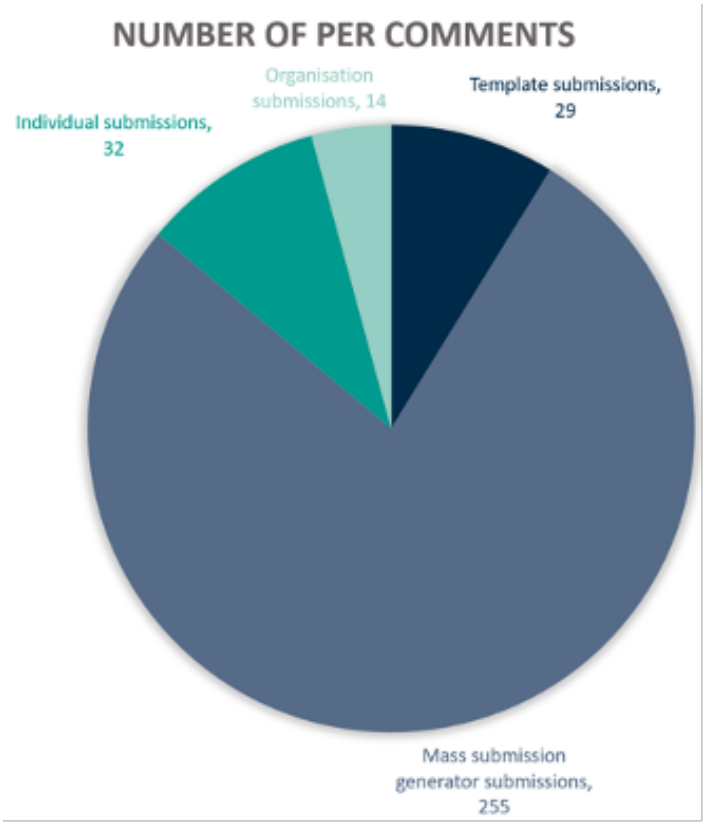

Figure 1-1: Analysis of source of submissions received

1.2 GEOGRAPHIC ANALYSIS

Of the submissions received, 140 submissions were identified as including the location of the submitter. Geographic analysis was undertaken using this information to determine broad areas where the submitters were located (refer Figure 1-2).

The majority (66.4%) of submissions were received from submitters in Queensland (being 93 out of 140). Of these:

- 34 submitters were located in metropolitan south-east Queensland, around the Brisbane, Sunshine Coast and Gold Coast regions;
- 34 submitters were located in the Atherton Tablelands region within the Far North Queensland area;
- 9 submitters were within or near Townsville;
- 5 submitters were located between the Rockhampton region and Maryborough;
- 4 submitters were between the Innisfail and Tully regions;
- 3 submitters were located between Townsville to Mackay;
- 3 submitters were located in and around the Mackay region;
- Only one submission was received from within the Hinchinbrook Shire regional council area (Ingham, approximately 55km from Mount Fox) the local government area within which the host community of Mount Fox is located.

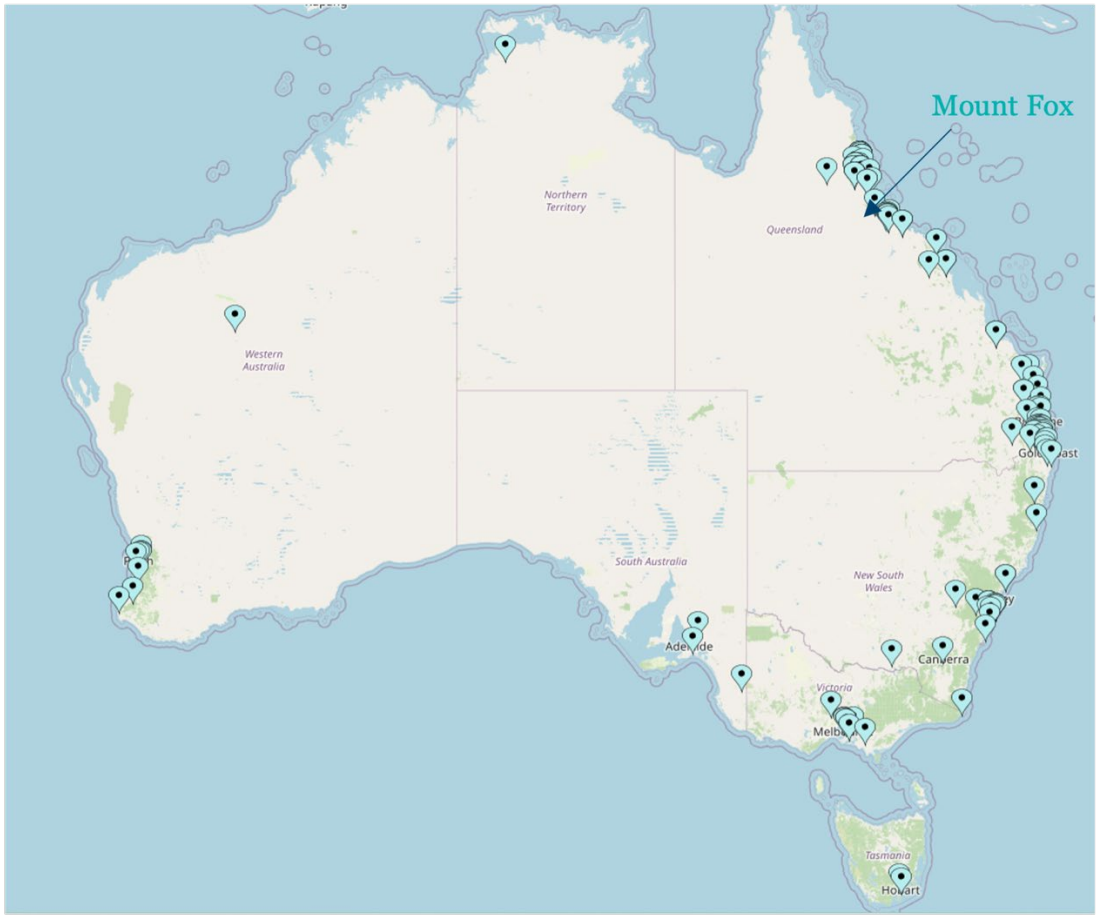

Figure 1-2: Geographic analysis of location of submitters

1.3 KEY THEMES

Similar concerns regarding the construction and operation of the wind farm were reiterated through many of the submissions. These can be grouped into the following 21 broad themes (Table 1-1). The numbers in the table below are not intended to total the number of submissions received (282) as many submissions included comments relating to more than one theme. A summary matrix identifying each theme raised by each individual submission is provided in Appendix A.

Table 1-1: Broad themes raised by submissions.

Broad theme	Number of submissions
Project location	141
Direct impacts to habitat and vegetation	197
Fragmentation and indirect impacts	63
Operation and turbines	47
Impact on Sharman's rock wallaby	56
Impact on koala	78
Impact on greater glider	44
Impact on red goshawk	42
Impact on masked owl	9

Broad theme	Number of submissions
Impact on magnificent brood frog	18
Impact on spectacled flying fox	16
World Heritage Areas	53
Cumulative impacts	33
Offsets	29
Inadequate species lists and surveys	26
Commitments and future use	32
Stakeholder engagement	20
Social and economic impacts	19
Assessment Process	26
Other policies and plans	22
Miscellaneous	40

A response has been prepared for each broad theme, and the relevant individual submissions to which the response relates is identified in the sections below. Where a submission has raised particular concerns not addressed by the overall theme response, the submission number is noted and additional information has been provided.

2 Submissions response by theme

2.1 PROJECT LOCATION

2.1.1 Overview of submissions relating to this theme

A total of 141 submissions related to the location of Gawara Baya. The majority of submissions under this theme stated their view that the project is poorly located within an area of high biodiversity with low / unreliable wind resource and questioned why the wind farm could not be relocated elsewhere.

Submissions highlighted the following biodiversity values of the project area and/or of the region and within close proximity to project area:

- Threatened species habitat and a high abundance of avifauna
- State-mapped terrestrial biodiversity corridor
- Skeletal soils and unique species
- Large area of remnant vegetation and a bioregion with a high extent of endangered and of concern regional ecosystems
- Eastern forests of Far North Queensland identified as a Priority Place
- Wet Tropics World Heritage Area (WTWHA) and other protected areas.

Submissions made the following statements regarding the wind resource (paraphrased from submissions):

- The location is marginal wind country
- The project is likely to have a low median capacity factor, similar to nearby Mt Emerald
- The region is prone to long periods of becalming conditions, which coincide with periods of greatest demand for electricity
- Public subsidy is likely needed to make the scheme economically viable
- Questioned capacity in the grid.

Submissions also raised concerns (paraphrased from submissions) relating to decarbonisation and the choice of the project area including:

- The remnant vegetation on site already combats climate change by cooling the earth and sequestering carbon
- The project is slated to contribute to decarbonisation but vegetation clearance involved will contribute to greenhouse emissions
- The true emissions of wind power are probably more than 10 times what is stated, as no allowance is made for a number of factors, including deforestation, poor wind conditions, and fossil fuel derived materials used in manufacture
- The wind farm will have extremely large upfront emissions costs, and a minimal ongoing effect on emissions reductions due to low capacity factor.

A number of submissions specifically raised concern for the impact Gawara Baya will have on WTWHA, protected areas and the terrestrial corridor, however these addressed in Sections 2.12 (WTWHA) and 2.3 (protected areas, terrestrial corridor).

Submissions 30, 40, 41, 45, 47, 48, 54, 56, 240, 249 and 274 requested greater explanation of if / how alternatives were considered, including (paraphrased from submissions):

- What other site alternatives were considered, including sites with less potential to impact WTWHA

- What factors informed site selection, and how / if biodiversity was considered
- Alternatives which avoid development activities listed as threats to biodiversity in *Scientific review of the impacts of land clearing on threatened species in Queensland*.

2.1.2 How did the draft PER address this theme

The draft PER did not explicitly discuss the drivers behind locating the project at its proposed location, although some discussion was provided in Section 1.4 about feasible alternatives. This information gap has been addressed in the final PER – see below.

The draft PER provided detailed discussion across the document that:

- Described the biodiversity values present within and surrounding the project area
- Quantified potential impacts to these values
- Outlined commitments by the proponent to implement avoidance and mitigation of environmental impacts through construction and operation of the wind farm. In particular, the Gawara Baya Environmental Management Plan (EMP) and Bird and Bat Management Plan (BBMP)
- Discussed alternative project designs that were considered and not taken forward.

2.1.3 Final PER updates related to this theme

In response to issues raised in submissions about the location of the project, the final PER includes a dedicated Section (1.3.1) that describes 'why this site'. This section addresses many of the concerns raised in submissions and explains the drivers behind the location, including:

- Location and nature of the wind resource; there is strong and consistent diurnal wind, and this has been proven through years of detailed study of the resource using on-site meteorological masts
- Proximity and access to transmission infrastructure
- Compatible underlying land use
- Windlab's ability and commitment to responsibly deliver a balanced project.

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding the site location and high biodiversity values, including:

- The development footprint has reduced with the redesign of the project. This impact reduction has been quantified in the PER
- Specifically, the following changes to the site layout have been made to prioritise environmental preservation:
    - Removing turbines – the number of turbines has been reduced to 69
    - Relocating turbines – turbines have been relocated to further reduce habitat fragmentation
    - Relocating infrastructure – the concrete batching plant has been relocated outside of areas considered to be key breeding habitat for the Sharman's rock wallaby
    - Minimising transmission line impact to Sharman's rock wallaby key breeding habitat–
        - selectively placing transmission line structures in already cleared areas or in areas of lower ecological value;
        - utilising taller towers so that the existing canopy can be retained where possible; and
        - clearing the minimum required for safe operations

- Windlab endeavours to maintain all vegetation (including canopy trees) where the transmission line crosses a major riparian zone (e.g., Douglas Creek and Michael Creek).

Section 1.4.3 of the final PER provides a detailed discussion of all project alternative considered, including how biodiversity values were a key driver of design decisions.

2.1.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to the project's location. These are addressed below.

Submission 20 compares the Gawara Baya location with the values of the Herbert River.

The Herbert River is located within the Herbert Basin and within the WTWHA; however, the development footprint is located in the Burdekin Basin, and located outside and 5 km to the west of the WTWHA. While the major watercourses within the project area (eg. Michael Creek) have high biodiversity value, they do not align with the values found along Herbert River within the WTWHA.

Submission 273 is concerned with impacts the transmission line will have on unique gorge systems with hoop pines.

It is uncertain if this comment is relevant to Gawara Baya or relates to another wind farm submission, as hoop pines (*Araucaria cunninghamii*) are not listed as a flora species observed within the project area in ELA 2020. However, while the development footprint indicates full clearing along the transmission line corridor, and is included in the impact calculations, it is the intention to only clear access tracks, retain and maintain vegetation to a height of 1 - 2 m, and to span major watercourses without any clearing.

Submissions 149 and 160 are also concerned the high abundance of avifauna has been ignored in the PER or only mitigated.

Extensive avifauna surveys have been undertaken during baseline surveys (refer PER Section 2.2) and continue to be undertaken as per the 24-month survey requirements of the PER Guidelines Appendix C – BBMP. Measures to avoid impacts during design and construction to avifauna that are MNES are outlined in PER Section 4 and during operation of the wind farm in the BBMP.

Submissions 277 and 249 raised the concern that the northern QREZ is no more than a circle on a map and should not be used to identify the location of renewable energy projects.

The site for Gawara Baya was strategically chosen by Windlab considering a number of factors, including the location of the wind resource, grid connection and current land uses. Comments regarding the QREZ, which are zones designated by the Queensland Government, are noted.

2.2 DIRECT IMPACTS TO HABITAT AND VEGETATION

2.2.1 Overview of submissions relating to this theme

This theme encompasses a range of issues raised in 197 submissions. Comments were not specific to an individual MNES, but rather impacts to habitat and vegetation more generally. Issues include concern for impacts from clearing vegetation and species habitats, and how the draft PER has presented, addressed and assessed these impacts. The majority of submissions raised general concern over the loss of vegetation and habitat.

Specifically, submissions 30, 107, 254, 262, 265, 273, 280, 281 raise the following issues:

- Draft PER does not properly describe the loss of species habitats, and threatened species habitat will be removed; it understates the extent that will be cleared
- The impact to habitat should be considered cumulatively (e.g. x ha for species A + x ha for species B) even where habitats co-occur
- There is a suite of species not included in the PER for assessment that should be included, or are included without extent of habitat loss stated
- Draft PER Section conclusion – should not say an important population will continue to occur.
- The PER should show a bird's eye image of full clearing, not just 'Photoshop' in turbines.

Submissions 19, 149, 160, 228, 244, 254, 273 raise concerns (paraphrased from submissions) about potential impacts to the following landscape features:

- Haulage roads and trucks will destroy ancient mountain tops
- Clearing rainforest and old growth tropical forest
- Ancient landscape with hollows/habitat value
- Ridgelines/high elevation site important for climate change refugia.

Submission 30 and others recommend a map of climate refugia within the project area be provided in the PER, along with how climate refugia are being protected.

2.2.2 How did the PER address this theme

Section 2 of the draft PER outlined the ecological investigations and surveys of the project area that have been undertaken over a period of several years and this provided a robust basis upon which to understand the biodiversity values and quantify impacts. Per the requirements of the EPBC Act, these studies focused on species listed as threatened and migratory under the Act i.e. MNES.

The likelihood of MNES being present within the project area was assessed based on these investigations by suitable qualified flora and fauna ecologists (refer ELA 2020 and ELA 2022). The results of these surveys and the ecology of MNES species with potential to be present have informed habitat mapping within the project area (survey subject to ecological investigations).

Habitat impacts presented in the PER have been calculated through intersecting the development footprint (the area of any proposed disturbance or infrastructure) with the mapped habitats. As specified in draft PER 3.1.1.1 for the purposes of the assessment, a conservative approach has been adopted, where it is assumed all vegetation will be removed within the development footprint.

The impact assessment of the habitat loss is assessed for each MNES individually, as directed by the PER Guidelines. Assessment of impacts to MNES have been made against the EPBC Act Significant Impact Guidelines 1.1 for species that have the potential to be significantly impacted by Gawara Baya, i.e. in order to understand whether the impacts are likely to be important, notable, or of consequence, having regard to their context or intensity (as per the definition of a 'significant impact'[4]). A detailed significant impact assessment was undertaken for all MNES with potential to be impacted by Gawara Baya (see PER Section 4).

With regards to rainforests, ancient landscapes and mountain tops, hollows, and climate change refugia the following aspects of the project and project area noted below and in the draft PER:

[4] As per the definition in the MNES Significant impact Guidelines 1.1 EPBC Act 1999

- Rainforest communities in the project area are limited to two small areas of simple notophyll vine forest. These occur in protected gullies and crevices totalling 2.6 ha and will not be impacted by the wind farm (refer draft PER Sections 3 and 5)
- The topography varies from steep, deeply dissected hills with prominent granite tors in the north and east of the project area, to more gentle and less incised foothills in the west and areas of reasonably level ground in the south. The entire project area is below 800 m a.s.l and the majority below 700m a.s.l. (draft PER Section 2)
- Avoiding, minimising and mitigating impacts to hollow-bearing trees is addressed in the draft PER EMP
- Where impacts to habitats for threatened species are significant, an offset will be provided (refer draft PER Section 4 and Gawara Baya draft Offsets Management Strategy)
- Climate change refugia within the site are discussed in draft PER Section 2.5.

2.2.3 Final PER updates related to this theme

The impacts to habitat and vegetation were addressed in detail in the draft PER, as directed by the PER Guidelines and any other relevant EPBC Act policy guidance.

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding habitat and vegetation impacts, including:

- As a result of further ecological studies, public consultation and feedback received on the draft PER, the layout of the project has been revised (See PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This has also resulted in a reduction in the length of access roads required. The new layout has reduced the development footprint by ~130 ha to 616.5 ha.
- A figure illustrating the location of climate change refugia within the project area has now been included in PER Section 2.5
- Wording throughout the PER, in particular in PER Section 2.4.3 Table 2.8 has been amended to be clearer on the total area and break down of habitat types to be cleared. Habitat area was incorrectly double counted in a number of submissions.

2.2.4 Specific issues raised under this theme

In addition to the general comments for the theme and response above, there is a specific issue related to vegetation and habitat, which is paraphrased from the submission and addressed below.

> *Submission 49 queried how a reduction of 56 wind turbines from the south, which was an economical and engineering decision, can be classed as a deliberate measure to avoid and reduce impacts to environmental values.*

There were a range of drivers behind design changes from the originally referred design. Ultimately, these changes resulted in the avoidance of impacts to habitat that would otherwise have been disturbed. Design changes made subsequent to the publication of the draft PER were primarily and specifically to avoid impacts to biodiversity values (see PER Section 1.4.3).

2.3 FRAGMENTATION AND INDIRECT IMPACTS

2.3.1 Overview of submissions relating to this theme

Concerns relating to indirect impacts were raised as a concern by 63 submissions. Issues noted included fragmentation by linear infrastructure, associated edge effects and indirect impacts to areas adjacent the development footprint and the surrounding landscape, and how Windlab will compensate for these impacts. Specific issues raised by submissions included the potential for:

- Increased weed presence
- Facilitating the movement of feral animals
- Allowing access to cattle / facilitating greater grazing intensity.

2.3.2 How did the draft PER address this theme

Potential impacts from fragmentation and edge effects were identified, described, and avoidance and mitigation measures outlined in draft PER Section 3.

Fragmentation and edge effects and the potential impacts to the State Biodiversity corridor are discussed in draft PER 3.1.1.2, while indirect impacts from habitat disturbance and degradation are addressed in Section 3.1.3. Potential impacts to fauna as a result vehicle strike are discussed in Section 3.1.4. How these impacts will be avoided, minimised and mitigated are outlined in Section 3.5. Specific measures to address these potential impacts are provided in the Gawara Baya EMP.

The EMP submitted with the draft PER includes a number of management sub-plans providing specific management objectives, targets and management actions for the following matters:

- Fauna management
- Vegetation management
- Construction weed management
- Bushfire
- Soils and sediments
- Noise
- Air emissions
- Surface water
- Hazardous materials
- Waste
- Site reinstatement and rehabilitation
- Feral predators.

2.3.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding indirect impacts, including:

- As committed to in the draft PER, targeted surveys have now been undertaken for magnificent brood frog. The species presence has been confirmed outside the development footprint, within the far north-eastern extent of the project area. Design changes have been made to remove construction from upstream of known habitat, and is located entirely within a different drainage basin. This eliminates any risk of sedimentation and changes in hydrological flow to known habitat

- The EMP has been updated to include additional sediment and erosion control measures, and specific measures to avoid and minimise impacts to other areas of potential magnificent brood frog habitat (presence not confirmed) during construction
- Additional design changes to address fragmentation
    - Reducing/removing infrastructure from Sharman's rock wallaby key breeding habitat (refer Section 2.5 below)
    - Relocating turbines to reduce habitat fragmentation
    - Minimising transmission line impact – Windlab has commissioned design work to ensure the proposed transmission line corridor is constructed with minimal impacts to the Sharman's rock wallaby. The finalised design includes the following mitigation measures where the transmission line overlaps with Sharman's rock wallaby mapped key breeding habitat:
        - Selectively placing transmission line towers in already cleared areas or in areas of lower ecological value;
        - Utilising taller towers so that the existing canopy can be retained where possible; and
        - Clearing the minimum required for safe operations
- Further design work has been undertaken to quantify the areas to be permanently cleared and the areas to be rehabilitated. A Preliminary Rehabilitation Plan has also been produced outlining how temporary disturbance areas are to be rehabilitated as soon as practicable (as reflected in the EMP). The Preliminary Rehabilitation Plan can be found at Appendix C to the EMP. Specifically:
    - Construction access roads are to be rehabilitated or progressively restored from 50 to 8 m wide. Light vehicle access roads are to be rehabilitated and progressively restored from 10 to 6 m wide.
    - Additional areas to be rehabilitated include concrete batching areas, temporary laydown areas, site offices, accommodation camp, rotor assembly area (refer Gawara Baya Preliminary Rehabilitation Plan at Appendix C to the EMP).
- Windlab has made additional commitments with regards to minimising clearing of canopy trees within the transmission corridor in key greater glider habitat and major riparian zones (refer to Section 2.7 below).

2.3.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to indirect impacts. These are paraphrased from the submissions and addressed below.

> *Submission 228 raised concern that construction of the wind farm will lead to sediment movement which will impact magnificent brood frog and habitat for the species.*

In addition to the measures identified above, implementing best practice erosion and sediment control (ESC) as per the International Erosion Control Association (IECA) 2008 Best Practice Erosion and Sediment Control Guidelines (BPESC) Standard, as committed to within the EMP soils and sediment sub-plan will ensure impacts to MBF are avoided and mitigated.

> *Submission 49 and 52 queried if and how weeds were to be managed within the project site, and why not all weeds. Submission 49 is concerned weed surveys should be done by botanists not a construction contractor, weeds should be controlled at a minimum within a 100 m zone around construction footprint, "weed hygiene certificates" have very narrow requirements, and Windlab should clearly list weed species it intends to control.*

As identified in the EMP, Gawara Baya has committed to the following management objectives for weeds in the project area:

- Minimise the potential for new weeds to be introduced into the project area
- Minimise the risk of spreading existing weeds within the project area and to adjacent areas
- Treatment of infestations if weed management targets are not achieved.

The EMP includes a list of weeds that have been recorded within the project area. The spread of these weeds and introduction of any new weeds will be monitored and managed. A site-specific weed management plan will be prepared prior to commencement by a suitably qualified person.

> *Submission 149 and 262 have concerns no assessment of the impact of fragmentation from access roads constructed for Gawara Baya, and access roads will be 50 to 100 m wide (Submission 149) and mostly 70 m wide and up to 120 m wide (Submission 262).*

Access roads will be constructed to 10 m wide for light vehicles and 50 m wide for construction access. These will be rehabilitated as soon as practicable to the narrower width required for Gawara Baya operation (being 6m for light vehicles and 8m for WTG access roads). The EMP identified the intent to install glider poles in key locations to address fragmentation.

> *Submission 262 raised the concern that infrasound will affect bat communication.*

Infrasound is low frequency sound, below 20 hertz. Bat calls are in the ultrasonic range, which is high frequency sound, above 20 kilohertz (20,000 Hz). Infrasound is below the hearing range of bats.

> *Submission 262 raised the concern that there presumably will be multiple access points into the Gawara Baya area by all the large haul trucks and other vehicles for the construction and maintenance of the wind farm, and there will be deaths and trauma to considerable numbers of wildlife as they try to cross the road.*

A single route and entry point is proposed into the project area. Trucks will be accessing the site from Charters Towers using existing roads and will not be traversing the WTWHA or any national parks. A number of mitigation measures are in place (see EMP, Appendix A) to minimise the risk of fauna strike. These include speed limits on all internal tracks and avoidance of construction during dusk hours within 500 m of occupied Sharman's rock wallaby rockpiles.

> *Submission number 49 requested details on the rehabilitation, including which species will be used and how they will be sourced.*

A Preliminary Rehabilitation Plan has been prepared and is attached to the EMP in Appendix A of the final PER. This includes rehabilitation methodology. As stated in Section 4 of the Preliminary Rehabilitation Plan, rehabilitation will include local seed collection, and salvage of cleared vegetation, topsoil and seedbank.

2.4 OPERATION AND TURBINES

2.4.1 Overview of submissions relating to this theme

A total of 47 submissions raised concerns about the impacts of turbine operation, and how the draft PER has presented, addressed and assessed these impacts.

Submissions 113, 149, 228, 254, 262, 265, 266, 267, 270, 280, and 281 made the following statements regarding the potential risks from turbine collisions (paraphrased from the submissions):

- *Migratory and unlisted bird species have not been addressed satisfactorily in the PER*
- *Impacts to threatened and migratory bird species have been down-played, including for red goshawk, masked owl, fork tailed swift, and white throated needletail, including in the collision risk assessment, which has categorised risks as too low*
- *There is too much uncertainty about the impact on migratory birds and other animals, including insects*
- *Modelling or other data were requested to substantiate the claim that there will be "Negligible risk of turbine collision" to the masked owl*
- *Windfarms are recognised in the conservation advice for white throated needletail as a direct mortality threat and barrier to migration*
- *Wind turbines have a negative effect on bat, as a result of turbine collision and barotrauma*
- *Spectacled flying-fox has been killed at Mt Emerald Wind Farm to the North, with northern freetail bat the most frequently killed*
- *Placing wind turbines in the middle of a largely intact ecosystem will have negative effects on that ecosystem due to bat deaths and other impacts.*

Submissions 123, 262, 267, 277, and 281 made the following statements regarding the draft Bird and Bat Management Plan (BBMP) (paraphrased from the submissions):

- *The proposed measures to minimise impacts to birds and bats are inadequate*
- *The following specific measures are questioned – adequacy of curtailment measures, removal of nest or roost tree to avoid collisions, shutdown only as a last resort*
- *Commitments regarding management actions and compensatory measures including offsets are vague*
- *Implementation of actions will not have appropriate oversight from government regulators*
- *The following suggestions were made:*
    - *Increase the collision monitoring post construction from two years to ensure a robust analysis of turbine incidences and allow for operational measures to accommodate the updated data*
    - *Make Bird and Bat Mortality Monitoring Program reports publicly available*
    - *Use pre-existing bird and bat data to inform design and fauna management strategies*
    - *Investigate turbine design options to reduce impact to wildlife including countershading blades and other new technologies as a priority to reduce collision rates.*

2.4.2 How did the draft PER address this theme

Per the requirements of the EPBC Act, the draft PER focused on species listed as threatened and migratory under the Act i.e. MNES. However, the draft BBMP also addressed a number of other bird species, including those that are listed only under the Queensland *Nature Conservation Act 1992* (NC Act) or are not listed as threatened (refer BBMP risk assessment) but have been observed within the project area and may fly at rotor swept height.

The potential impacts from turbine collision were presented in draft PER Section 3.2. A risk assessment was undertaken to determine overall collision risk for each species, considering both the likelihood and the consequences of collisions, based on Lumsden et al. (2019) (refer PER Section 3.2.3). The collision risk assessment informed the significant impact assessment for MNES in Section 4 of the PER. As per the PER guidelines, this risk assessment method was undertaken rather than collision risk modelling. Modelling was not considered appropriate given the limited amount of data available, particularly for threatened species, which by nature are rare. The BBMP takes a conservative approach to defining 'high risk' turbines to address the inability to undertaken formal collision risk modelling.

The draft bird and bat management plan (BBMP) (PER Appendix B), addresses the risk and potential impacts to species from turbine collision. Windlab has committed to the following outcomes in the draft BBMP:

- Outcome 1: The risk of impacts to listed bird and bat species at Gawara Baya will be minimised over the life of the wind farm.
- Outcome 2: Gawara Baya will contribute to an industry-wide improved understanding of collision risk and continual improvement about how risks are addressed.

Impact management measures proposed in the draft BBMP are consistent with those adopted across the wind industry and include, but are not limited to:

- Adopting current best practice management measures (e.g. low wind curtailment, whereby the wind turbines are prevented from rotating when there is insufficient wind to produce power)
- Carcass searches for at least the first two years of operation, undertaken over a 28-day cycle, coupled with carcass persistence trials and searcher efficiency trials (refer Appendix B of the BBMP)
- Ongoing monitoring will include long term site utilisation surveys; annually for the first 2 years or operation, then once every three years for the life of the project
- Identification of high-risk turbines through collision risk mapping, where monitoring will be focused
- Adaptive management of the wind farm including triggers for implementing management measures (e.g. further curtailment, shut-down procedures, or additional offsets/compensatory measures)
- As new technologies, management and mitigation measures become available and are demonstrated to be effective, they will be adopted at Gawara Baya.

Findings of monitoring data will be made available to relevant stakeholders and groups (refer BBMP Section 5.1).

The BBMP will be conditioned in approvals and will be progressively updated with additional information including as new technology emerges.

2.4.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding collision risk, as discussed below.

As a result of further ecological studies, public consultation and feedback received on the draft PER, the layout of the project has been revised (See PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This will reduce the collision risks to birds and bats.

The BBMP has also been updated based on additional field survey results. This includes adding species to the risk assessment and updating the turbine risk mapping.

2.4.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are two specific issues related to collision risks. These are paraphrased from submissions and addressed below.

Submission number 270 queried if any studies on the impacts of wind farms on Australian raptors has ever been done? If so, how do the results apply to this development?

Large soaring birds and species with high wing loading like raptors are more at risk from turbine collision due to their being less agile and restricted forward field of view (Bennun et al. 2021). Wedge-tailed eagles have been recorded colliding with wind turbines at most wind farms in Australia (see NA 2023, PER Appendix G). Extensive bird utilisation surveys have been undertaken at Gawara Baya to determine the species most at risk from turbine collision. This has informed the collision risk assessment which was tailored from an approach developed by the Arthur Rylah Institute, an arm of the Victorian Government (see PER Section 3.2.3 / BBMP Section 3.2). Turbine collision risk will be managed using measures outlines in the BBMP, and these measures are consistently applied across the wind industry in Australia.

Submission number 92 raised the concern that studies show air circulation is altered from windmills changing microclimate nearby. Submission number 42 raised the concern that clearing remnant forest for the wind farm will change the wind flows in the area and the water cycle.

A number of scientific articles have been published on the effects of wind energy on microclimate. While there is some evidence that enhanced vertical mixing of air due to turbulence generated by wind turbine rotors has a local scale effect on surface temperature, these effects are very small and, while of scientific interest, do not pose any real risk to flora and fauna (Stergiannis et al. 2021).

2.5 IMPACT ON SHARMAN'S ROCK WALLABY

2.5.1 Overview of submissions relating to this theme

Construction of Gawara Baya will result removal of 598 ha habitat for Sharman's rock wallaby.

Concerns about impacts to this species have been raised by 56 submissions. Submissions highlighted the following potential impacts as being of particular concern:

- Removal of 'habitat critical' / key breeding habitat
- Impacts to population numbers and resulting gene pool effects
- Mortality from vehicle strike
- Entrapment in excavation pits
- Increased predation from feral predators
- Impacts on breeding cycle through habitat disturbance and mortality of breeding adults
- Increased fire
- Increased noise.

Concerns were raised by submissions 30, 49, 107, 113, 254, 265, 266, 273, and 281 surrounding the scale impacts and the clarity of how these impacts were presented. The following statements were made in submissions (paraphrased from the submissions):

- *The proponent plans to clear 1,271 ha of Sharman's rock wallaby habitat*
- *The scaling back of wind turbines from 136 to 80 has led to an increase of critical habitat destruction for the Sharman's rock wallaby*
- *The proponent must provide a population assessment for Sharman's rock wallaby as the number of individuals on site and the impact to the population is not known / not stated*
- *Vague and inexact language to describe clearing impacts to Sharman's rock wallaby habitat is dishonest and misleading. Quoting percentage of habitat to be cleared within the project area is obfuscating the truth*

- *This project shows turbines sitting on the top of rocky areas (Sharman's rock wallaby habitat) in every instance*
- *The proponent needs to make clear the distinction between habitat essential to the survival of the Sharman's Rock Wallaby and other habitat*
- *The proponent must provide how overall Sharman's rock wallaby habitat is being cleared*
- *Why has a map of rockpiles inhabited by Sharman's rock wallabies not been produced already and presented in this report?*

Submission numbers 3, 30, 49, 107, 113, 254, 265, 266 and 273 raised the following concerns around management and offsets related to Sharman's rock wallaby. The following statements were made in submissions (paraphrased from the submissions):

- *The PER should state how much money will be generated for pest management for the protection of Sharman's rock wallabies and alongside an indication of who will be employed to do this work, we suggest the Gugu Badhun*[5]
- *'No-go zones' won't compensate for critical habitat destruction where rockpiles will be blasted*
- *Loss of habitat for a range-restricted species such as Sharman's rock wallaby cannot be offset.*

2.5.2 How did the draft PER address this theme

Sharman's rock wallaby is known to occur in the project area (see PER Appendix E, F). The highest concentrations of individuals were recorded in shelter habitats, which are likely to provide critical habitat resources. Shelter areas within the project area comprise complex arrangements of stacked granite or basalt boulders ('rock piles'), as well as vine thickets along some riparian zones.

Section 2.4.3 and 4.3.3 of the draft PER discussed the habitat types and quantum of impacts to each habitat type. All areas of habitat are considered 'habitat critical to the survival of the species'.

Details of how habitat is defined and has been mapped was outlined in Section 2.4.2 of the draft PER. The hectares of habitat available for the species within the project area (area surveyed) and within the disturbance footprint (to be cleared), as well as the percentage of habitat to be cleared within the project area are provided. This is to provide clarity and context to the habitat clearance.

The extent (number of hectares) of habitat to be cleared for Sharman's rock wallaby is larger in the draft PER than for the 136 turbine layout presented in the EPBC act referral documentation. As stated in draft PER Section 1.4.3, this is because:

- Additional programmed field assessments were undertaken, expanding the area of mapped habitat for Sharman's rock wallaby across the project area
- Further detailed design work determined the original layout would not have been constructible due to insufficient area allowed for the turbine hardstand and some access tracks, with wider construction corridors and hardstand allowances required. Turbines were subsequently dropped from the layout to reduce impacts.

Potential impacts from construction of the wind farm were identified in draft PER Sections 3 and a detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.3.3. All impacts raised in submissions (per the list above) were addressed.

The draft PER also included details of how impacts to Sharman's rock wallaby have been avoided and mitigated, and these were considered in the detailed impact assessment provided as per the EPBC Act

[5] Engagement with the Gugu Badhun is addressed in Section 2.17 below

significant impacts guidelines in draft PER Section 4.3.3. The EMP provided with the draft PER included sub-plans to address vegetation and fauna management, including measures relating to Sharman's rock wallaby. A commitment to avoid impacts to occupied rock piles was included.

The offsets proposal provided with the draft PER was in its early stages of development and consequently did not contain the full suite of information of interest to authors of submissions.

2.5.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding Sharman's rock wallaby. More work has also been undertaken to develop a fuller suite of management and mitigation measures for the species, and the offsets proposal has been further developed. These updates to the final PER are detailed below.

Since the draft PER, additional avoidance measures have been implemented (see PER Section 4.2.1). These include:

- Removing or relocating WTGs with the potential to impact mapped key breeding habitat for the Sharman's rock wallaby. The resulting reduced layout of 69 turbines (from 80 in the draft PER) has also resulted in a reduction of access tracks
- Rerouting the transmission line corridor to ensure it avoids Sharman's rock wallaby mapped key breeding habitat where possible. Where the transmission line intersects with the Sharman's rock wallaby mapped key breeding areas, the vegetation canopy will be retained where possible, with clearing restricted to a 4 m wide unsealed track. A more complex construction methodology using taller structures (~45 m), aerial stringing of overhead lines above the canopy, and more frequent maintenance will be implemented to achieve this
- Relocation of the southern concrete batching pad further south, removing it from an area mapped as key breeding habitat for the Sharman's rock wallaby.

This has reduced the total area of Sharman's rock wallaby habitat to be impacted from 662 ha to 598 ha. Impacts to mapped key shelter / denning habitat have been reduced by more than 75%, from 51.8 ha to 12.5 ha.

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint. 332.4 ha of Sharman's rock wallaby habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

A standalone Sharman's rock wallaby sub-plan has been developed and is included in the EMP (see EMP Section 7.12). This plan includes the following additional commitments to those originally proposed in the draft PER:

- Where there is an identified occupied Sharman's rock wallaby rock cluster within 500 m of construction activities, construction will be scheduled outside of dusk hours where practical to minimise disturbance to Sharman's rock wallaby and other foraging fauna species
- Travel will be avoided on the section of an access track should it sit within 500 m of an occupied rock cluster, where practical. Should travel be necessary along that section of road, travel speeds will be reduced to 5-10 km / hr.

A monitoring program for Sharman's rock wallaby has also been developed, to monitor species presence and habitat condition over time (refer EMP Section 7.12.6). The program will use remote cameras across Sharman's rock wallaby habitat to understand the proportion of occupied vs unoccupied sites and detect movement between rock piles over time. This data will be shared with relevant conservation groups, so the project contributes to the scientific understanding of the Sharman's rock wallaby. Habitat condition monitoring will be focused on understanding changes to habitat condition over time and will be used to interpret any observations of Sharman's rock wallaby presence. The monitoring program will be used to inform the pre-existing contingencies and corrective actions in EMP Section 7.12.7 (Appendix A).

Other updates to the PER include:

- Wording throughout the PER, particularly in Section 2.4.3 has been amended to be more clear on the total area and breakdown of habitat types to be cleared.
- Additional rehabilitation commitments, including prioritising rehabilitation of temporary construction areas within 500m of colonies – preliminary rehabilitation plan (EMP, Appendix A)

The offset management strategy (OMS) has also been updated. Offsets for this species will be delivered on a proximal property where the species is known to occur. Field surveys have been undertaken to ground truth the habitat available for target species, determine the presence of target species, and determine the quality of habitat for the species. The quantum of offsets to be delivered has been calculated using the Commonwealth Offsets Assessment Guide (OAG). An overview of management measures and how the offsets will result in a conservation gain for the species is also provided. A detailed Offset Area Management Plan (OAMP) will be developed. Refer to updated OMS, provided as Appendix J to the PER.

2.6 IMPACT ON KOALA

2.6.1 Overview of submissions relating to this theme

Construction of Gawara Baya will result the removal of 614 ha habitat for koala. Concerns about impacts to this species have been raised by 78 submissions. Submissions highlighted the following potential impacts as being of particular concern:

- Removal of koala habitat
- Fragmentation / reduced connectivity
- Reduction in quality and quantity of food (loss of food trees)
- Loss of habitat that is likely to remain suitable for the species under climate change scenarios
- Mortality of koalas from vehicle strike and predators
- Interruption of breeding cycle from turbine noise masking male calls
- Causing stress to koalas making them more susceptible to disease
- Impact on the ability of local koala population to recover from drought.

2.6.2 How did the draft PER address this theme

Koala is known to occur in the project area (see PER Appendix E, F). Section 2.4.2 and Section 4.4 of the draft PER discussed the habitat types and quantum of impacts to each habitat type. All areas of habitat are considered 'habitat critical to the survival of the species' and the project area is also considered to support an important population of koala. Definitions from the National Recovery Plan for the species (DAWE 2021) have been applied.

The draft PER assesses all feasible impacts from the project to the species. Potential impacts from construction of the wind farm were identified in draft PER Section 3 and a detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.4.3.

The draft PER also included details of how impacts to koala have been avoided and mitigated, and these were considered in the detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.4.3. The EMP provided with the draft PER included sub-plans to address vegetation and fauna management, including measures relating to koala and its habitat.

The offsets proposal provided with the draft PER was in its early stages of development.

2.6.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding koala. More work has also been undertaken to develop a fuller suite of management and mitigation measures in the EMP, and the offsets proposal has been further developed. These updates to the final PER are detailed below.

As a result of further ecological studies, and public consultation and feedback received on the draft PER, the layout of the project has been revised (See PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This has also resulted in a reduction in the length of access roads required. The new layout has a reduced overall footprint and has reduced the impact area on koala habitat from 746 ha to 614 ha.

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint. 467.1 ha of koala habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

The offset management strategy (OMS) has been updated. Offsets for this species will be delivered on proximal properties where the species is known to occur. Field surveys have been undertaken to ground truth the habitat available for target species, determine the presence of target species, and determine the quality of habitat for the species. The quantum of offsets to be delivered has been calculated using the Commonwealth Offsets Assessment Guide (OAG). An overview of management measures and how the offsets will result in a conservation gain for the species is also provided. A detailed Offset Area Management Plan (OAMP) will be developed. Refer to updated OMS, provided as Appendix J to the PER.

2.6.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to koala. These are paraphrased from submissions and addressed below.

Submission number 3 raised concerns that the critical importance of moist eucalypt forests for koala is being investigated by scientists and community groups, in collaboration with CSIRO and other Scientific institutions. The submission stated that no major developments should be approved in these critical landscapes until their importance for vulnerable and endangered species is better understood.

The proponent has agreed to participate in the CSIRO's National Koala Monitoring Program (refer to Box 1 in Section 4.4.3 of the PER for detail) as a Tier 1 monitoring site. Multiple monitoring methods will be implemented at this site, with frequent and recurrent data collection. Data will allow scientists to calibrate the accuracy of individual monitoring methods and apply these learnings across the program. The data will also provide important information on the ecology of the koala, in an area towards the northern extent of its geographic range and where our understanding is less complete than in other regions.

Submission number 30 raised the concern that Sharman's Rock Wallaby and Greater Glider have species-specific mitigation plans, but these have not been provided for koalas as a species with significant residual impacts.

The Sharman's rock wallaby sub-plan and the northern greater glider sub-plan were written as the nature of habitat requirements and the impacts to these species require specific and detailed mitigation measures. The mitigation measures in place for the koala apply more broadly and are included within the fauna management, vegetation management, and other sub-plans of the EMP (see above), so a detailed species-specific sub-plan was not necessary.

Submission numbers 244 and 272 raised concerns that there should be further studies to determine if the koala population within the project area could be considered a 'valued population', including genetic diversity, koala density, and whether important pathogens such as Chlamydia pecorum are present.

A 'valued population' as defined in the National Recovery Plan for koala is synonymous with an 'important population' as defined in the Conservation Advice for the species (DAWE 2022a, 2022b). The PER has assessed the population of koala at Gawara Baya to be an important (and therefore valued) population because:

- The number of koalas seen in the project area indicate a population potentially higher than previously noted for the region
- Koalas were observed to be actively breeding
- Extensive availability of suitable habitat
- The population is likely to be a key source population for breeding or dispersal and large enough for maintaining genetic diversity.

The importance / value of the koala population has been considered when assessing impacts from the Gawara Baya in Section 4 of the PER. The population of koalas at Gawara Baya is expected to persist.

Submission number 244 also raised concerns that the statement 'koalas tend to move little under most conditions [and] no one animal is likely to disperse across the entire area of suitable habitat' was not true of koalas living in the contiguous forests of the Einasleigh Uplands. The submitter cited a study on koalas in the Bluff Forest where a radio-tracked koala had been recorded with a home range of 3,000 ha and had dispersed over a 12 km straight-line distance.

The 614 ha of koala habitat to be cleared is spread throughout the 29,156 ha of habitat mapped within the project area. The straight-line distance between the northern-most point of the development footprint and the southern-most is approximately 25 km. This area is significantly larger than the area cited. The conclusion that no one animal is likely to disperse across the entire area of suitable habitat has been kept, however wording in Section 4 of the PER has been updated for clarity, and to acknowledge the dispersal of koalas, particularly subadults post weaning.

> *Submissions 30, 107, 244, 254, 265, and 273, considered impacts from the project to be unacceptable because the project conflicts with the recovery plan for koala. These submissions stated that the proponent should avoid clearing any habitat where koalas have been observed.*

The goal of the recovery plan is *to stop the trend of decline in population size of the listed Koala, by having resilient, connected, and genetically healthy metapopulations across its range, and to increase the extent, quality and connectivity of habitat occupied* (DAWE 2022b). To support this goal, three objectives have been set in the recovery plan:

1. A. The area of occupancy and estimated size of populations that are declining, suspected to be declining, or predicted to decline are instead stabilised then increased. Then, B. The area of occupancy and estimated size of populations that are suspected and predicted to be stable are maintained or increased
2. Metapopulation processes are maintained or improved
3. Partners, communities and individuals have a greater role and capability in listed Koala monitoring, conservation and management.

Gawara Baya is not anticipated to cause a long-term decrease in the size of the population occurring on the site, reduce the area of occupancy of the species, or reduce connectivity within the site or across the broader landscape (refer to detailed impact assessment in the PER for rationale). No more than 614 ha of habitat, which equates to 2.1% of the total mapped habitat within the project area, will be cleared. Large areas of occupied and unoccupied habitat will remain in the project area and will continue to be available to support the long-term persistence of the species. To support the third objective of the recovery plan, the proponent has agreed to participate in the CSIRO's National Koala Monitoring Program (refer to Box 1 in Section 4.4.3 of the PER for detail).

2.7 IMPACT ON GREATER GLIDER

2.7.1 Overview of submissions relating to this theme

Construction of Gawara Baya will result in the removal of 581 ha habitat for greater glider (northern). Concerns about impacts to this species have been raised by 44 submissions. Submissions highlighted the following potential impacts as being of particular concern (paraphrased form submissions):

- Removal of critical habitat
- Fragmentation – short gliding distance and won't be able to traverse roads to mate
- Removal of hollows / habitat trees, including clear-felling, leading to direct trauma or starvation and exposure
- Infrasound (sound below the hearing range of humans) may impact greater glider if the species, which is thought to be mute, is found to vocalise in the infrasound range.

2.7.2 How did the draft PER address this theme

Greater glider is known to occur in the project area (see PER Appendix E, F). Section 2.4.2 and 4.5.3 of the draft PER discussed the habitat types and quantum of impacts to each habitat type. Denning and foraging habitat is considered to be 'habitat critical to the survival of the species'.

The draft PER assesses all feasible impacts from the project to the species. Potential impacts from construction of the wind farm were identified in draft PER Sections 3 and a detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.5.3.

The draft PER also included details of how impacts to greater glider have been avoided and mitigated, and these were considered in the detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.3.3. The EMP provided with the draft PER included sub-plans to address vegetation and fauna management, including measures relating to greater glider. A commitment to install glider poles and nest boxes was included.

2.7.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding greater glider. More work has also been undertaken to develop a fuller suite of management and mitigation measures for the species, and the offsets proposal has been further developed. These updates to the final PER are detailed below.

As a result of further ecological studies, public consultation and feedback received on the draft PER, the layout of the project has been revised (refer PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This has also resulted in a reduction in the length of access roads required. The new layout has a reduced overall footprint and has reduced the impact area on greater glider habitat from 709 ha to 581 ha.

A standalone greater glider sub-plan has been developed and is included in the EMP (see EMP Section 7.13). This sub-plan includes the following additional commitments to those originally proposed in the draft PER:

- Undertake detailed design to determine whether taller transmission towers (~45 m high) can be utilised to string the transmission line above the canopy line in greater glider foraging and denning/shelter habitat in order to reduce tree lopping in key areas to maintain the canopy and habitat connectivity
- Undertake detailed design to determine whether reduced clearance corridors can be implemented in areas of key greater glider habitat to retain as much habitat connectivity as possible
- Endeavour to maintain all vegetation (including canopy trees) where the transmission line crosses a major riparian zone (e.g., Douglas Creek and Michael Creek), subject to detailed design, with consideration for topography, access and vegetation canopy height

A Greater Glider Monitoring and Management Plan (refer EMP Greater-glider sub-plan, at Appendix A) will be developed and implemented including a 5-year monitoring plan and mitigation measures to enhance movement opportunities into areas of habitat 'islands' where surrounded by linear infrastructure, and monitor for continued presence within these areas.

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total

construction disturbance footprint. 329.69 ha of greater glider habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

The offset management strategy (OMS) has been updated. Offsets for this species will be delivered on proximal properties where the species is known to occur. Field surveys have been undertaken to ground truth the habitat available for target species, determine the presence of target species, and determine the quality of habitat for the species. The quantum of offsets to be delivered has been calculated using the Commonwealth Offsets Assessment Guide (OAG). An overview of management measures and how the offsets will result in a conservation gain for the species is also provided. A detailed Offset Area Management Plan (OAMP) will be developed. Refer to updated OMS, provided as Appendix J to the PER.

2.8 IMPACT ON RED GOSHAWK

2.8.1 Overview of theme raised

Construction of Gawara Baya will result the removal of 616 ha habitat for red goshawk. Concerns about impacts to this species have been raised in 42 submissions. Submissions highlighted the following potential impacts as being of particular concern:

- Removal of habitat
- Impacts to population numbers
- Fragmentation
- Turbine collision
- Interrupted breeding cycle and reduced breeding success through mortality, habitat degradation, and fragmentation
- Reduced food resources (impacts to prey species)
- Reduced health due to environmental stress
- Cumulative impacts.

Concerns were also raised by submission numbers 13, 30, 107, 271, 268, 270 surrounding the scale impacts and the appropriateness of offsets. The following statements were made in submissions (paraphrased from submissions):

- *Habitat should be considered habitat critical to the survival of the species and should not be developed*
- *Impacts to essential habitat are unreasonable given the conservation status of the species, which has worsened since the project proposal began*
- *Cannot offset the removal of red goshawk habitat*
- *No amount of mitigation or offsets can protect this species*
- *Insufficient information on the red goshawk has been recorded in the PER.*

Submissions 113, 266, 267, 268, 267, 280, 281 disagreed with the risk assessment conclusion that red goshawk is at 'moderate risk' of turbine collision and were concerned red goshawk cannot survive in a wind turbine setting, and the BBMP approach to managing impacts is inadequate were made.

Submissions relating to turbine collision and the BBMP are addressed in detail in Section 2.4 above.

Submissions relating to offsets are addressed in detail in Section 2.14 below.

Submissions relating to cumulative impacts are addressed in detail in Section 2.13 below.

2.8.2 How did the draft PER address this theme

Red goshawk is known to occur in the project area (see PER Appendix E, F). Section 2.4.2 and 4.9 of the draft PER discussed the habitat types and quantum of impacts to each habitat type. All areas of habitat are considered 'habitat critical to the survival of the species' and the project area is also considered to support an important population of red goshawk. Definitions from the National Recovery Plan for the species (DERM 2012) have been applied.

The draft PER assesses all feasible impacts from the project to the species. Potential impacts from construction of the wind farm were identified in draft PER Sections 3 and a detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.9.3.

The bird and bat management plan (BBMP) (PER Appendix B), addresses the risk and potential impacts to red goshawk from turbine collision (Section 2.4 above).

The draft PER also included details of how impacts to red goshawk have been avoided and mitigated, and these were considered in the detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.9.3. The EMP provided with the draft PER included sub-plans to address vegetation and fauna management, including measures relating to red goshawk and its habitat.

The offsets proposal provided with the draft PER was in its early stages of development and consequently did not contain the full suite of information of interest to authors of submissions.

2.8.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding red goshawk. More work has also been undertaken to develop a fuller suite of management and mitigation measures for the species, and the offsets proposal has been further developed. These updates to the final PER are detailed below.

As a result of further ecological studies, public consultation and feedback received on the draft PER, the layout of the project has been revised (See PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This has also resulted in a reduction in the length of access roads required. The new layout has a reduced overall footprint and has reduced the impact area on red goshawk habitat from 769 ha to 616 ha.

The definition of habitat critical to the survival of the species was reviewed and the impact assessment has been updated in the final PER to include both foraging and nesting habitat within the project area as habitat critical to the survival of the species. The significant impact assessment for the criterion *adversely affect habitat critical to the survival of the species* has been updated to reflect this, with the conclusion updated to potential (PER Section 4.9.3).

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint. 342.56 ha of red goshawk habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

The offset management strategy (OMS) has been updated. Offsets for this species will be delivered on two properties, including on one property where the species has been recorded nesting. Field surveys have been undertaken to ground truth the habitat available for target species, determine the presence of target species, and determine the quality of habitat for the species. The quantum of offsets to be delivered has been calculated using the Commonwealth Offsets Assessment Guide (OAG). An overview of management measures and how the offsets will result in a conservation gain for the species is also provided. A detailed Offset Area Management Plan (OAMP) will be developed. Refer to updated OMS, provided as Appendix J to the PER.

Refer also Section 2.4 above for updates to the BBMP.

2.8.4 Specific issues raised under this theme

In addition to the general theme comments and responses above, there are a number of specific issues related to red goshawk. These are paraphrased and addressed below.

> *Submission number 30 raised the concern that Sharman's rock wallaby and greater glider have species-specific mitigation plans, but these have not been provided for red goshawks and koalas as species with significant residual impacts.*

The Sharman's rock wallaby sub-plan and the northern greater glider sub-plan were written as the nature of habitat requirements and the impacts to these species require specific and detailed mitigation measures. Species-specific mitigation measures for ground-level impacts are provided for red goshawk within the EMP fauna management sub-plan and includes constraints around nest trees (EMP Section 7.1.7). The majority of mitigation measures in place for the red goshawk apply more broadly and are included within the sub-plans of the EMP, so detailed sub-plan was not considered necessary. The BBMP provides detailed management of turbine collision risk and is applicable to all bird and bat species.

> *Submission number 268 raised the concern that the red goshawk has a large home range of 200 – 220 km^2 and inferred from this that home range of all sightings (32 listed, dating from 1900) within a 200 km radius of the development area may overlap the development area.*

As stated in Section 4.9.1 of the PER, the red goshawk hunts within a home range of up to 200 km^2 during breeding season. This equates to movements of up to 10 km from the nest to hunt (Aumann & Baker-Gabb 1991; Czechura 1996). Given the size of the species' large home range in comparison to potential suitable species habitat within the project area, there is potential for 1 to 2 breeding pairs to occur within the project area and/or adjacent areas (PER Section 4.9.2).

> *Submission number 268 raised the concern that the project conflicts with conservation and management priorities in the species conservation advice and action plan for Australian birds management actions.*

Impacts to habitat critical to the survival of the species have been reduced as far as possible via iterative design updates. The project will contribute to a number of conservation and management priorities listed in the Conservation Advice including:

- Rehabilitation of habitat – both in the impact and offset areas
- Protection of nesting habitat in the offset area
- Implementation of appropriate fire regimes
- Building awareness of the species with the landholder of the wind farm and offset sites

- Protecting high quality forest and woodland habitat near watercourses in the offset site, via in-perpetuity covenants
- Undertaking ongoing monitoring and making data publicly available.

2.9 IMPACT ON MASKED OWL

2.9.1 Overview of submissions relating to this theme

Construction of Gawara Baya will result the removal of 243 ha habitat for masked owl. Concerns about impacts to this species have been raised in submissions 48, 56, 113, 262, 266, 267, 271, 274 and 280. Submissions highlighted the following issues as being of particular concern:

- The area of habitat to be cleared has increased since the referral
- The risk of turbine collision is high as the species hunts at night when blades are less visible
- The project should avoid impacts to habitat near turbines
- Acoustic interference of wind turbines on hunting behaviour
- The species is poorly known and its presence in the project area raises concern about potential impacts
- Loss of critical habitat can't be satisfactorily offset.

Additional submissions concerning turbine collision and the BBMP have been addressed in Section 2.4 above. Additional submissions concerning offsets have been addressed in Section 2.14 below.

2.9.2 How did the draft PER address this theme

Masked owl is known to occur in the project area (see PER Appendix E, F). Section 2.4.3 and 4.10 of the draft PER discussed the habitat types and quantum of impacts to each habitat type. All masked owl habitat within the project, which contains breeding and foraging habitat, is considered 'habitat critical to the survival of the species'.

The number of hectares of habitat to be impacted for masked owl is larger in the draft PER than for the 136-turbine layout presented in the EPBC act referral documentation. As stated in draft PER Section 1.4.3, this is because:

- Additional field assessments were undertaken, expanding the area of mapped habitat for masked owl across the project area
- Further detailed design work determined the original layout would not have been constructible due to insufficient area allowed for the turbine hardstand and some access tracks, with wider construction corridors and hardstand allowances required. Turbines were subsequently dropped from the layout to reduce impacts. Had the referral footprint been taken forward, the area of impact would have been greater.

The draft PER assesses all feasible impacts from the project to the species. Potential impacts from construction of the wind farm were identified in draft PER Sections 3 and a detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.10.3.

The BBMP (PER Appendix B) addresses the risk and potential impacts to masked owl from turbine collision (Section 2.4 above).

The draft PER also included details of how impacts to masked owl have been avoided and mitigated, and these were considered in the detailed impact assessment provided as per the EPBC Act significant

impacts guidelines in draft PER Section 4.9.3. The EMP provided with the draft PER included sub-plans to address vegetation and fauna management, including measures relating to masked owl and its habitat.

The offsets proposal provided with the draft PER was in its early stages of development and consequently did not contain the full suite of information of interest to authors of submissions.

2.9.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding masked owl. More work has also been undertaken to develop a fuller suite of management and mitigation measures for the species, and the offsets proposal has been further developed. These updates to the final PER are detailed below.

As a result of further ecological studies, public consultation and feedback received on the draft PER, the layout of the project has been revised (See PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This has also resulted in a reduction in the length of access roads required. The new layout has a reduced overall footprint and has reduced the impact area on masked owl habitat from 324 ha to 243 ha.

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint. 141.58 ha of masked owl habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

The significant impact assessment for masked owl has been revised in the updated PER, with the conclusion that the Gawara Baya will have a significant residual impact on the masked owl (PER Section 4.10.3). Offsets will be provided to account for this impact and the OMS has been updated accordingly.

Refer also Section 2.4 above for updates to the BBMP.

2.10 IMPACT ON MAGNIFICENT BROOD FROG

2.10.1 Overview of submissions relating to this theme

Concerns about impacts to this species have been raised by 18 submissions. At the time the draft PER was published, targeted surveys had not yet been undertaken. In their response to the PER adequacy review, the Commonwealth required Windlab to undertake surveys concurrently with the draft PER public comment period.

Submissions highlighted the following issues as being of particular concern (paraphrased from submissions):

- *Survey effort for magnificent brood frog is insufficient to determine the presence or absence of the species*
- *The PER should not have been published without full magnificent brood frog surveys and impact assessment*

- *Gawara Baya would have direct and measurable impacts on any magnificent brood frog populations that occur on site*
- *Critical habitat will be lost*
- *Cumulative impacts for the species are large*
- *The impact avoidance and reduction measures listed for this species refer only to the area of potential habitat to be removed but fail to mention habitat which may be affected by sedimentation and weed invasion.*

2.10.2 How did the draft PER address this theme

The magnificent brood frog was assessed to potentially occur in the project area; however, had not been detected in field surveys prior to the publication of the draft PER. Based on the results of baseline ecological surveys, 10 ha of potential habitat had been mapped within the disturbance footprint. However, as the majority of this habitat was mapped below the known elevation distribution of the species and the species had not been detected, potential impacts were deemed to be negligible. The draft PER included a commitment to undertake targeted surveys for the species during the public comment period.

2.10.3 Final PER updates in relation to this theme

Since the publication of the draft PER, a targeted survey was undertaken for the magnificent brood frog survey in February 2023. This survey confirmed the presence of the species within the project area (but outside the development footprint), within the Herbert Basin. In response to this, additional information on the species, occurrence in the project area, and a significant impact assessment were added to Section 4 of the PER. The cumulative impact assessment in Section 6 of the PER was expanded to include the magnificent brood frog, and the species was added to the Wet Tropics World Heritage Area assessment in Section 5 of the PER.

The draft PER included a string of turbines along the north-eastern boundary of Kilclooney Station, including upstream of the drainage line where the magnificent brood frog was confirmed through targeted surveys (upstream of the 'occupied habitat'). This line of 14 turbines, including six near the boundary of the Herbert Basin, have now been relocated or removed, removing the potential for impact to habitat confirmed as occupied by the species. This has also reduced the impacts to potential habitat[6] and suitable (likely unoccupied habitat) to 5 ha. The development footprint is now located entirely within the Burdekin Basin (in different drainage catchment and over 1.5 km away to the known habitat).

Species-specific mitigation measures have been added to the EMP fauna management sub-plan, with reference to the Soils and sediment sub-plan and the Surface water sub-plan to avoid indirect impacts to habitat (refer EMP, Appendix A).

A detailed assessment of residual impacts to magnificent brood frog using the significant impact guidelines is presented in Section 4.13.3 of the final PER. This assessment considered impacts to the species after the avoidance and mitigation measures are implemented, as per the EMP (see above). The SIA determined that Gawara Baya will not have a significant residual impact on magnificent brood

[6] The 18 sites of potential habitat surveyed were prioritised for survey for their higher likelihood of providing suitable breeding habitat for magnificent brood frog and potential for impact. The majority of the survey locations intersected the development footprint proposed in the draft PER or were within close proximity. Areas mapped as 'potential habitat-not ground-truthed' from desktop mapping rules have not been surveyed to date, however habitat values for the magnificent brood frog in these areas are likely to be consistent with habitat mapped as 'suitable habitat – likely unoccupied' due to the elevation of where the streams originate (refer PER Section 4.13.2).

frog. Detailed reasoning to support the significant impact assessment is provided in Table 4-34, in Section 4.13.3 of the PER.

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint. 3.93 ha of magnificent brood frog habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

2.11 IMPACT ON SPECTACLED FLYING FOX

2.11.1 Overview of theme raised

Construction of Gawara Baya will result the removal of 614 ha habitat for spectacled flying fox and has the potential to impact the species through turbine collision. Concerns about impacts to this species have been raised by 16 submissions.

Submissions made the following statements (paraphrased):

- *Gawara Baya will further precipitate declines of flying fox numbers*
- *The impact assessment report contains a section on this species but there is no SRI table. The reasoning for no SRI on this species seems inadequate.*
- *Why is there no significant impact to this species given there is a known population that use the site and habitat loss and fragmentation is considered a significant threat for the species?*
- *The loss of habitat, turbine collision and barotrauma have not been properly considered, avoided, or mitigated.*
- *The proponent must provide a detailed assessment of the impact to World Heritage values associated with the loss of habitat for the spectacled flying fox.*
- *The proponent must consult with the Spectacled Flying Fox Recovery Team to gain an up to date understanding of threats to the species and potential impacts of Gawara Baya.*

Submissions concerning turbine collision and the BBMP have been addressed in Section 2.4 above. Submissions concerning offsets have been addressed in Section 2.14 below.

2.11.2 How did the draft PER address this theme

Spectacled flying-fox is known to occur in the project area although there are very few records across ~3 years' survey work (see PER Appendix E, F). Section 2.4.3 and Section 4.6 of the draft PER discussed the habitat types and quantum of impacts to each habitat type. A detailed impact assessment against EPBC Act Significant Impact Guidelines 1.1 was undertaken and is presented in Table 4-20 of the draft PER. This table assessed impacts to both spectacled flying-fox and grey-headed flying-fox, per relevant criteria.

The draft PER assesses all feasible impacts from the project to the species. Potential impacts from construction of the wind farm were identified in draft PER Sections 3 and a detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.6.3.

The BBMP (PER Appendix B), addresses the risk and potential impacts to spectacled flying-fox from turbine collision (Section 2.4 above).

The draft PER also included details of how impacts to spectacled flying-fox have been avoided and mitigated, and these were considered in the detailed impact assessment provided as per the EPBC Act significant impacts guidelines in draft PER Section 4.9.3. The EMP provided with the draft PER included sub-plans to address vegetation and fauna management, including measures relating to flying-foxes and their habitat.

A detailed assessment of impacts to the WTWHA is presented in Section 5 of the draft PER. As detailed in this section, the spectacled flying-fox is considered to be important for WTWHA biodiversity value. An assessment of potential impacts to OUV of the WTWHA, including consideration of biodiversity values such as flying- foxes is provided in Section 5.4.4 of the draft PER.

2.11.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding spectacled flying-fox.

As a result of further ecological studies, public consultation and feedback received on the draft PER, the layout of the project has been revised (refer PER Section 1.4.3.3). The final layout has 69 turbines (reduced from 80 in the draft PER), with 11 turbines removed and some relocated. This has also resulted in a reduction in the length of access roads required. The new layout has a reduced overall footprint and has reduced the impact area on spectacled flying-fox habitat from 746 ha to 614 ha.

Refer also Section 2.4 above for updates to the BBMP.

2.11.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there is a specific issue related to spectacled flying fox, which is addressed below.

> *Submission number 30 suggests the PER states that, "There is potential for the project to have a significant residual impact on the spectacled flying-fox through turbine collision and/or barotrauma. If such an event leads to a significant residual impact (through exceeding an impact trigger limit), it may be necessary for the project to offset this impact through payment into a research fund for the species."*

This statement has been incorrectly attributed to Gawara Baya and comes from the Chalumbin Wind Farm PER. No significant residual impact is anticipated for spectacled flying fox from Gawara Baya (refer PER Section 4.6.3) and offsets for the species are not proposed.

Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint. 613.69 ha of spectacled flying-fox habitat located outside the operational footprint are proposed to be rehabilitated to restore the existing vegetation communities (i.e. the temporary disturbance area) and will be beneficial to ecosystem function (refer PER Section 3.5.3).

2.12 World Heritage Areas

2.12.1 Overview of submissions relating to this theme

A total of 53 submissions raised concerns that the proximity of Gawara Baya to the WTWHA would impact WTWHA biodiversity and visual amenity values, with a few concerned about impacts to visual amenity in general. A number of these submissions also questioned why the wind farm could not be located elsewhere, particularly in relation to the proximity with WTWHA. The response to the location aspect of the submission is addressed within Section 2.1 above.

The project footprint is located within the Burdekin catchment which flows into the Great Barrier Reef (GBR) World Heritage Area. Submissions 66, 149, and 324 raise concerns for sediment run-off from the project impacting the values of the GBR.

2.12.2 How did the draft PER address this theme

2.12.2.1 WTWHA

As directed by PER Guideline 4.2 an assessment of potential impacts on the WTWHA has been undertaken and is presented in Section 5 of the draft PER. Section 5 describes both the potential impacts and the ways in which Windlab is addressing these issues.

Specifically, the draft PER considered and evaluated:

- Potential impacts to the Outstanding Universal Value of the WTWHA against each of the world heritage listing criteria, as outlined in the PER Guidelines for the project
- Potential impacts to the national heritage values of the Wet Tropics National Heritage Place against each of the national heritage listing criteria, as outlined in the PER Guidelines for the project
- Impacts of the project against the EPBC Act significant impact criteria for World and National Heritage Places
- Cumulative impacts to the WTWHA, presented in Section 6 as a component of the overall cumulative impact assessment for the project.

Overarching measures that have been implemented to avoid and minimise indirect impacts to the World Heritage values of the WTWHA are also outlined in draft PER Section 5.4.2.

As noted in the draft PER, the Gawara Baya is located outside of and 4.8 km (now 5 km) to the west of the WTWHA boundary (does not share a cadastral boundary with project property) and there will be no direct impacts. The assessment of potential indirect impacts of the project against EPBC Act significant impact criteria for World and National Heritage Places in the draft PER Section 5.4.4 determined it is unlikely there will be a significance impact on the OUV of the WTWHA.

2.12.2.2 GBR

The potential for impacts to the GBR from sediment run-off due to construction and operation of Gawara Baya has been assessed in draft PER Section 3.1.3.5.1. This analysis specifically considered the requirements of the Reef 2050 Water Quality Improvement Plan, observing:

- The current very high fine sediment load of the Burdekin Catchment in which the majority of the development footprint was located (now wholly located)
- The highly vegetated state of the project area and extent to be retained
- The distance to the GBR
- Management measures to be implemented, including as required by State legislation.

Through consideration of the above, it was determined it is unlikely that unmanaged stormwater run-off from the construction of Gawara Baya would contribute in a meaningful way to Burdekin end-of-catchment fine sediment load. With effective erosion and sediment control in place it is highly unlikely the Gawara Baya will negatively impact the OUV of the GBR.

2.12.2.3 Visual amenity

A Landscape and Visual Impact Assessment (LVIA) has been undertaken for the Gawara Baya project area and includes a thorough assessment of the potential impacts to the aesthetic values of the WTWHA. This was provided as part of the draft PER package for public comment (Appendix H, Lat27 2022). The LVIA describes a representative selection of twelve key views towards the project area, including within the WTWHA, and close to the boundary of the WTWHA. Theoretical computer-generated Visibility Analysis Maps (or Zones of theoretical Visibility Maps) have also been produced, to illustrate the number and extent of turbines (blade tip, or hub and blade tip) that can be seen in the surrounding landscape.

The results of the LVIA in relation to the WTWHA values were summarised and discussed in Section 5 of the draft PER. It is not anticipated that Gawara Baya will result in significant impacts on OUV associated with the aesthetic amenity of WTWHA. Where views of Gawara Baya are theoretically possible, dense vegetation, atmospheric conditions and / or the remoteness of the location would contribute to screening views i.e., the project infrastructure would not actually be visually perceptible.

2.12.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding World Heritage Area.

The following updates have been made to the PER, regarding project location with respect to the WTWHA:

- The distance from the development footprint to WTWHA and the main section of Girringun National Park has been increased
- Updated wording in the final PER has been provided to improve clarity on the separation of the development footprint to the WTWHA, and how the property in which Gawara Baya is located does not share a boundary with WTWHA
- To avoid confusion, the area between the WTWHA boundary and the development footprint has been referred to simply as the 'transition zone' (see specific comment below)
- The project development footprint and impacts to vegetation and habitats has been reduced, including the extent of 'open forest to woodland on uplands'. This has been quantified in the PER (see specific comment below)
- The development footprint has been amended and is now wholly located within the Burdekin Basin, and described in the PER.

The following updates to the final PER are relevant to the GBR:

- The redesign of the project has removed or relocated all turbines away from the boundary of the Herbert Basin. This means that any runoff from the site will flow west, back into the project area and is contained within the Burdekin River catchment[7]

[7] The Burdekin catchment is currently the greatest source of fine sediment pollutant at 890 kilo tonnes, far ahead of the next major source, the Fitzroy catchment at 430 kilo tonnes (Reef 2050 WQIP).

- Additional sediment and erosion control measures have been included in the updated EMP, both within the Soils and sediment sub-plan and the Surface water sub-plan to further avoid indirect impacts to the GBR (refer EMP, Appendix A)[8].

2.12.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to World Heritage Areas. These are paraphrased from submissions and addressed below.

> *Submissions 30, 107, 149, 160, 228, 249, 254, 265, and 273[9] are particularly concerned on the impact to 'wet sclerophyll forests', 'wet forests', and the 'WR-DR-WS-F continuum', both within the project area and between the project area and the WTWHA. Concerns include impacts to a protective buffer to the WTWHA and impact to the ecotone that 'wet forests' provide between open forests and rainforests, and the species that rely on them. Impacts raised in the submissions include direct impacts from clearing wet sclerophyll forests and will 'threaten the stability' of the WTWHA, which for the purposes of this submission response, is understood to refer to indirect impacts (including increased fire, weeds, fragmentation etc.).*

With regard to 'wet sclerophyll forests', 'wet forests', and a 'WR-DR-WS-F continuum' and how these habitats are represented in the project area, the following aspects of project area habitats and the proposed development footprint must be understood:

- No wet rainforest margins are going to be impacted by the project, with open eucalyptus forest and woodland separating the project area from WTWHA
- Wet sclerophyll forests observed within the project area are restricted to occasional patches along the major watercourses (e.g. Michael Creek)
- The vegetation within the higher portions of the project area, mapped within the 'open forest to woodlands on uplands' broad habitat (refer PER Section 2) is wetter than other parts of the project area, but not 'wet sclerophyll forest'
- The 'WR-DR-WS-F continuum' (wet rainforest-dry rainforest-wet sclerophyll forest-forest) referred to in Submission 228, appears to refer to a different project and project site (Chalumbin Wind Farm EPBC 2021/8983)
- The vast majority of the development footprint is located within open woodland and woodland communities.

As such, direct impacts to wet sclerophyll forest within the project is likely to be limited to potential encroachment of this vegetation type where Michael Creek, and potentially Douglas Creek, are intersected by linear infrastructure. Removal of this vegetation is unlikely to contribute to WTWHA threatening processes.

Regardless of description the vegetation type present within the north-east portion of the project area, it does fall within an area of connecting habitat between the development footprint and the western margin of the WTWHA, and there are large areas of shared habitat including open forest to woodland on uplands. These areas of open woodland occur throughout the connecting habitat to the west of the WTWHA. Fragmentation of this connecting habitat by Gawara Baya is limited and

[8] However, given the distance from the Reef, and the highly vegetated nature of the project area and development footprint watercourse setbacks (excluding the construction of creek crossings, it is unlikely unmanaged stormwater run-off from the construction of Gawara Baya would contribute in a meaningful way to Burdekin end-of-catchment fine sediment load.

[9] This was also with respect to fire management, and that a fire management plan must be produced, including incorporating traditional burning regimes.

represents only a small portion of vegetation clearing. Other indirect impacts to the connecting habitat will be avoided and minimised through the implementation of the EMP and BBMP.

Submissions 30, 107, 254, 265, 273 also recommend the PER describe:

- *How buffer zones to the WTWHA were calculated*
- *Describe the impact to WTWHA values from the loss of spectacled flying fox habitat*.

The draft PER used the term 'buffer zone'. There were no specific calculations or methodology applied to determine a 'buffer zone' between the WTWHA and the project area. Rather, the buffer zone referred to the area of well vegetated land between the project area and the WTWHA. To avoid confusion, the terminology has been updated in the final PER to refer to the connecting habitats to the west of the WTWHA.

The impact to spectacled flying-fox habitat is addressed within draft PER Section 4, with context provided in Section 5 about the contribution of flying foxes to the values of the WTWHA. See also Section 2.11 of this report.

2.13 CUMULATIVE IMPACTS

2.13.1 Overview of submissions relating to this theme

Numerous wind farm developments are proposed, approved, and being constructed in a region with numerous biodiversity values, including the Wet Tropics World Heritage Area (WTWHA). Concern for the cumulative impacts of these wind farms in combination with Gawara Baya on biodiversity values of the region has been raised in 33 submissions.

Submissions 20, 30, 107, 254, 265, 273 stated the cumulative impact of wind farms within the region is not acceptable.

2.13.2 How did the draft PER address this theme

As directed by PER Guideline 6.1 c) and d) a cumulative impact assessment has been undertaken and is presented in Section 6 of the draft PER. Section 6 describes both the potential for cumulative impacts and the ways in which Windlab is addressing these issues.

Specifically, the draft PER considered the following:

- Project-specific impacts to Matters of National Significance (MNES)
- Combined actions of completed, approved but not completed, or proposed activities
- Aerial impact scale – from wind farms across all of Queensland (greater than the area identified in the PER Guidelines)
- Ground-level impact scale - likely to be more geographically constrained, linked to both the home ranges of individuals and the geographic range of populations; included a combined area of the WTWHA south of Mt Emerald and the area west as far as Kidston. This covers an area of approximately 170 km to the north, 40 km to the east, 60 km to the south, and 160 km to the west of the project area.
- Aerial impact assessment included 27 wind farm projects, including the wind farms identified by PER Guideline 6.1 c)
- Ground -level impact assessment included over 40 projects, including wind farms where located within in the assessment area noted above

- Impact over the life of project
- Assessment of the following impact mechanisms and how they are being addressed by Gawara Baya, as required by PER Guideline 6.1 d) is provided in PER Section 6.5:
    - Land/vegetation clearing, edge/barrier effects, fragmentation, habitat clearing (including loss of roost sites)
    - Weed and pest incursion
    - Disturbance and displacement of species, from noise, vibration and light pollution
    - Bird and bat strike
    - Disturbance and displacement of species, from loss or shifting of flight corridors for migratory or aerial species
    - Population level impacts
    - Impacts to ecosystem resilience
    - Impacts to values (e.g. visual amenity) of the WTWHA.

MNES values considered in the cumulative impact assessment are threatened and migratory species considered to be at risk of impact from Gawara Baya, and the values of the WTWHA.

2.13.3 Final PER updates related to this theme

Since the draft PER publication, a number of updates have been made to the project design, and these are reflected in the final PER regarding cumulative impacts.

Specifically, the following updates have been made to the final PER:

- The contribution of Gawara Baya to cumulative impacts has reduced with the redesign of the project. This has been quantified in the PER
- Additional wind farms have been referred under the EPBC Act since the draft PER was published. These have been included in the cumulative impact assessment
- The presence of magnificent brood frog has been confirmed at Gawara Baya since the draft PER was published. Cumulative impact assessment has been expanded to include magnificent brood frog.

2.13.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to cumulative impacts. These are paraphrased and addressed below.

> *Submission 49: How can Windlab can be certain that cumulative impacts over time and many wind farms will not be catastrophic for some flying threatened species.*

Ongoing monitoring as part of the BBMP (Appendix B) will inform adaptive management of the wind farm. If monitoring results indicate that thresholds for significant impacts have been met for any species, additional mitigation measures will be implemented (see BBMP, Appendix B to the PER).

> *Submissions 49 and 52 raised the concern that PER Section 6 is poorly presented and barely explored. Only 10 EPBC listed fauna species are considered, with all other listed fauna (i.e. of state or local significance), all listed flora, and all regional ecosystems ignored.*

Cumulative impacts were assessed for all MNES considered to be at risk of impact from Gawara Baya. There are no flora species protected under the EPBC Act with potential to be at risk of impact from the project. Flora species with potential to occur within the project were not recorded during targeted surveys. Impacts to species of state or local significance and Regional Ecosystems (REs) are outside

the scope of the PER. The project is currently being assessed by Qld State Assessment and Referral Agency under a Development Application with a consistent but different suite of reporting, which covers state listed species and REs.

Some submissions raised concern about cumulative impacts to particular values, including climate refugia and Bioregional Corridors (Submission 3), and wet rainforest margins (Submission 228).

Whilst not addressed specifically in the cumulative impact assessment of the PER, these values are considered on a species-by-species basis, where they are of relevance to MNES. The following is also noted:

- No wet rainforest margins are going to be impacted by the project, with open eucalyptus forest separating the project area from WTWHA;
- Climate refugia in the project area is restricted to major waterways and a few small patches of vine forest. No vine forest is to be cleared and clearing of waterways (riparian forest) for construction is restricted to 4.29 ha (refer PER Section 3)
- Additional commitments for rehabilitation have been added to the PER, in the preliminary rehabilitation plan (EMP, Appendix A). The proponent has proposed stringent, best-practice rehabilitation and restoration targets. These opportunities represent over 75% of the total construction disturbance footprint (including 2.83 ha of riparian forest)
- Indirect impacts to habitat, including the Bioregional Corridor will be addressed through the PER Environmental Management Plan (EMP).

Submission 13 considers the cumulative impact more significant than identified in the PER and Submission 19 raised concern that cumulative impacts were only mentioned in one PER Section. Submission 249 has asked for a more thorough and comprehensive consideration of cumulative impacts from similar infrastructure proposals in the region.

As per the PER guidelines, the PER has identified and quantified the potential for cumulative impacts in a detailed analysis in Section 6. Significant impact assessments have been undertaken for individual MNES in consideration of the potential impacts from the project as per EPBC Act Significant Impact Guidelines 1.1. The final PER has included the most up-to-date list of projects relevant to the cumulative impact assessment.

Submission 13 questioned the distance between Gawara Baya and Chalumbin Wind Farm stated in Section 6.

The text has been updated from 115 km to an approximate range of 80 – 105 km.

2.14 OFFSETS

2.14.1 Overview of submissions relating to this theme

Offsets will be provided to compensate for the significant residual impact to five species from removal of habitat, with additional offsets for bird and bat species at risk of turbine collision are proposed on a contingency basis. A total of 29 submissions raised concerns about the availability, effectiveness, adequacy and implementation of offsets for Gawara Baya.

Submission numbers 30, 49, 52, 107, 254, 265, 277, 273, and 281 requested further information on offsets, specifically including the following questions / requests (paraphrased from submiussions):

- *The proponent must provide detailed field assessment of species presence on proposed offset sites and analysis of the proposed offset areas with the use of the EPBC offset calculator*
- *Demonstrate how the offset site will achieve an uplift and additionality when it is already in good condition and currently managed*
- *Please explain confidence in gain, current protection status of offset properties, time frames for ecological benefit, provide similar examples of management success to substantiate claims*
- *How will offsets result in population increase for these species given koalas and greater gliders will be killed/displaced as part of your project?*
- *How do the proposed offset activities really compensate for permanent damage and loss of habitat which is already in very good condition?*
- *There are no offsets for REs, threatened plant species, and other threatened fauna other than the four listed in the offsets plan*
- *Why has the outright purchase for National Park by Windlab of land similar in size and biocondition (and in similar country nearby) to the whole of Lot 3198 on PH2177 not been suggested as an offset?*

2.14.2 How did the draft PER address this theme

The draft PER committed to delivering offsets for all significant residual impacts from the project in line with the EPBC Act Offsets Policy. A preliminary version of the Offsets Management Strategy was provided. As per the EPBC Act Offsets Policy, the scope of the OMS provided in the draft PER was focused on MNES for which a significant residual impact was considered likely (in the draft PER).

The offsets proposal provided with the draft PER was in its early stages of development and consequently did not contain the full suite of information of interest to authors of submissions.

2.14.3 Final PER updates related to this theme

An updated Offset Management Strategy (including a full version for submission to the Commonwealth for assessment and a redacted version for Landholder privacy for public display) has been prepared as part of the PER and is provided as Appendix J. The updated OMS:

- Identifies significant residual impacts to MNES that must be offset in accordance with the Commonwealth Environmental Offsets Policy 2012 to five species.
- Identifies suitable offset areas for these MNES
- Provides evidence that the MNES or their habitat are present on suitable offset areas
- Calculates the offset requirements for MNES using the Commonwealth Offsets Assessment Guide (OAG) and provides information on the methodology, justification and supporting evidence for the inputs into the OAG
- Describes the strategy for acquitting offset requirements, including:
    - The configuration of the offset across the offset area.
    - The management measures proposed to achieve a conservation gain for each MNES.
    - How the proposed offset meets the requirements of the Commonwealth Offsets Policy
    - Details on how the offset areas will be legally secured.

This OMS has been prepared as part of the ongoing environmental assessment and approval phase for Gawara Baya. A final Offsets Area Management Plan (OAMP) will be developed post-approval and will detail the final offsets strategy, specific management and monitoring measures to be implemented, and the key performance indicators and completion criteria to be achieved. This will be tailored to ensure all conditions of approval are met.

In respect of the specific questions or request for information regarding the offsets proposal raised in submissions and noted above, the following points are relevant.

An overview of the field surveys undertaken across the offset properties and the Offset Assessment Guides (OAG) for each protected matter are contained within the OMS. The full results of the field surveys are also provided as Appendix F and O of the PER.

The offset has been designed as per the Commonwealth Environmental Offset Policy, which sets out requirements for a 'conservation gain'. Section 4.4 of the Offset Management Strategy provides further information on how the offset will achieve a conservation gain.

A range of conservation priorities and objectives for the protected species habitat to be offset are provided in approved conservation advice and recovery plans for each individual species. Section 4.4 of the OMS also provides an assessment of each priority conservation action and how the offset meets or supports these actions, thereby delivering a conservation gain (including long-term positive outcomes) for the species.

The OMS provides details on the start quality of both the impact area and offset areas and provides further information on both the inputs of the Offset Assessment Guide (including confidence, timeframes for ecological benefit) and how the offset meets the requirement of the Commonwealth Environmental Offsets Policy. Species stocking rate (i.e. the presence of species within the offset area) forms a component of the offset area quality score and will also be monitored over time.

The offset size is determined by the Commonwealth OAG. In Queensland, a terrestrial offset area may be legally secured through any of the following mechanisms provided under State legislation:

- An environmental offset protection area under the *Environmental Offsets Act 2014*
- A voluntary declaration under the *Vegetation Management Act 1999*
- A protected area (including a nature refuge) under the *Nature Conservation Act 1992*
- Another mechanism specified under the regulation, (including a statutory covenant) under the *Land Act 1994* or *Land Title Act 1994*

The proposed offset will be secured under one of the above mechanisms.

Offsets for Queensland Matters of State Environmental Significance are regulated under the Queensland *Environmental Offset Act 2014* (EO Act). Section 15 of the EO Act restricts the ability of the state and local governments to impose an offset condition in relation to a prescribed activity, if a Commonwealth decision has already been made in relation to the same prescribed environmental matter and area of impact. The majority of endangered and of concern regional ecosystems present on site are components of species habitat and as such are dealt with under the Commonwealth offset decisions for MNES. Any endangered and of concern regional ecosystems not captured as species habitat to offset under the Commonwealth Environmental Offset Policy, have been addressed in the Queensland Development Application for the project.

2.14.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to offsets. These are paraphrased from submissions and addressed below.

> *Submission 30 raised the concern that the proponent must provide a clear articulation of its understanding of 'net positive' and how that has been achieved.*

The offset, including the demonstration of conservation gain for protected matters, have been developed in accordance with the requirements of the Commonwealth Environmental Offsets Policy 2012. Additional work is being undertaken outside the EPBC Act assessment and approval process to explore how a biodiversity net gain may be achieved by the project.

> *Submission 262 raises the concern that offsets cannot mitigate or negate damage to ecosystems and habitat cannot be replaced.*

The EPBC Act under which the project is seeking approval requires the use of environmental offsets in accordance with the Commonwealth Environmental Offsets Policy.

> *Submission number 30 raised the concern that the proponent must provide evidence of appetite from landholders of identified offset areas, to provide assurance that the proponent can meet their commitment.*

In principal agreement has been secured from the landholder of the offset properties and commercial in confidential correspondence between the landholder and Windlab will be provided to DCCEEW to provide assurance of this agreement.

> *Submissions 30, 107, 254, 265, 273 note there needs to be more clarity about whether the proponent aims to perform pest and weed control solely on the site of the project, or on the site of the proposed offset areas, or both. And Submission 52 questioned why is weed control on the offset properties limited to declared weeds?*

Pest and weed control will be undertaken across the project site as described in Section 3.5.2 of the PER and Appendix A, the project specific EMP. Pest and weed control are proposed as management measures for the offset, as described in Section 4.4 of the OMS (Appendix J of the PER).

Specifics of weed control for the offset properties will be developed as part of a future detailed Offset Area Management Plan. The intent of weed control will be to focus on non-native species that pose a threat to the matters to be offset. This includes both declared weeds (i.e. Weeds of National Significance) and non-declared weeds (i.e. non-native species), as both can impact habitat quality for the protected species. Weed management on the offset site must be additional to the landholders General Biosecurity Obligations (under state legislation), per the requirements of DCCEEW.

> *Submission numbers 49 and 52 queried why are dingoes a focus of predator control - i.e. where does it specifically state in threatened species management plans that dingoes in remote intact forested systems (i.e. away from urban areas) should be controlled? How will we differentiate dingoes from wild dogs?*

Wild dog / dingo are terms used within the PER documentation, as on the mainland, dingoes are a type of wild dog. Predation by wild dogs is a recognised threat to koalas and wild dogs can also threatened masked owl, as wild dogs can outcompete masked owl for sources of food (i.e. prey on the same species the masked owl preys on). Specific pest animal control will focus on the predators that are present within the offset area, which includes wild dogs.

> *Submission number 52 queried why are cattle not a focus of control, reduction in numbers, or eradication, when they are specifically mentioned as a threat in some threatened species management plans including the Sharman's Rock Wallaby?*

Both offset properties are cattle stations and livestock are present. Threatened species currently co-exist on the properties (and within the impact area) along with cattle. Appendix F and Appendix O of

the PER contain the survey results. Strategic grazing may be implemented within the offset to assist with fuel load management and composition of ground cover.

> *Submission number 265 recommended that the koala be treated as an endangered species when inputting the assessment into the OAG calculator to accurately reflect the annual probability of extinction. Please clarify why the OAG input is being set to vulnerable for koala and not endangered?*

The OAG input for koala has been set to endangered. The OAG is provided within the Offset Management Strategy.

> *Submission number 265 also asked is the offset site already at maximum carrying capacity?*

Species stocking rate has been assessed as part of the development of the offset. The results of the field surveys undertaken for the offset areas do not indicate the offset site is a maximum carrying capacity. The results of the field surveys are provided in Appendix F and O of the PER.

> *Submission number 265 requested why the fire management plan does not include active fire management, and how putting a fire management plan in place will achieve an uplift.*

The implementation of fire management is proposed as a management measure for the offset, particularly to assist with improving the native species density in the ground layer. The development of a fire management plan will occur as part of the development of the detailed Offset Area Management Plan. Windlab proposes to develop fire management in collaboration with the Traditional Owners.

2.15 INADEQUATE SPECIES LISTS AND SURVEYS

2.15.1 Overview submissions relating to this theme

A total of 26 submissions raised concerns that the list of species considered in the PER, and desktop and field surveys were inadequate.

Submission numbers 30, 49, 52, 107, 149, 254, 265, 273 raised specific concerns that a number of species were inadequately or not addressed, including:

- Flora species
- State-listed threatened species (MSES)
- Species that might occur in common with a national park
- Range-restricted species
- Species that haven't been discovered.

Submission numbers 30, 49, 52, 107, 149, 232, 249, 254, 265, 272, 273, 277, 281, and 282 raised the following issues and concerns with the survey effort undertaken. The following statements were made in these submissions (paraphrased from the submissions):

- *Include a wider desktop search as the region is poorly surveyed*
- *Surveys were undertaken over limited timeframes with no reference to scientific journals*
- *Additional survey work is required to properly assess the ecological values of the site and fully appreciate novel impacts*
- *Please provide details of habitat assessments including GTRE map with survey points*

- *Why were additional field surveys not undertaken to make up for the shortfall in 2022 ecological survey which was cut short due to weather?*
- *Rainforest boundary has not been ground-truthed*
- *Flora surveys should cover the entire clearing footprint*
- *Additional magnificent brood frog surveys are needed*
- *All bird and bat surveys should be provided.*

2.15.2 How did the draft PER address this theme

2.15.2.1 Species lists

The purpose of the PER is to facilitate a robust assessment of the nature and scale of the likely impacts of the proposed action on Matters of National Environmental Significance (MNES). As per the PER guidelines, the PER must include a detailed assessment of the presence of threatened and migratory species listed under the EPBC Act and suitable habitat within and adjacent to the project site as well as relevant species associated with the values of the World Heritage Property and National Heritage Property the WTWHA, and an assessment of impacts by the proposed action.

As per industry standards, a PMST was run with a 20 km buffer, identifying a list of species in addition to those specified in the PER guidelines, whose distribution may overlap the project area – the PMST has been rerun on numerous occasions over the life of the assessment process to ensure contemporary species lists are considered.

The 20 km buffer captures species which may occur within the WTWHA, including Girringun National Park. Further desktop surveys including Wildlife Online and Atlas of Living Australia searches were completed (also with a 20 km buffer) to refine the list of species which may potentially occur within the project area.

A likelihood of occurrence table was presented in draft PER Appendix E, which includes all species identified within the PMST. Targeted field surveys were conducted for all species with potential to occur within the project area. All EPBC listed species mentioned in submissions were considered in the likelihood of occurrence assessment (ELA 2020, PER Appendix E). The likelihood of occurrence was refined to species with potential to occur within the disturbance area and further field surveys conducted in 2022 (ELA 2022, PER Appendix F).

The results of desktop and field assessment were used to identify threatened and migratory species as known, likely or potential to occur within the project area (draft PER Section 2). Impacts to species of state or local significance (that are not also MNES) and REs are outside the scope of the PER. The project is currently being assessed by Qld State Assessment and Referral Agency under a Development Application with a consistent but different suite of reporting, which covers state listed species and REs.

2.15.2.2 Survey effort

As detailed in draft PER Section 2, numerous ecological investigations and surveys of the project area have been undertaken during different seasons over a period of several years. These include:

- Baseline field survey of project area (Desktop investigation (identify Commonwealth and State ecological values potentially present)), targeted fauna surveys, targeted flora and vegetation community surveys, general habitat assessments)
- LiDAR assessment
- Additional baseline field survey focusing on impact area
- Bird Utilisation Surveys (BUS) and targeted bird and bat surveys

- BioCondition Surveys.

An overview of the survey effort at the time of draft PER publication was provided in Section 2.2 of the draft PER. And all survey reports provided as appendices. A commitment was also made to undertake targeted surveys for magnificent brood frog during the public comment period.

Flora field surveys consisted of secondary surveys and quaternary surveys, in accordance with the '*Methodology for Survey and Mapping of Regional Ecosystems and Vegetation Communities in Queensland*' (Neldner et. al. 2019). Targeted threatened species surveys were conducted across the survey area in 2019 and 2020, and within the disturbance footprint in 2022 (PER Section 2). Fauna survey sites are shown in Figure 3 of ELA 2022 (Appendix F). Flora survey sites are shown in Figure 4 of ELA 2022 (Appendix F). Ground-truthed Regional Ecosystems (GRTEs) are shown on Figure 5 of ELA 2022 (Appendix F).

Survey of the entire development footprint is not possible, because of access constraints, and extent of area. Pre-clearance flora surveys will be undertaken within potential threatened flora habitat within development footprint (EMP Section 7.2). Additionally, further flora surveys are required to be undertaken as per the Qld Flora Assessment Guidelines.

Due to poor weather conditions, the full range of REs known to occur within the development footprint were not surveyed for BioCondition during 2022 surveys nor were habitat assessments conducted. Despite this limitation, it is considered that the survey effort conducted within the development footprint and surrounding project area was sufficiently detailed such as to inform assessment of habitat values within these areas, such that a precautionary assessment of impacts in these areas could be undertaken.

Response to submissions relating to magnificent brood frog is provided in Section 2.10 above.

2.15.3 Final PER updates related to this theme

The final PER has been updated to include details of all surveys undertaken to date, including those completed post public exhibition of the draft PER (magnificent brood frog and additional bird and bat surveys). All survey reports are appended to the final PER.

2.15.4 Specific issues raised under this theme

In addition to the general theme comments and response above, there are a number of specific issues related to species lists and surveys. These are paraphrased and addressed below.

> *Submission 30 requested that the proponent clarify if there are 28 or 29 species impacted by the project, as there is a discrepancy in their information*.

The number of threatened and migratory species identified in field surveys as known, likely or potential to occur within the project area was incorrectly listed in Section 2.4.3 of the draft PER as 20 threatened and 9 migratory species. Section 2.4.3 has been updated with the correct numbers of 22 threatened species and 9 migratory species.

> *Submission number 265 queried why there had been no assessments, habitat mapping, or impact assessment for a list of 29 species known or likely to occur in the project area as per the EPBC Act PMST. This submission also specifically queried why Atherton delma (Delma mitella) has not been surveyed for.*

As described above, the PMST is the first step in determining which species may potentially be impacted by the project. The list of 29 species provided in Submission 29 were all assessed in the Likelihood of Occurrence table within the baseline ecology report (Appendix E). Of these, all that have potential to occur within the development footprint or within proximity to, determined during 2022 baseline surveys (Appendix F) have been addressed within the PER (see PER Section 2, Table 2-8), with habitat mapped see PER Section 2, Table 2-7). Targeted surveys for Atherton delma have not been undertaken as the species is considered unlikely to occur within the development footprint, and there is negligible risk of direct or indirect impacts to the species from Gawara Baya (see PER Section 2, Table 2-8). While the broader project area contains potential habitat for the species, there is no suitable habitat within or adjacent the development footprint. The project area also lies outside of the species mapped distribution.

> *Submission number 49 and 52 provided a list of 19 flora species listed as threatened and near threatened under either the EPBC or NC Acts, stating that several were not recognised in the PER and therefore consultants would not have searched for them. An additional five restricted species, three species which may have genetically distinct populations within the area, and 11 further restricted plant species which have restricted distributions and may be at risk from the cumulative impacts of developments in the area.*

Of the flora species listed by these submissions, six are listed under the EPBC Act. These six species were classed as potential to occur by ELA 2020, with targeted surveys completed (Appendix E). Four were determined to have potential to occur within the development area by ELA 2022 (Appendix F), and are included in Section 2, Table 2-8 of the PER. All other species are either unlikely to occur within the development footprint (no habitat or outside species range), or not MNES and therefore outside of the scope of the PER. Species listed under the NC Act are MSES and covered by the Development Application.

> *Submission number 268 raised the concern that insufficient surveys have been undertaken for red goshawk; surveys should be at least 12 months in duration to get an accurate and full picture of the bird's activity in the area. Submission 49 queried why a more thorough survey for the presence of glossy black cockatoo has not been undertaken.*

As per the PER guidelines, at least 24 months of site utilisation surveys must be undertaken to provide sufficient baseline data. Details of the surveys undertaken to date are in Section 2.2 of the PER, and Section 2 of the BBMP. Baseline ecological surveys were undertaken in September 2019, July 2020, and March – May 2022. Bird utilisation surveys (BUS) have so far been undertaken in March 2022, August 2022, December 2022, and February-March 2023. Additional BUS are scheduled for June/July 2023, September 2023, November/December 2023, and March 2024. This will complete 24 months of BUS survey effort in the project area.

Two targeted red goshawk surveys have been undertaken in March 2022 and August 2022, with a further survey scheduled for August 2023. This survey effort meets the requirements of the PER guidelines and is in line with the survey guidelines for Australia's threatened birds (DEWHA 2008). Glossy black cockatoo surveys have been undertaken as per the *Targeted species survey guidelines: Glossy black-cockatoo*, with recommended survey effort exceeded (see Appendix D - Survey effort of ELA 2022, in PER Appendix F).

> *Submission number 265 requested the following:*
> - *number of days surveys undertaken*
> - *Clarify extent of survey in ELA 2022 survey*
> - *CVs of ecologists to show they have the relevant qualifications and experience in the region*

- *Details of protected plant trigger mapping.*

The survey timing, length (in days), and number of ecologists for baseline surveys is provided in Table 5-1 of ELA 2020 (Appendix E), and Section 3.1 of ELA 2022 (Appendix F). Total survey effort for baseline surveys is provided in Table 3-3 and 3-4 of ELA 2022 (Appendix F). As detailed in Section 2.2, Table 2-3 of the PER, 2019-2020 baseline surveys covered the project area (see Section 1.1.5.3) and the 2022 baseline surveys focused on the impact area / development footprint. Maps of baseline survey points are provided in Appendix E and F.

Prior to engaging ecologist to undertaken survey work, Windlab reviewed qualifications and experience of field staff to ensure appropriately qualified staff undertook survey work. Three well respected ecological consultancies have been engaged to work on the project, including Eco Logical Australia, E2M Consulting and Nature Advisory.

Protected plant trigger mapping is a State matter and not relevant for assessment under the EPBC Act. This will be considered and assessed at a State level.

2.16 COMMITMENTS AND FUTURE USE

2.16.1 Overview submissions relating to this theme

A total of 32 submissions raised concerns about the lifespan of the project, the regulation of and proponent's ability to meet obligations, material change of use and future development, and decommissioning of the wind farm.

Submission numbers 3, 14, 19, 30, 49, 52, 107, 228, 254, 265, 266, 270, 273, made the following statements (paraphrased from the submissions):

- *The PER should be clear about the lifespan of the project*
- *The PER has reference to both Windlab and Upper Burdekin Wind Farm Holdings; there must be clarity throughout the PER regarding who is accountable to commitments in the PER*
- *There will be no Government body or compliance to make sure that Windlab sticks to the amount of habitat clearing suggested in the PER*
- *Material change of land use will allow the site to be further developed for industrial use*
- *The access roads will allow access to previously inaccessible land, facilitating more intensive cattle grazing, and greatly increasing the likelihood of further industrial development*
- *The site will be locked away, the public will not be privy to what goes on onsite, and waterways will be unable to be accessed*
- *The site boundary for material change of land use has not been supplied, only the project footprint*
- *To provide transparency and certainty to the community The proponent should be clear about what lease agreements exist with the landholder so that it can be demonstrated that The proponent can meet obligations in the PER*
- *There are no legal consequences when the owner is an overseas interest and can walk away from responsibilities, leaving the site owner with the legal impediment to clear the site*
- *Salvage and recycling are likely to be an unappealing and uneconomic option at the end of life. In the absence of substantial decommissioning bonds and strong legislation to ensure redundant wind farms are decommissioned in a timely and environmentally sensitive manner, it is likely the public will ultimately meet those expenses*
- *The degree of environmental harm from construction, operation, and associated land degradation cannot be restored and rehabilitated post-decommissioning.*

- *Decommissioning is limited by existing transmission infrastructure*
- *The proponent must prepare a detailed decommissioning plan that includes financial costs, environmental impacts and social impacts*
- *The proponent must clearly articulate how decommissioning would affect the rehabilitated areas of the site.*

2.16.2 How did the draft PER address this theme

Many of the concerns raised in relation to this theme are either beyond or not within the scope of the draft PER. Nevertheless, the draft PER included the following information, which is relevant to this theme.

As stated in Section 1.3 of the draft PER, the development footprint (within which all works will be contained), occurs within Kilclooney Station, Lot 3198 on Plan PH2177. This is a long-established cattle grazing property that includes disturbed and degraded areas, and existing access tracks that have been used in the project design. The project area is not currently a public property or accessible to the public. The cadastral boundary of the property in which the development footprint is located is shown on a map in Section 1 of the draft PER. The 'project area' is defined in Section 1.1 of the draft PER as the area where on ground surveys were undertaken, which extends beyond the property boundary as a precaution.

The draft PER is not required to address future land use of the site. The approval will only allow for the development of the Gawara Baya and does not directly pave the way for future industrial use of the site. Rehabilitation of access roads and transmission line corridors is proposed (see draft PER Section 1.1.5.3). Any further developments would require new applications for approval.

The life of the wind farm is expected to be at least 30 years. As stated in Section 3.5.3, a detailed decommissioning and rehabilitation plan will be prepared based on Australian Standards and industry practices at that time, and the land agreement requirements and regulatory authorities. This will guide the decommissioning and rehabilitation of the wind farm.

2.16.3 Final PER updates related to this theme

The PER executive summary and Section 1 have been updated to provide additional background company ownership and ongoing ownership of the wind farm. Windlab is an 100% Australian company supporting Australia's clean energy transition. Windlab will own and operate the wind farm for the life of the project (approximately 30 years) and will be responsible for compliance.

PER Section 1 (refer to PER Section 1.4.2) has been updated to confirm that lease arrangements with the landholder will provide for Windlab's commitments and will make provision for future responsibilities relating to decommissioning the wind farm.

A preliminary rehabilitation plan has been developed (see Gawara Baya Preliminary Rehabilitation Plan, Appendix C to the EMP). As stated in this plan, end of life decommissioning and/or maintenance activities may require re-clearing of rehabilitation areas and removal of infrastructure. Underground services will be disconnected, made safe and left in situ to avoid potential future disturbance. At the appropriate time all previously disturbed areas will be rehabilitated following the methods described in the Preliminary Rehabilitation Plan and any detailed plans, in accordance with relevant legislation, standards and industry practice.

2.17 STAKEHOLDER ENGAGEMENT

2.17.1 Overview of submissions relating to this theme

A total of 20 submissions raised concerns about stakeholder and indigenous consultation and engagement.

Submission made the following statements (paraphrased from the submissions):

- *The proponent should provide information regarding any/absence of consultation with the broader Gugu Badhun people, beyond the first meeting before talking to North Queensland Land Council*
- *The project has received overwhelming push pack from our North Queensland communities, the scientific community, conservation groups and Traditional Owners*
- *Cultural Heritage Surveys should be completed before the PER is approved, so that Traditional Custodians understand the full impact of development. Or at the very least The proponent should provide a clear process that will be taken if Cultural Heritage sites are found in the development footprint, including what happens if protection of that Cultural Heritage makes the project economically unviable*
- *The proponent should provide any evidence of early conversations with biodiversity experts (such as WTMA) that demonstrated consideration of appropriate siting*
- *The proponent must consult with the Spectacled Flying-fox Recovery Team to gain an up to date understanding of threats to the species and potential impacts of the UPBWF*
- *There should also be engagement with the Magnificent Brood Frog Recovery Group to establish a detailed plan for how impacts to the magnificent brood frog will be managed.*

2.17.2 How did the draft PER address this theme

Sections 1.5 and 1.6 of the draft PER outline the community and stakeholder consultation, and First Nations engagement that has taken place during the development of the project. Windlab has negotiated an Indigenous Land Use Agreement (ILUA) with the Gugu Badhun People (the Native Title holders) and an extract from Register of ILUA was provided as Appendix M of the draft PER. A letter of support for Gawara Baya from the Gugu Badhun Aboriginal Corporation was provided as Appendix N of the draft PER.

As outlined in the draft PER and to address the concerns raised in submissions above the following is also noted with regard to Traditional Owners and cultural heritage values:

- The proponent has conducted extensive consultations with the Gugu Badhun People (the Native Title holders), which began early in the project's development (refer PER Section 1.6)
- Cultural Heritage surveys were conducted by the Gugu Badhun People within the development area. Areas of significance identified are not within the development footprint, and ongoing access by the Gugu Badhun People to these areas will be facilitated by the proponent and the leaseholder under the terms of the ILUA
- Windlab has also endeavoured to engage neighbouring Traditional Owner groups to ensure potentially relevant project impacts are appropriately addressed with respect to the unique Cultural Heritage of these groups
- Details on First Nations engagement are provided in the stakeholder consultation and engagement report (Appendix C).

As outlined in the draft PER and to address the concerns raised in submissions above the following is also noted with regard to consultation with other stakeholders:

- An overview of stakeholder consultation and engagement, including the date, activity, and stakeholders involved is provided in Table 1-4 of the draft PER
- An early consultation and project engagement program included the Landholder, Traditional Owners, Mount Fox community, Local Government Area officials, regional economic development organisations, and conservation and activist groups
- The engagement program included providing genuine opportunities for stakeholders to participate in the development process by providing feedback on the project design, management initiatives, options and alternatives
- Community consultation included a site visit by Wet Tropics Management Authority (WTMA) in March 2022
- Details on community consultation and engagement are provided in Appendix C of the PER.

2.17.3 Final PER updates related to this theme

Section 1.5 of the final PER has been updated to include additional stakeholder engagement that has taken place since the publication of the draft PER. This includes:

- Ongoing bi-monthly community updates
- Mount Fox community information session
- Biannual project update briefing with LGA officials
- Public display of the draft PER open to comment from 20 February to 3 April 2023
- Gawara Baya official naming ceremony
- Updated topical fact sheets released on website
- Windlab booth at the Ingham show.

Consultation with relevant community groups, conservation groups, and species experts will be ongoing throughout the delivery of the project.

2.18 SOCIAL AND ECONOMIC IMPACTS

2.18.1 Overview of the theme raised

A total of 19 submissions raised concerns about the social and economic impacts of the Gawara Baya.

Submission numbers 30, 107, 149, 254, 266, 265, and 273 made the following statements (paraphrased from the submissions):

- *The proponent needs to assess how the project will influence local cost of living and housing availability/affordability, and provide mitigation measures*
- *The proponent should not be anticipating employment, it should be ensuring it, with a clear commitment to First Nations jobs, and the training that may be needed to make that possible*
- *The proponent should provide detailed information about the number of local jobs they are committed to and any training programs they would undertake to ensure these*
- *The proponent must provide an analysis of what skills will be needed to gain employment with the project, what training programs are required locally, for locals to be ready for work, and the lead times necessary to allow for locals to be trained*
- *The proponent should include information regarding the impacts to local supply chains and availability of labourers*
- *The proponent must substantiate statements in relation to reduced electricity costs*

- *The proponent should provide more detailed information regarding the impacts to tangible and intangible Aboriginal heritage through altered landscapes*
- *This does not meet any social, environmental nor cultural license values, and in my lifetime, these energy infrastructure roll-outs are not in the public interest*
- *The value of intact, thriving, old growth wilderness to human health has not been acknowledged in the UBWF (now Gawara Baya) draft PER; these forests contribute enormously to our own health, both spiritual and physical.*

2.18.2 How did the draft PER address this theme

Many of the concerns raised in relation to this theme are either beyond or not within the scope of the draft PER. Nevertheless, the draft PER included the following information, which is relevant to this theme.

The social and economic matters related to the Gawara Baya, including stakeholder engagement, economic costs and benefits, and social impacts were presented in Section 1.7 of the draft PER.

The potential social impacts and/or benefits associated with the project were analysed through a methodology based on the impact assessment methodologies included in the Queensland Social Impact Assessment Guideline and NSW Social Impact Assessment Guideline. This was undertaken as per the requirements of the PER, and is detailed in Appendix D.

An economic analysis was undertaken in line with the PER guidelines, and presented in Appendix D of the PER. The direct and indirect economic impacts of the project during the construction and operation phases were considered as part of the analysis. The findings of the economic analysis are presented in draft PER Section 1.7.2.

As stated in Section 1.4 of the draft PER, an accommodation camp will be built to house the construction workforce.

See Section 2.17 of this report above, regarding First Nations engagement and values.

Section 6.3.1.3 of the Socio-Economic Impact Analysis (Appendix D to the Draft PER) states that Wind power is one of the cheapest forms of electricity to produce (Graham et. al., 2021). In addition, the current design of the project includes a synchronous condenser which can be used to strengthen the grid and support system security. Together, these factors can be expected to put downward pressure on electricity prices, making electricity more affordable for the Queensland community and businesses.

2.18.3 Final PER updates related to this theme

Section 1.6 of the PER has been updated to provide more detail on First Nations engagement and the ILUA. While commercial benefits of the ILUA are confidential, the partnership ensures monetary and non-monetary benefits associated with Traditional Ownership and property ownership are shared. These include:

- Active management of country
- Project naming rights
- Employment and contracting opportunities
- Education and training
- Cultural strengthening activities, opportunities and programs.

2.19 ASSESSMENT PROCESS

2.19.1 Overview of submissions relating to this theme

A total of 26 submissions raised concerns about the assessment process.

Submissions 52, 66, 228, 232 raised issues with the public comment process, including the following statements (paraphrased from the submissions):

- *Insufficient time to respond to the PER*
- *The project should be more widely advertised*
- *Concern that responses will be dismissed with no change required to the PER, with the proponent retreating behind the guise that they have met the requirements*
- *Submissions going straight to the proponent without the perusal of the Minister.*

Submissions 30, 107, 107, 254, 265, 273 raised issues with species assessment, including the following statements (paraphrased from the submissions):

- *Information should be provided on all / all threatened species*
- *Assessing impacts to high profile species doesn't take into account impacts to restricted species*
- *The PER does not present an impact assessment approach that harmonises the MSES and MNES assessment.*

Submissions 52, 64, 228, 281, and 291 raised issues with the overall assessment approach, including the following statements (paraphrased from the submissions):

- *Not properly assessed at the local level*
- *Fast tracking of wind farms through QLD State Code 23*
- *The EPBC Act is ineffective and not fit for purpose (Samuel review)*
- *No EIS has been produced or made publicly availably – a cost / benefit assessment with an environmental/ecological damage mitigation report must be advertised.*

Concerns with the species which were included in assessment are addressed in Section 2.15 above.

2.19.2 How did the draft and final PER address this theme

Many of the concerns raised in relation to this theme are either beyond or not within the scope of the draft PER, but rather relate to the state approvals process or reflect general concerns with the adequacy of the EPBC Act and its processes/requirements. Nevertheless, the following points are relevant to this theme.

The advertising period and submissions process were completed as per regulatory requirements. An additional 48 submissions were received outside of the public comment period and have all been considered within this response. The project was widely advertised through community engagement, newsletters, and a website prior to the publication of the PER (see PER Section 1.5).

As part of the assessment process, comments need to be considered by the proponent, and where fitting, updates made to the PER in response. This document has been written to show how public comments have been considered and addressed. All comments accompanied by this report will be sent to the Department for review as part of the assessment process.

The PER was produced for Commonwealth approval and is not designed nor required to address State Code 23. The project is currently being assessed by the Queensland State Assessment and Referral Agency under a Development Application with a consistent but different suite of reporting.

A social and economic assessment has been completed, with a summary of the economic costs and benefits presented in Section 1.7 of the PER. Potential impacts and mitigation are presented in Section 3 of the PER.

This submissions report is provided with the final PER and will be made publicly available.

2.20 OTHER POLICIES AND PLANS

2.20.1 Overview of submissions relating to this theme

A total of 22 submissions raised the concern that the PER does not address a range of other policies and plans, including international obligations, national plans, and regional plans.

2.20.2 How did the draft PER address this theme

To meet the PER guidelines and requirements under the EPBC Act, Section 4.1.3 of the draft PER outlined a number of international conventions and agreements relevant to Gawara Baya, and justified how the proposed action is not inconsistent with Australia's obligations under these. These are:

- The Bonn Convention
- China-Australia Migratory Bird Agreement (CAMBA)
- Japan-Australia Migratory Bird Agreement (JAMBA)
- International Agreement – Republic of Korea-Australia Migratory Bird Agreement (ROKAMBA).

There are a number of other conventions that are relevant and should have been addressed in the draft PER. This information gap has been addressed in the final PER (see below).

2.20.3 Updates made to the PER in response to this theme

Updates were made to Section 4.1.3 of the PER, adding detail on the following conventions and justifying how the proposed action is not inconsistent with Australia's obligations under these:

- Convention on Biological Diversity
- Apia convention
- Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
- Paris Agreement.

2.20.4 Specific issues

In addition to the general theme comments and response above, there are a number of specific issues related to other policies and plans. These are paraphrased from submissions and addressed below.

> *Submission numbers 30, 107, 254, 265, and 273 requested the proponent provide a description of how the proposal hinders/helps the nation meet its goal to end deforestation by 2030.*

To aid in meeting the Paris Agreement goals for climate change, Australia signed a pledge at COP 26 in Glasgow to "*to work collectively to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development and promoting an inclusive rural transformation*". As a large-scale renewable energy project, Gawara Baya will aid in Australia's decarbonisation, a critical part of meeting Paris Agreement targets and addressing climate change. The development will require the removal of 616.5 ha of remnant vegetation, however, through the delivery of offsets and additional rehabilitation work on site, Gawara Baya aims to deliver net-positive biodiversity outcomes.

> *Submission number 228 raised the concern that Gawara Baya fails to meet the Ravenshoe Communique – 25th September 1999, Tablelands Community Plan for 2011 – 2021, and Tablelands Regional Council Planning Scheme – Visual amenity.*

As stated in Section 1 of the PER, the project site is within the Charters Towers Regional Council Local Government Area. The *Tableland Community Plan* and *Tablelands Reginal Council Planning Scheme* are relevant only to the Tablelands Regional Council LGA. A World Heritage Managers Workshop was held in Ravenshoe in 1996, and produced an information document titled *The Ravenshoe Communique*. This relates to the World Heritage Convention and site management. An assessment of impact to the WTWHA is presented in Section 5 of the PER, with the conclusion that it is unlikely there will be a significant impact on the OUV of the WTWHA.

> *Submission numbers 13, 228 and 277 stated that the PER should address the nature positive plan.*

The PER is designed to address the EPBC Act and has responded to the requirements of the PER Guidelines specifically designed for the project. The Nature Positive Plan is the Commonwealth Government's response to the Samuel Review of the EPBC Act and sets out the future reforms of the Act. The approaches adopted by Windlab are in many instances consistent with the directions of the Nature Positive Plan.

> *Submission number 149 and 13 state that the PER does not mention the Ecologically Sustainable Development (ESD) principle, including the precautionary principle.*

As stated in Section 7.2 of the PER, Gawara Baya has been designed in consideration of the five principles of ecologically sustainable development (ESD) listed under Chapter 1, part 1, and Clause 3A of the *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act). A breakdown of how these principles have been considered is presented in Table 7-1 of PER Section 7.2. The precautionary principle or a precautionary approach has been mentioned throughout the PER and supporting documents. The precautionary principle has been applied to any uncertainties regarding species presence on site and potential impacts, including extent of clearing.

> *Submission number 13 and 291 raised the concern that red goshawk and koala have been listed as priority species in the threatened species action plan.*

A rigorous survey program and impact assessment has been undertaken for koala and red goshawk as part of the project. Offsets will be provided for both species. See also species-specific sections of this report, above.

2.21 MISCELLANEOUS

2.21.1 Overview of the theme raised

A total of 40 submissions raised general objections to the project. These submissions were single line comments with no reasoning for objection, or broader general objections which were not within the scope of the PER to address.

Statements made included (paraphrased from submissions):

- *Clearing more land for massive wind farms seems to be less about renewables and more about development and greenwashing*
- *It's a waste of money*
- *Money making venture*
- *Climate change is a scam*
- *The system is flawed and costly*
- *There are better forms of energy production*
- *Address issues of demand rather than supply.*

These submissions are noted, however, no specific responses are provided.

A number of submissions also raised specific concerns which did not fit into any of the themes above. These are addressed individually below.

2.21.2 Specific issues

> *Submissions 31, 32, 59, 62, 87, 131, 142, 187, 262, 270, 281, and 297 raise the concern that the Upper Burdekin area has been earmarked by the State Government as a national park and should be a national park not a wind farm.*

Kilclooney station, which houses the development area, is an active cattle property and is not currently earmarked as a national park.

> *Submission 149 raised the concern that Windlab seeks to diverge on the topic of soils mentioning how they have monitored bore holes even though no groundwater reserves will be used and is thus irrelevant.*

There is no mention of boreholes or groundwater reserves in the PER. This comment potentially comes from a misattribution to Windlab of the unrelated Upper Burdekin Groundwater Project undertaken by the QLD Department of Environment and Science.

> *Submission 262 raised the concern that in calculating emissions of wind farms, there is no allowance made for carbon sequestration opportunity cost from clearing for turbine placement, balsa wood logging for turbine blades, clearing for and manufacture of transmission lines, poor wind conditions and wind droughts, and excess wind output that doesn't coincide with demand.*

The emissions footprint of a wind farm across its entire lifecycle is approximately 422 tonnes of carbon dioxide (Mali et al. 2023).[10] Based on wind data at Gawara Baya, it will take just 55 days of wind energy generation to offset this emissions footprint in full. Analysis is based on a 35% energy production

[10] Please note that turbine specifications have not been determined for the wind farm. This report is used as an example only.

capacity factor (the ratio of actual electrical output over the theoretical maximum electrical output). A capacity factor of 35% is conservative based on studies of Gawara Baya's wind resource. The average emission intensity of the Queensland electricity grid is 677 kg CO2-e/MWh [2]. But renewable generation is displacing fossil generation, and the average emission intensity of fossil generation in Qld is 916 kg CO2-e/MWh (Open NEM: Queensland, 2023).

> *Submission 262 raised the concern that leading edge erosion causes wind turbines to shed microplastics, including BPA which is an endocrine disrupter and can affect mammal fertility, into the surrounding environment.*

Wind turbine blades are specifically designed to have high resistance to weathering. The wind turbines themselves only contain microscopic traces of BPA, and the protective coating on the blades are non-toxic and contain negligible amounts of BPA. The extremely small potential emissions of BPA from wind turbine blades does not pose a risk to the environment or people[11].

> *Submissions 39, 110, 171, 182, and 149 commented that energy alternatives are not provided in the PER document; nuclear fission should have been considered.*

Alternatives to the project have been considered (see Section 1.4.3). However, the PER presents a proposal for a wind farm development, and the possibility of other energy developments are outside the scope of the PER.

> *Submission number 262 claims that yellow-bellied glider is recorded throughout the project area.*

The Gawara Baya project area is outside of the known distribution of the yellow-bellied glider. The closest ALA record of the species is ~95 km to the north of the project area, in Koombooloomba National Park. The species was not recorded in the project area.

> *Submission number 19 is concerned that the description of the development footprint in Section 1.1 is completely insufficient and is a form of greenwashing. It conceals the truth about destroying intact highland refugia.*

The definition of the development footprint in Section 1.1 of the PER is simply an explanation of terminology for the spatial extent within which development will occur. Section 2 of the PER gives a detailed description of the existing environment within the project area. The presence of climate refugia within the project area is discussed in Section 2.5 of the PER. The whole PER provides a detailed assessment of the impacts from the project.

> *Submission number 272 is concerned that Windlab deliberately misrepresents the environment they are proposing to damage as "pastoral land" when this area is instead remnant upland forest and woodland, rich in biodiversity and as yet not impacted by the industrial activities proposed, such as roads and clearing*.

Section 1.3 describes the project area and current land use, while Section 2 describes the existing environment of the project area. As stated in Section 1.3, the project is located on an active cattle property. The land is currently used for cattle grazing, with limited pasture improvement or land clearing having occurred to date. As stated in Section 2, the project area is predominantly covered by remnant vegetation, which provides habitat for numerous threatened species.

[11] https://cleanpower.org/wp-content/uploads/2023/03/ACP_MicroplasticsFactSheet_March-2023.pdf

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Appendix A. Summary matrix of submission by theme

Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
1		X			X	X	X	X				X		X							
2	X	X	X																		
3			X		X	X	X						X			X					
4		X																			
5	X	X	X	X	X	X	X	X				X				X					
6	X	X																			
7	X	X	X																		
8	X	X			X	X	X	X													
9	X	X																			
10		X																			
11	X																				
12	X	X				X															
13			X					X					X							X	
14																X					
15					X	X	X	X					X	X							
16					X	X	X	X					X	X							
17	X	X		X																	
18	X	X																			
19		X				X							X			X					
20	X		X										X								
21	X					X															
22		X	X	X																	
23		X	X									X	X								
24		X	X	X		X						X									
25	X	X			X									X							
26		X				X															
27	X	X										X	X								
28		X	X	X	X	X	X	X				X									
29	X	X			X									X							
30	X	X	X		X	X		X		X	X	X	X		X	X	X	X	X	X	
31	X	X	X	X	X	X	X	X				X		X		X					X
32	X	X	X	X	X	X	X	X				X		X		X					X
33		X	X		X		X			X		X	X	X	X	X					
34	X	X										X									
35	X																				
36	X	X																			
37	X	X																			
38		X																			

Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
39		x																			x
40	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x	
41	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x	
42	x	x	x										x								
43													x								
44	x	x																			
45	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x	
46		x																			
47	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x	
48	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
49		x	x		x		x			x		x	x	x	x	x					
50		x																			
51		x	x	x																	
52	x		x										x		x	x			x		
53		x																			
54	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x	
55		x																			
56	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
57	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x	
58		x																			
59	x	x	x	x	x	x	x	x				x		x		x					x
60		x																			
61		x																			
62	x	x			x	x	x	x													x
63		x																			
64		x																	x		
65		x	x		x	x	x														
66	x		x									x					x		x		
67		x																			
68	x																				
69	x																				
70		x																			
71		x																			
72		x				x															
73		x				x															
74		x																			
75		x																			
76		x																			

Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
77	x	x																			
78		x		x																	
79		x		x																	
80	x	x																			
81		x																			
82	x																				
83	x																				
84	x																				
85			x																		
86		x																			
87		x																			x
88		x																			
89		x		x																	
90	x																				
91	x																				
92	x	x		x																	
93	x																				
94		x				x															
95	x																				
96	x																				
97	x	x	x	x																	
98	x																				
99	x																				
100	x																				
101	x	x	x	x	x	x	x	x													
102		x																			
103		x																			
104	x																				
105		x																			
106	x																				
107		x	x		x	x		x		x	x	x	x		x	x	x	x	x	x	
108		x																			
109		x																			
110																					x
111	x	x																x			
112	x																		x		
113			x	x	x	x	x	x	x			x									
114		x	x		x							x									

115		x																			
116	x																				
117	x																				
118	x																				
119	x																				
120		x		x																	
121	x				x																
122		x		x		x	x	x													
123		x																			
124		x																			
125	x																				
126	x	x			x	x	x	x													
127	x																				
128						x															
129		x		x								x									
130																					x
131	x	x														x					x
132																					x
133																					x
134																					x
135																					x
136	x					x	x														
Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
137	x																				
138		x																			
139	x	x	x	x	x	x	x	x						x							
140	x																				
141	x																				
142	x	x			x	x	x	x													x
143		x																			
144		x		x		x						x									
145																					x
146		x																			
147	x	x	x		x	x	x	x													
148		x																			
149	x	x	x	x			x					x			x			x		x	
150																					x
151																					x
152																					x

153						x															
154																					x
155		x																			
156																					x
157																					x
158																					x
159		x																			
160	x	x	x				x					x									
161		x	x	x												x					
162		x				x															
163																				x	
164				x																	
165		x																			
166		x																			
167		x				x															
168		x		x																	
169						x															
170	x		x																x		
171																					x
172		x		x																	
173																					x
174		x				x															
175	x																				
176	x																				
177		x	x	x	x	x	x	x													
178		x																			
179	x																				
180		x																			
181		x	x	x	x	x	x	x													
Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
182		x																			
183	x																				
184	x																				
185		x																			
186		x																			
187	x																				x
188	x											x									
189																					x
190		x																			x

Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
191	X																				
192		X																			
193		X	X	X	X	X	X	X													
194		X																			
195	X													X							
196		X																			
197		X																			
198	X																				
199		X																			
200	X																				
201	X	X																			
202		X																			
203		X																			
204		X																			
205	X	X																			
206	X	X		X																	
207		X																			
208																					X
209		X																			
210	X																				
211						X															
212	X																				
213																					X
214																					X
215	X			X								X									
216		X																			
217	X																				
218	X																				
219	X												X								
220	X																				
221		X																			
222	X																				
223		X																			
224		X																			
225		X		X	X	X	X	X													
226	X																				
227		X		X																	X
228		X	X	X								X	X			X	X		X	X	

229	x																			
230		x																		
231		x																		
232															x					
233		x	x	x								x	x			x	x		x	x
234		x																		
235		x																		
236						x														x
237		x																		
238						x														
239		x			x	x	x	x												
240	x	x	x		x	x				x	x	x	x	x	x	x	x	x	x	x
241		x																		
242																				x
243		x																		
244		x				x														
245		x																		
246		x																		
247		x			x	x	x					x								
248																				
249	x		x									x	x	x	x					
250	x	x																		
251		x																		
252	x	x			x	x	x													
253	x																			
254	x	x		x	x	x						x	x	x	x	x	x	x	x	
255	x																			
256	x	x				x	x	x												
257		x																		
258																		x		
259	x																			
260	x	x			x	x								x						
261																		x		
262		x	x	x		x	x		x		x	x								
263	x																			
264		x																x		
265		x	x	x	x	x					x	x	x		x	x	x	x	x	
266			x	x	x	x	x	x	x			x				x		x		
267	x		x	x				x	x			x								
268								x												
269		x																		x

Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
270	x		x	x	x	x		x				x	x	x		x	x		x		x
271								x	x												
272	x					x								x	x						x
273	x	x	x		x	x					x	x	x		x	x	x	x	x	x	
274	x	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	
275	x																				
276												x									
277								x		x					x					x	
278	x													x							
279	x	x	x							x					x	x					
280		x	x	x		x	x	x	x			x									
281	x	x		x	x	x	x	x		x	x	x			x		x				
282										x					x						
283	x	x	x	x	x	x	x	x				x									
284	x																				
285	x																				
286	x																				
287	x																				
288	x	x																			
289	x	x	x	x	x	x	x	x				x									
290		x																			
291	x		x											x						x	
292						x															
293		x																			
294		x																			
295		x																			
296	x	x			x	x	x	x				x									
297	x																				x
298		x				x															
299	x																				
300	x																				
301	x																				
302																					x
303		x																			
304		x																			
305																					x
306	x																				
307						x															

Submission number	Project location	Direct impacts to habitat and vegetation	Fragmentation and Indirect impacts (inc. Protected Area)	Operation and turbines	Impact on Sharman's rock wallaby	Impact on koala	Impact on greater glider	Impact on red goshawk	Impact on masked owl	Impact on MBF	Impact on SFF	World Heritage Areas	Cumulative impacts	Offsets	Inadequate species lists and surveys	Commitments and future use	Stakeholder engagement	Social and economic	Assessment process	Other policies and plans	Misc
308		x																			
309	x																				
310		x																			
311		x																			
312	x	x																			
313	x																				
314		x																			
315						x															
316	x	x	x	x	x	x	x	x				x									
317		x	x																		
318		x																			
319	x																				
320		x																			
321		x																			
322		x																			
323		x																			
324												x									
325					x																
326		x																			
327		x																			
328	x	x	x	x	x	x	x	x				x									
329		x																			
330																					x
total	**141**	**197**	**63**	**47**	**56**	**78**	**44**	**42**	**9**	**18**	**16**	**53**	**33**	**29**	**26**	**32**	**20**	**19**	**26**	**22**	**40**

About Windlab

Windlab is a global renewable energy development company. It was established to commercialise world leading atmospheric modelling and wind energy assessment technology, developed by Australia's premier scientific research institute, the CSIRO. Windlab owns and exclusively utilises this suite of industry best practice tools to identify and efficiently develop, finance, construct and operate high quality wind farms around the world, with considerably greater certainty and substantially less risk.

This technological advantage has enabled Windlab to amass a large portfolio of high quality wind farm development sites across North America, Australia, New Zealand and Southern Africa.

www.windlab.com