NOTIFICATION OF SIGNIFICANT MATTERS OF CONCERN

To

EPURON PROJECTS PTY LTD
ST PATRICKS PLAINS WIND FARM

By

NO TURBINE ACTION GROUP INC

July 2020

Contents

1. Introduction

This written notification to Epuron documents the matters of significant concern to NTAG and its members. NTAG expects Epuron to consider these matters of significant concern to inform its impact assessment process for St Patricks Plains Wind Farm (SPPWF), and in the design of SPPWF, and in the draft EIS document to go on public display.

2. Background

Epuron has held a couple of "Information Days" and has asked for concerns to be identified so they can be considered in the EIS.

NTAG have decided to document its concerns formally, based on its or its members' experience in dealing with the proponent: from writing to Epuron but not receiving answers to questions, from two public meetings held by Epuron, from discussions by NTAG with local residents and shack owners, and from the public domain.

Epuron has not actively engaged with the community, has not been transparent, has not made available requested data, and has only made nominal contact with concerned neighbours. A couple of discussions about work being undertaken for the EIS have been initiated by the community but not by Epuron. NTAG believe engagement is more than handing out a form to fill in and going back to Sydney with no feedback provided.

The following concerns are raised so proper assessments will be undertaken by Epuron and to assist the relevant Regulators and community in their understandings and deliberations. If properly addressed by Epuron, they will help get some community support for an appropriate renewable energy project.

Some significant concerns by NTAG have also been raised in separate correspondence with Epuron. Other concerns will emerge as the project is better understood.

3. Project Specific Guidelines requirements for Epuron

Epuron indicated in their Notice of Intent (NOI) that they intend to submit an EIS with the planning application to the Planning Authority (Central Highlands Council) which means Epuron intends to submit a combined planning and environmental report. However, a somewhat circular argument develops on some issues, with EPA saying they are the responsibility of Epuron and Epuron saying they only need to do what the EPA requires. NTAG say Epuron must address significant concerns raised by the community as part of the EIS and planning process.

Project Specific Guidelines (PSG) have been provided by EPA to provide guidance to Epuron about what should be included in the assessment. Therefore, NTAG refers Epuron to the EPA's Project Specific Guidelines dated October 2019 for preparing an EIS for SPPWF. In particular, NTAG draws Epuron's attention to the following sections and statements contained in the PSG:

- Risk Based Assessment: The EIS should be prepared using a risk-based approach…. The level of detail provided on each issue should be appropriate to the level of significance of that environmental issue to the proposal. "As well as the issues identified in the guidelines, **other significant matters may emerge during preparation of the EIS from …. public comment or other sources, which will need to be factored into the EIS."** [1]

1 Page 1, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, October 2019

- Key issues Epuron must assess include potential effects on threatened avifauna. The minimum survey requirements and studies required in relation to these key issues are provided in the relevant sections of these guidelines. "**It should be noted that other matters deemed to be significant or matters that emerge as significant from … public comments or otherwise during the course of the preparation of the EIS, *should not be excluded* from consideration.**" [2]

- Project Specific Guidelines page 13 says "It is highly recommended that the proponent investigates the use of transmitters to track **resident** eagles within the project area to enable measurement of landscape use." [3]

- The impact assessment must include worst case scenarios. PSG requires "The evaluation of potential impacts should identify **plausible worst-case consequences.**" [4]

- The impact assessment should include best practice by other wind farms and updated practices for wind farms. The PSG state, "**the information in the document should be as up to date as possible"** and "**industry best practice should be referred to where appropriate**." [5]

- The impact assessment has a hierarchy for dealing with impacts - including avoidance, mitigation, adoption of alternatives and compensation as a last resort. PSG require "**if the loss of community assets or amenities is considered unavoidable, measures to compensate for those losses should be proposed in proportion to the loss.**" [6] Epuron is to consider avoidance, mitigation and alternatives before offering compensation (e.g. to effected neighbours; offsetting flora or fauna impacts etc).

4. Epuron response to concerns raised

It is not known how Epuron has responded to the concerns already raised – what will be addressed or how they will be addressed – because there has been little contact initiated by the company and little feedback given on matters already raised. Epuron's lack of engagement means there is no confidence the concerns raised to date have been heard, understood, or will be addressed properly before providing a draft EIS to the EPA.

Epuron has not abided by the Best Practice Charter [7] to which Epuron are a signatory and requires engaging with the local community to seek their input before finalising the design of the project and "providing timely information, and be accessible and responsive in addressing the local community's feedback and concerns".

---

2 "Key Issues to be addressed", Page 2, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, October 2019

3 Page 13 Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, 2019

4 "Potential Impacts and their Management", Page 9, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, October 2019

5 Potential Impacts and their Management", Page 9, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, October 2019

6 Potential Impacts and their Management", Page 10, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, October 2019

7 Cleanenergycouncil.org.au, Clean Energy Council, Community Engagement, Best Practice Charter.

Nor has Epuron embraced the PSG consultation guideline [8] issued by EPA by "providing feedback to those participating, and keeping them informed, particularly those who have provided ideas that have been considered as part of the project." Epuron need to do more than the 'mandatory consultation' requirements such as display of a draft EIS for public input; and go beyond these minimum regulatory requirements by initiating "group meetings" and "one-on one" meetings. NTAG know of a number of representations made to Epuron with little or no feedback or with a 'non-response'.

- Questions about SPPWF asked in May 2019. Some key questions remain unanswered by Epuron some 13 months later.
- Epuron Steppes Information Display on 4th August 2019. Concerns about Shannon were outlined but no contact has been made by Epuron to discuss the issues.
- Formal letters of concerns were made to Epuron by Shannon, Penstock and Hollis Banks Groups (dated 30th Jan 2020). Epuron has made no commitment that the matters raised would be considered in the EIS. A non-response to the letters by Epuron occurred two months later (1st April 2020).
- Miena Information Session on 1st February 2020. The session saw strong negative feedback about SPPWF being voiced at this first and only public discussion organised by Epuron. No website documentation or response about 'community concerns' has occurred by Epuron.
- Follow-up occurred to Epuron on 7th May 2020 about questions still to be answered. A 'non-answer' response to specific questions was provided by Epuron on 18th June 2020.
- NTAG initiated an EIS workshop with Epuron on 29th May 2020. No commitment was given at the workshop by Epuron to address the significant concerns raised by NTAG.
- Epuron advised on 29th May 2020 that the EIS consultants (Pitt & Sherry) would contact shack owners on 'EIS social matters' during June. This has not yet occurred as of 20th July 2020.
- NTAG initiated a noise meeting with Epuron on 9th June 2020. A request for data and map was not agreed to by Epuron. Concern about noise measurements methodology was expressed by NTAG.
- During the Noise meeting and EIS 'workshop' outlined above, Epuron indicated plans to submit a draft EIS for review by the EPA about September 2020 and time constraints were a factor in impact assessment for contractors doing noise investigations. NTAG had no assurance that shortcuts and cursory considerations or a formulaic proposal instead of a site-specific assessment would not be adopted by Epuron.

NTAG is not sure if the concerns raised have been passed onto Pitt & Sherry who are doing the EIS. NTAG has no confidence in Epuron's willingness to engage with stakeholders to ensure their views and concerns are heard and understood, and to ensure the team developing the wind farm impact assessment is aware of all stakeholder issues and concerns, and that these concerns will be considered in SPPWF design. There is no assurance Epuron will consider and change the design of SPPWF in response to specific community concerns. Consultation by Epuron has not occurred as required under the Stakeholder Engagement Plan.[9] It is also noted no Consultation Plan by Epuron is on the SPPWF website and no Community Consultation Committee has been established as has been practiced by Epuron for some of their other projects. As outlined earlier, Epuron is not complying with the Best Practice Charter to which they are a signatory.

Consequently, NTAG has taken this step to formally advice Epuron of a number of specific significant concerns, as outlined below, so they are not brushed aside, ignored or nominally considered in their rush to obtain approval with minimal and nominal consultation.

[8] http://epa.tas.gov.au/assessment/assessment-process/guidance-documents. Guidance on community consultation.

9 See page 7 Epuron Stakeholder Engagement Plan, Notice of Intent, St Patricks Plains Wind Farm, Epuron Projects Pty Ltd 7th June 2019

5. Notification of Significant Matters of Concern

5.1. Tasmanian Wedge-tailed eagles.

A number of concerns for Wedge-tailed eagles (WTE) are outlined below so they can be addressed by Epuron in their impact assessment. Similar concerns have been raised in the public domain [10] [11] [12] by Nick Mooney (Wedge-tailed eagle expert).

Population sink impacts. WTE occur as a single population in Tasmania and SPPWF will kill birds, reduce breeding success (because of the presence of 240m high towers), reduce food source (by carcass removal), and create a population sink creating further deaths. Therefore, the impact of the wind farm on the local WTE population will have flow on effects for its wider population. This is exacerbated by the Regulator through Permit conditions, authorising killing of WTE, using offsets for nests that are already protected, limiting turbine downtime (capping) to avoid collisions; and taking actions contrary to the Tasmanian Eagle Recovery Plan requiring an increase in the number and density of WTE populations.

Buffer protection of nests. SPPWF will disrupt breeding. Many known nest sites have turbines located on their "door-step" and access to nests will be impeded. A 1km/500m buffer does not protect nests from turbines which are 240m high (some of the tallest in Australia, three times the height of Wrest Point Casino, and untested for Tasmanian WTEs). The height of the tower and its operation will result in line-of-sight impacts; heightened noise, shadow flicker and glint; electromagnetic radiation and infrasound. The impact on WTE nesting behaviour and breeding is not known. Infrasound and electromagnetic radiation impacts on nesting must be researched since it affects humans and the effect on raptors and nesting needs to be known. The 1km buffer has no rational basis to protect eagles from 240m high turbines as it was developed for ground operations in forestry. Buffers need to be placed on new nests built after Regulatory approval (as shown at the nearby Cattle Hill Wind Farm) and approval for operation of these turbines rescinded. Other countries' study of nesting eagles use GPS to see where activity concentrations drop off away from nests - the USA routinely specifies 16km based on such evidence and South Africa is looking at about 8km.

Therefore, Epuron's EIS must investigate the impact of 240m towers and the associated line of sight, noise, shadow flicker and glint, electromagnetic radiation, and infrasound on WTE nesting behaviour and breeding; adopt new buffer distances to protect known and new nests sites; measure buffer distances from the blade tip (not the tower) since blades will be 90m in length; and document best practice adopted overseas to protect endangered eagles.

GPS tracking of local WTE and best practice eagle utilisation surveys. NTAG is concerned about the use of ground-based eagle surveys of local eagles by Epuron (with many sources of error) when GPS technology is available to be fitted to local eagles to gain accurate measures of bird use and survivability in the SPPWF area. Epuron need to implement GPS tracking as best practice of **resident** eagles within the project area to accurately measure landscape use, as "highly

[10] The bird and the Blade: a cautionary tale of supposed sustainability", N Mooney, Yellow Throat Newsletter, BirdLife Tasmania, Number 102, November 2018.

[11] "Protect eagles from blades", N Mooney, Birdlife Australia Raptor Group, Saturday Mercury, May 23rd, 2020

[12] "Revisiting the Bird and the Blade", N Mooney. Yellow Throat Newsletter, BirdLife Tasmania, Number 107, Spring 2019

recommended" they investigate in PSG.[13] Ground surveys are only estimates of eagle flight routes made by people with maps and pens over a very short period of survey time. They are surveys of unknown precision and therefore are unreliable and highly susceptible to human error. Observers looking for eagles around the site and writing down subjectively their opinion - where they believe the eagles are and how high they might be flying - have many sources of errors including miss-identification at a distance, the number of birds being seen; is not an objective measure or true pattern as eagles are curious and shadow people to see what prey may be flushed out; has observer influences; and can involve double counting. Direct observations are guesstimates.

Tasmanian Wedge-tailed eagle, St Patricks Plains

Nest monitoring needs to be adopted by Epuron. Early, mid, and late-season monitoring is required so early failures and late-season failures are known, and productivity is not overestimated. Assessments should be done from the air as ground judgements are unreliable.

Prevention of collisions and Identiflight. Empirical evidence of the usefulness of camera/radar systems such as Identiflight to avoid eagle collisions and deaths is required and should not be assumed when designing the wind farm layout. This includes proof in recognising flying eagles (including false negatives) as well as proof that this recognition technology results in reduced deaths and collisions since blade tips operate at over 300kph. Collision and shutdown rules need to be outlined in the EIS. It is not acceptable to adopt management practices which "cap" the number of stoppages because of eagle sightings (such as 1% of the total operating hours of a wind farm) and then authorise additional killing of WTE by using offsets at distant locations as the rationale.

Proper monitoring of bird mortalities from turbine collisions is required. Searching 'below' a turbine does not account for all the hits as some birds will go off-site. Use of tracker dogs over larger areas needs to be adopted in the EIS to increase detectability of dead and injured birds and for accurate impact assessments and subsequent management actions. Monitoring of mortalities must be independent of the Epuron and be paid for by the company. It is clearly in the operator's interest to find few dead or dying eagles. GPS tracking of birds will allow birds to be followed offsite.

13 Targeted eagle utilisation surveys, Page 13, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty L:td, St Patricks Plains Wind Farm, October 2019

Killing of prey and carcass management. Wildspot [14] indicate SPPWF has a high population of eagles in the SPPWF landscape, prey species are in abundance, territories may be quite small, and potential exists for many nests. Eagles cruise and prey on the broad Plains area and source carrion from roadkill, and deer and wallaby shooting as a frequent component of their diet. *A change in prey management is a threatening process to the local WTE population*. Mass culling of wallabies and deer and carcass removal aimed at minimising WTE collisions, will significantly reduce available prey and effect site utilisation by eagles. Dumping of carcasses at a few sites within SPPWF area will also change site utilisation practices by WTEs. Removal of all carcasses from within SPPWF by Epuron is not guaranteed and exposes eagles to collisions in turbine swathe areas. SPPWF area is dissected by a large number of roads and has turbines located close to these roads. Roadkill will exist and injured animals will die in the wind farm area. Shooting within SPPWF and on neighbouring land will occur and has a non-death rate of about 30% (*pers.com.*). Some will die in the turbine area. Not all carcasses will be located and not all carcasses will be removed as soon as the animal dies.

Habitat protection. New nest sites, eighteen (18) historical nest sites in or close to the SPPWF area, and critical habitat within SPPWF area all require formal protection mechanisms such as covenants on Land Titles and Ministerial Protection of Critical Habitat. The EIS needs to outline long-term protection mechanisms of these elements including an appropriate buffer.

Collision Risk Modelling. Collision Risk Modelling (CRM) is needed to lower effects of SPPWF on the WTE. CRM is not a substitute for use of buffers to protect the WTE against direct impacts of the SPPWF. GPS tracking of local eagles as part of Eagle Utilisation Studies will help reduce margins of error and help with precision. GPS tracking of local eagles, highly recommended in PSG, must be integrated by Epuron into collision risk modelling and included in the proposal to be submitted to EPA prior to work being carried out on site utilisation and collision risk analysis. CRM should also include changes to eagle utilisation patterns because of changed carcass management practices. Five (5) days study in the middle of each season is inadequate to inform CRM and is markedly influenced by the timing, location and scale of mass culling of wallabies on land within and near SPPWF.

Cumulative impact on WTE. Eagles are territorial and part of one population in Tasmania. An elevated death rate caused by SPPWF will create instability - with shuffling of territorial boundaries and disruption to breeding and a risk of creating a population sink. Spaces made by turbines killing WTE will draw in those from nearby areas and with the process continuing relentlessly. The cumulative impact of Cattle Hill Wind Farm (CHWF) on St Patrick Plains Wedge-tailed eagles and the cumulative impact of SPPWF on Cattle Hill Wedge-tailed eagles needs to be considered. Wide area monitoring adopted under the CHWF Approval needs to be considered. The cumulative impact of carcass removal practices on the local St Patricks Plains eagle population and the associated negative impacts on local Tasmanian devil populations must be considered since Devil prey will also be removed. The cumulative impact of SPPWF on a WTE population already under stress from the 2019 wildfire in the area needs to be addressed in the EIS.

Increase in number and density of active WTE territories. The objective of the Tasmanian Eagle Recovery Plan [15] is to increase the population size and stability of WTE and the number and/or

[14] Page 20. Wedge-tailed eagle nest search and assessment Central Highlands Tasmania. Prepared by Wildspot Consulting PTY LTD. (in Notice of Intent. St Patricks Plains Wind Farm, Epuron 2019)

[15] Threatened Species Section (2006). Threatened Tasmanian Eagles Recovery Plan 2006-2010. Department of Primary Industries and Water, Hobart.

density of active territories. The EIS for SPPWF needs to demonstrate how SPPWF will increase the population size and stability of WTE, increase breeding success, and increase the number and/or density of active territories. NTAG is concerned 240m high turbines and wind farm practices used by Epuron will do the opposite - decrease the size of an important and endangered population, reduce the density of the species in the local area, change the quality of the habitat, and disrupt the breeding cycle of the local population. Local WTE population viability, genetic diversity and resilience to climate change require investigation as part of the EIS.

Offsets. Offsets are measures that compensate for the effect of SPPWF on matters of national environmental significance where a net improvement or maintenance of WTE viability occurs. They are based on what is killed or what is modelled to be killed. Offsets are not applicable for the SPPWF eagle population as offsets will not increase the density of the territory as required under Tasmanian Eagle Recovery Plan, no off-set areas are locally available, Wild Cattle Hill already adopts offsets in the area, and nests sites at other localities are already protected. Money for eagle research and used as an offset does not assist the local SPPWF population. Offsets will have a net negative effect [16] because habitat cannot be improved in another area to compensate for degradation in SPPWF area.

5.2. White-bellied sea-eagles.

White-bellied Sea-eagle (WBSE) has a more restricted distribution than WTE and usually occur within 5km of large inland lakes. It has a population of less than 1000 mature individuals and the population may be declining. There are few nests and few individuals in the SPPWF area and surrounding areas. Surveys for WBSE nests need to occur. Targeted WBSE utilisation surveys and Collision Risk Modelling and analysis is required. [17] *Collision management in the EIS must ensure no deaths* of local WBSE occur. Off-sets are not to be applied because of the few individuals in the local population, lack of locally available offsets, and the cumulative impact of Cattle Hill Wind Farm. Protection of nests by buffers of at least the 'throw' distance of a 240m turbine is required (see 5.18 below).

White-bellied sea-eagle, St Patricks Plains

[16] Australian National Audit Office, 2020. Report into Environment Department Environment Protection and Biodiversity Conservation Act, 1999.

17 Targeted eagle utilisation surveys, page 12 & 13, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty Ltd, St Patricks Plains Wind Farm, October 2019.

5.3. Tasmanian devil (and Spotted-tailed quoll).

The Impact Assessment by Epuron should *prove* a decrease in the size of the SPPWF population **does not** occur. Records of Devil activity have been found over the broader Plains area. This local population is very important because Tasmanian devil has low genetic diversity and a high level of species mortality due to the Devil Facial Tumour Disease (DFTD). There is evidence that there are individuals in SPPWF area with no DFTD (see photo).

SPPWF will significantly impact the local Devil population. Carcass Removal under the usual Wind Farm management approval reduces the 'prey' available to Devils and increases competition.

Closing dens to force Devils off-site will impact the local population. The 2019 wildfire in the forest area has reduced the area of occupancy and this will be compounded by the Wind Farm activity as outlined above. It is necessary to "retain as much suitable habitat as possible" (Draft Tasmanian Devil Recovery Plan p. 44) not to reduce it through Carcass Removal, den closures and construction activity. Combined with the impact of 2019 fires reducing dens, these actions adversely affect habitat and the local population, and impacts on species survival – particularly given the high mortality from DFTD in an already depleted population and one with low genetic diversity. The local population also provides resilience to climate change for the species.

Therefore, the EIS should ensure best practice protection of the local Tasmanian devil population given the Devil Facial Tumor, the effect of 2019 wildfire on the population; and inappropriate use of den closing/off-site offset strategies for a local population which is under stress. The Australian Audit Office looking at the EPBC Act 1999, also highlighted concerns about offsets – where areas of habitat are improved in one area to supposedly compensate for degradation in another area – and referred to the Tasmanian devil when indicating offsets are having a net negative effect on endangered species.

Similar concerns about habitat reduction because of carcass removal, den closures and the impact of 2019 wildfires exist for Spotted-tailed quoll.

Tasmanian Devil, St Patricks Plains
Disease free roadkill

5.4. Tasmanian masked owl.

Tasmanian masked owl (TMO) is listed as endangered under the Tasmanian Threatened Species Protection Act 1995 and protection of individuals and local populations is required to support recovery of the subspecies. Population estimates range from 520 to 1330 breeding individuals

and a low density occurs in SPPWF area. TMO are nocturnal predators and feed predominately on sites like SPPWF with introduced rodents and rabbits on agricultural land, as well as arboreal marsupials, terrestrial mammals and native birds in less disturbed habitats. Nesting occurs in large tree hollows of living or dead trees, but sometimes in vertical spouts or limbs. Low population densities and their cryptic behaviour make this species difficult to detect. TMO calls can be used to elicit a response, but the chance of an owl being nearby and responding is low. Use of specially trained dogs to search for TMO's strongly smelling pellets is required and will indicate roosting or nesting habitat. The threats to the subspecies include loss of nesting habitat, secondary poisoning, collision mortality, and competition for tree hollows all of which apply to SPPWF. **Survey work is required by Epuron to identify population density and nest sites using trained tracker dogs, so nest protection strategies can be applied** and because hollow searches are unreliable. TMO is susceptible to secondary poisoning (and in particular 1080) and Epuron should ensure it is not used for pest control on SPPWF land. Investigations on behaviour and collision avoidance for TMO are required so collision mortality can be avoided**.** The subspecies' habit of frequenting forest and woodland edges, as well as cleared land and paddocks puts the subspecies at greater risk of collisions with artificial structures. Turbines in higher risk areas should be avoided.

5.5. Bats.

There are eight species of bats occurring in Tasmania and the Tasmanian long-eared bat is the only endemic bat species. Bats occur on site (*pers obs at* northern wall of Penstock Lagoon and Shannon village) but the species and density of bats present in SPPWF area is not known. All Tasmanian bats are fully protected species and it is illegal to collect or harm them. Collisions with turbines kill bats and sound from turbines bursts ear drums. Since bats will be 'taken' and will require a permit, the nature of the local population needs to be understood. Bat surveys need to be undertaken, an assessment of sound including infrasound on bat health be made; and a Collision Management Strategy for Bats be adopted after peer review so as to minimize deaths. The impacts of SPPWF on bats, mitigation strategies to be undertaken, and mortality monitoring and reporting procedures need to be clearly outlined in the EIS.

5.6. Bare nosed wombat.

Concern exists over the health and welfare of the local Bare nosed wombat (BNW) because of SPPWF. BNW are protected and known to occur in the area. Some have sarcoptic mange and treatment of mange is the responsibility of the land manager. PSG for SPPWF require wombat burrows to be avoided where possible and a permit to be held to destroy any burrows. Thus, the wind farm will impact on the local BNW population, but it is not known to what extent. A nearby study in Central Highlands has found 800 burrows in a 1500ha area. Traffic will increase because of the wind farm construction and will cause increased roadkill on major Gateway roads as well as within SPPWF. Turbine vibrations will have an unknown impact on the population. Studies have shown wind turbines generate vibrations which can be detected on seismometers buried in the ground many kilometres away. Vibrations caused from operating turbines, from tower braking when stopping turbines, and from wind loading while the blade is parked can be propagated for tens of kilometres.[18] Epuron need to conduct a survey of the local BNW population, avoid destruction of burrows, establish the extent of mange, research the extent and impact of vibrations on wombats, enhance the local BNW population by trialling flaps treated with Cydectin to control mange, and use non-lethal methods to manage wombats in SPPWF.

[18] Styles P et al. Fourth International Meeting on Wind Turbine Noise Rome Italy 12-14 April 2011 Monitoring and Mitigation of Low Frequency Noise from Wind Turbines to Protect Comprehensive Test Ban Seismic Monitoring Stations

5.7. Ptunarra brown butterfly

NTAG have concerns about the protection of Ptunarra brown butterfly (PBB) by Epuron in the SPPWF area. PBB is listed as vulnerable under the Tasmanian Threatened Species Protection Act and listed as endangered under the Commonwealth EPBC Act as the geographic distribution is restricted and precarious for its survival because it is severely fragmented and subject to threats. In 1998, the species was known from approximately 150 colonies (locations) in the Eastern Highlands, the highlands of the Southern Midlands, **the Steppes**, the Central Plateau and the Northwest Plains of Tasmania. All known colonies of the butterfly are found in open habitats mostly above 600m that support a cover of Poa grass (usually in excess of 25%) including grassy Eucalyptus woodland, grassy shrubland, and Poa grassland – all of which occur in SPPWF. The area of habitat is about 11000ha with **about 1500ha occurring in the Steppes area**. Reduction or modification of the butterflies' habitat is continuing and must be avoided by Epuron for SPPWF.

The Tasmanian Ptunarra Brown Butterfly Recovery Plan outlines priority recovery actions. [19] Epuron must protect the Steppes population including all known and likely habitat. This includes survey and physical identification of known locations and habitat, buffer protection of 300m (turbine height + 60m) so there is no disturbance of likely disturbance where PBB occurs, preventing turbine collisions as well as habitat disturbance and modification, monitoring the population status and impact of SPPWF, implementing formal conservation covenants, fencing areas of habitat to control grazing, and developing a suitable fire management strategy to protect the habitat of PBB as part of the SPPWF Fire Management Plan.

5.8. Threatened flora and ecological communities and their formative processes

SPPWF is a characterised by an extensive flat plain with impeded drainage and wetlands and lagoons which include Wihareja Lagoon and the three Allwrights Lagoons. The extensive Wihareja Lagoon has been erroneously omitted from Epuron's project map. SPPWF area is an ecological hotspot containing nationally endangered fauna as well as threatened vegetation communities such as Alpine Sphagnum Bogs and Associated Fens, highland grassy sedge-lands and wetlands. The Alpine Sphagnum Bogs/Fens and Sedge-lands are a subsection of theList mapped Wetlands. These Wetlands and threatened species are located along most drainage features in the area which are widespread in the SPPWF landscape. A wide diversity of rare, vulnerable or endangered species have been recorded in the area or have potential to occur in the area. Threatened herbs, orchids, and grasses have been recorded over the breadth of the Project Area with seven (7) vulnerable or endangered under EPBC Act and another nine (9) rare or endangered under the Tasmanian Threatened Species Protection Act, 1995. The area has a high irreplaceability index in recognition of floristic richness that exists from a combination of alpine and subalpine floral elements.[20] Localised occurrences of MNES flora and the sporadic nature of these values in the Central Highland Plains area indicates that off-set (alternative area) protection is not appropriate**. A finer Irreplaceability Index value of the area must be calculated by Epuron, taking into account fauna as well as flora, so off-reserve protection areas can be identified within the SPPWF area rather than treating ecosystem flora and fauna elements in isolation**.

Drainage is the predominant landform feature of the Plains and key to formative and maintenance processes of wetlands. **Drainage features within the landscape are widespread, not clearly defined and intermittent. These drainage features contribute moisture from both above and below ground sources** and create complex and unique communities. Hence species

[19] Ptunarra Brown Butterfly Recovery Plan 1998-2003. See https://dpipwe.tas.gov.au/Documents/PtunarraBRecPlan.pdf

[20] Kirkpatrick, JB et al "An Irreplaceability Map for Tasmanian priority Species. Papers and Proceedings of the Royal Society of Tasmania Vol 151, 2017.

off-sets are not appropriate and harm and destruction by infrastructure works must be avoided. Ground water and surface drainage studies and mapping is required to define these maintenance and formative processes. This will allow protection of MNES flora communities and species and allow SPPWF infrastructure to be correctly located and impacts avoided. PSG require mapping of ephemeral waterways and drains. [21] A pre-construction map of all these features is required to avoid doubt because the state and nationally significant (values present and scattered in the area are too important to allow ad hoc and unmapped action by Epuron during construction. Epuron's NOI identified fencing of communities as a means of protection. Buffers on the community are also required for at least tower height plus 60m (300m).

St Patricks Plains drainage and wetland formative processes observed from Barren Tier Trig
Fore- impeded drainage; Mid – Wihareja Lagoon; Back – Allwrights Lagoons
Project Specific Guidelines require Epuron to map ephemeral waterways and drains
Turbine tips will only be 40m lower than the photo point (240m tall)

St Patricks Plains intermittent drainage patterns

[21] Page 5, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty Ltd, St Patricks Plains Wind Farm, October 2019.

5.9. Noise concerns

Concern about noise has been raised with Epuron in separate correspondence. Additional concerns about noise exist and the EIS must address the following issues:

- Recognise Steppes Historic precinct, Wilburville, Flintstone, Shannon, Hollis Banks, Penstock as sensitive areas in the EIS.
- Recognise Penstock Lagoon and Penstock Lagoon Camping area as sensitive areas because of the world renown fly fishing values.
- Recognise Steppes Historic precinct, Wilburville, Flintstone, Shannon, Hollis Banks and Penstock settlements, Penstock Lagoon and Penstock Lagoon Camping area as high amenity noise areas under NZ Standard NZS 6808:2010 Acoustics – wind farm noise.
- Make underlying data and noise modelling available for peer review as part of the draft EIS.
- Identify and filter from background noise measurements any noise generated by traffic for construction and commissioning of Cattle Hill Wind Farm because it is abnormal and will artificially elevate background noise levels.
- Ensure noise emissions from SPPWF do not exceed the levels allowed for low density residential zoning of Shannon, Flintstone and Wilburville.
- Investigate and document noise generated from different turbine configurations – different turbine height, different turbine design and capacity, and different spacing - for inclusion in wind farm design.
- Include an alternative wind farm design as an option in the EIS using a 0% increase in noise from turbines at Penstock, Shannon, Flintstone and Wilburville villages so design options can be evaluated.
- Research and document the effect of infrasound on the health of residents and neighbours of SPPWF.
- Outline technical options using masts at key dwelling and neighbouring settlements to turn off turbines when noise levels are exceeded at the locations.

5.10. Vibration concerns.

Significant concerns exist about vibration. The character of vibrations produced by SPPWF is not known, but significant vibration is expected to occur because of the sixty seven (67) turbines with 240m height and a 180m rotation diameter, construction of very large footings of unspecified depth in a poorly drained landscape, and because turbines will be subject to ice and abrupt stoppages. It is known that vibrations extend for tens of kilometres from smaller sized turbines. It is also known prolonged exposure to vibration can cause vascular, osteoarticular and nervous system problems. Disorders in functioning caused by vibrations are known to include increased motor reaction time, increased visual response time, disruption to coordination of movements, excessive fatigue, insomnia, irritability, and memory impairment. The actual effect from SPPWF is not known for both the nature of vibrations that will be generated and also the susceptibility of neighbours and fauna to these vibrations. Therefore, the level and nature of vibrations at dwellings within and neighbouring SPPWF must be assessed by Epuron; and use of damping systems on turbines is needed to mitigate vibration.

5.11. Visual, landscape, ridgeline and skyline concerns.

Strong negative feedback about SPPWF occurred to Epuron at the Steppes Information Day on 4th August 2019 because the turbines were “too tall, too many, and too close”. Height, location and number of turbines are major community concerns. This reflects not only the immediate visual impact but also landscape impacts, ridgeline impacts and skyline impacts.

Visual. Turbines at 240m tip height, will be some of the tallest in Australia and three times the height of Wrest Point Casino, the majority are located in a predominantly treeless plain, and sited

adjacent to main arterial roads into the Central Highlands of Tasmania. They will have a catastrophic and transformative negative visual impact because of the industrialisation of a historic pastoral environment and industrialising the entry into remoteness of the centre of Tasmania. The EIS must protect all visually sensitive areas. These include Gateway Roads to the remote Central Highlands (Highland Lakes Rd, Waddamana Rd, and Poatina Rd), Penstock Lagoon and Camping Area (a world renown fly fishing area and promoted for three years by the Government for remote fishing in the lead up to the 2020 World Fly Fishing Championships and now sullied with visible turbines), village residences, and individual dwellings. Lights on towers ("Christmas trees') must not be visible from dwellings or from remote camping areas at Penstock. NTAG has no confidence in photomontages used by Epuron because they are not independent as Epuron was involved in their production. Pale colouring of turbines (e.g. Penstock Lagoon photomontage) add to this concern. For a proper perspective on the visual impact of turbines, the use of Urbis Virtual Reality headsets with 360 degree photo-simulation of the proposed wind farm should be made available by Epuron as it is current best practice and has been suggested by the National Wind Farm Commissioner. A photomontage from Barren Tier Trig is also required as it is a recreation and mountain bike adventure site where an overview of St Patrick Plains can be seen.

In addition, the following is required to allow proper consideration of visual matters in the EIS:

- A 'Visual Protection Plan for Gateway Values' on the Highlands Lakes Rd and Waddamana Rd.
- A Visual Protection Plan for Penstock Lagoon (World Class fly-fishing site) and Steppes Historic Site.
- Visual Protection Plan for Wilburville, Shannon and Penstock settlements.
- Epuron to consider 'Alternatives to Protect Visual Values' including (but not restricted to) - lower turbine heights, fewer turbines, wider spacing of turbines, setback of turbines from roads and key vista sites, location of turbines in a less sensitive area (e.g. only at Christian Marsh), and use of solar panels rather than turbines in the Project Area.
- Use of independent photomontages (with no involvement by Epuron to influence the end product).
- **Photomontages are needed for different turbine heights** (e.g. 100m rather than 240m) as previously requested to Epuron, and with different pacing and placement of turbines in photomontages so the best visual alternatives can be properly evaluated.

Landscape. The SPPWF area is one of the few landscapes in the Central Highlands where a heavily forested tier landscape changes to flat plain landscape with remnant woodland communities and with ongoing and historical pastoral use for over 100 years. The area has biodiversity uniqueness - being a highland plain, with low intensity grazing occurring above 800m, in an alpine environment, on a grassland plateau drained by a major river; and with biologically diverse lagoons, wetlands, grass lands, remnant forests, and woodlands. Less than 2% of the SPPWF area has existing transmission lines and these are visually benign because of their transparency and low height compared to the solid towers being proposed. Landscape protection is required under the EIS through landscape management that maps zones of landscape importance and integrates pastoral and shepherding history, scenic quality, public concern, and seen areas from travel routes, recreational use and dwellings.

Skyline. By its very nature, the SPPWF is a skyline industrial wind farm development because it is located on a Central Highland plateau with turbines predominantly on a Plain. Most of the wind farm is not at the bottom of a valley to hide its turbines. Skyline issues are exacerbated because of the height (240m) of the turbines which means turbines are only 40m lower than Barren Tier Trig site which is the highest landform in the area. To the north east turbines will be silhouetted against the horizon because they are higher than the 'Wilburville ridgeline'. Those travelling the Gateway Roads will be looking along the Plain and look up to the turbines; and these turbines will

mar the skyline vista. Because turbines are close to all roads, they create skyline impacts for all road users. Likewise, about 25 turbines are visible from Penstock Lagoon and create a degraded skyline for this world renown icon of fly fishing. *These concerns are clearly seen in the photomontages taken by Epuron.* **Epuron must modify the wind farm design so no skyline issues occur.** Current best practice for turbines and dwellings needs to be practiced as has been applied by Forest Wind (which also has 240m high turbines) where *international landscape architect Viento undertook a landscape visual impact assessment for Forest Wind resulting in* ***industry leading*** *3km buffers between turbines and existing dwellings.*[22]

Ridgeline. As indicated above, turbines will be silhouetted above the ridgeline. Of special concern are turbines visible above the ridge south-west of Wilburville and turbines that will be visible as a ridgeline panorama from Penstock Lagoon.

5.12. Sensitive use of adjacent land.

A number of sensitive areas adjacent to SPPWF exist. Shannon, Wilburville, Penstock and Hollis Banks are unique communities based on the lifestyle of relaxation and recreation in a remote landscape free of large-scale industrial developments and sitting in a sense of history, surrounded by spectacular scenery. For some, it is the shack to get-away-from-it-all; for others it is the future principle place of residence or retirement place to rest the soul. Steppes is a sensitive historic area giving insight into life in a harsh environment. Penstock lagoon is a world icon for fly fishing and can be so quiet you can 'hear a person change their mind'. Barren Tier Trig is a communication site and bush walking and mountain bike destination. Access roads through the wind farm are sensitive because they are Gateway Roads giving access to 'Western Wilds', the Tasmanian Wilderness World Heritage Area and tourist routes. Epuron must ensure there is no nuisance from the wind farm.

5.13. Shadow flicker and blade glint concerns

Shadows caused by the presence of turbine towers (for example cast across roads) and shadow flicker caused by blades are concerns to be addressed by Epuron. Shadows cast from turbines at SPPWF are more than the normal issue because of turbine height (240m), turbines being located next to roads, the extensive public road network encased by the wind farm, and black ice issues. Shadow flicker is also more than the usual wind farm issue. Shadow flicker can trigger epileptic seizures and be a source of annoyance that leads to health issues. Modelling is normally conducted for sensitive areas next to wind farms but NTAG has not seen any validation of models used in wind farm assessments. NTAG believe modelling is likely to understate the effect at SPPWF because of the turbine characteristics and the nature of the site. St Patricks Plains is unique and features high altitude, long summer days, barren and flat topography, scattered trees, clear atmospheric conditions, and turbines taller than most landforms (and only 40m lower than the dominant Barren Tier Trig). Higher altitude means the sun is lower in the sky and shadows longer and, with the features outlined above, this means assumptions normally made for modelling of shadow flicker need to be re-considered. International best practice adopted in Netherlands (also fairly flat!) requires turbines to be equipped with automatic shadow flicker control systems if shadow flicker occurs at sensitive receptors **within 12 times the rotor diameter (2.2km)** and if on average shadow flicker occurs for more than 17 days per year for more than 20 minutes per day. Sensitive areas to be assessed at SPPWF include Shannon, Penstock, Hollis Bank settlements and Penstock Lagoon, isolated dwellings as well as Herne Hunting & Fishing Lodge and Ripple Lodge, Steppes Hall, and Gateway Roads. In regard to flicker frequency, Epuron must make available the turbine manufacturers technical specifications to show the maximum shadow

[22] forestwind.com.au/planning=documentation Appendix A.10 Landscape and Visual Impact Assessment

licker frequency of 3Hz will not be exceeded. Also, when adopting worst case scenario, modelling should assume a 3km default distance, 15% sun coverage, and 2 degrees or more sun angle. Model assumptions used by Epuron should be validated against actual shadow flicker by using the nearby Cattle Hill Wind Farm to prove the modelling.

5.14. Heritage concerns.

Cultural landscape heritage, highland character and historic sites will be impacted by the wind farm and lead to loss of heritage, loss of historical identity, loss of remoteness, loss of tourism, and loss of enjoyment.

Cultural landscape heritage. St Patricks Plains is a cultural landscape. Aboriginal people used the area for hunting, and it was part of their "highway" with directional markers from the East Coast to Great Lake and Lake Fergus by the Oyster Bay Tribe. The local Big River Tribe had seasonal movement through the area and included use of fermented Cider Gum sap from trees, a species still present in the area. Exploration by Europeans was known in 1807 and a shepherding hut was established on the Steppes, probably about 1820 (200 years ago) for alpine grazing and shepherding which still occurs today. Bushrangers Howe and Brady frequented the Central Highlands. Penstock Lagoon was built in 1916 as part of Tasmania's historic entry into hydro-power generation and Shannon Power Station was built in 1930's. Photos from Penstock lagoon in 1920's illustrates long and historic fishing links to the area. Aboriginal names such as Miena (lagoon-like) and Waddamana (cascades of water) capture cultural landscape linkages.

Highland character. People come to the central Highlands to get away from it all - because of the remoteness, ruggedness and natural beauty of the area mingled with low key development, historical grazing, abundant wildlife, and challenging recreational opportunities. It is expressed in remote shacks and cabins, bushwalking, mountain bike adventure (and business), hunting, fishing, remote Highland drives, and low intensity grazing. The sense of solitude, the rural character, and interactions with the large number of Wedge-tailed eagles is incompatible with an industrial wind farm. Relaxing at the shack is part of the Tasmanian way of life.

Historic sites. The Steppes Historic Site, the Homestead and the Stephen Walker sculptures, are surrounded by turbines. The area showcases early life in the remote Central Highlands and the impact of turbines being built too close is detrimental to tourism and the character of this important State Reserve. Nearby is a shepherd's hut and remains of other early settlements exist within and adjacent to SPPWF area. Turbines must not be visible from Steppes Historic site precinct.

5.15. Electromagnetic radiation, electrical and communication concerns

Electromagnetic and physical obstruction from turbines could interfere with radio communications and emergency services. The Central Highlands area requires proper communication systems for boating safety, for emergencies, for phone communication, for business, and for enjoyment. Some areas, such as Shannon village, have poor radio, phone, internet and TV reception. Ghosting of TV receivers may occur when turbine blades scatter the signal. Problems can be eliminated by minimising the use of metal in turbines (such as in blades and the lightning protection system). The turbine electromagnetic interference which comes from the generator can be suppressed by shielding design. An Electromagnetic Interference

Assessment is required for 60km [23] around SPWF so that there is no impact on residences and emergency services; and must consider as a minimum the following:

- Fixed point-to-point radio systems.
- Digital Television Broadcast as there are areas of low signal.
- Aircraft Telecommunications Systems (including aircraft being obscured from radar detection).
- Maritime Radio Systems (particularly with the levels of recreational use of lakes).
- Meteorological Radar such as BOM for "Windfinding" and "Weather Watch").
- AM/FM Radio Broadcast.
- Cellular Mobile Phone Systems.
- Barren Tier Trig Emergency Services and Fire Tower requirements.

An increase in Transmission Line electromagnetic effects should also be considered because of the new connections that are planned and used by Epuron. This effect on human and animal health must also be assessed in the EIS.

Epuron must address these concerns in the EIS and adopt both technology and turbine location so electromagnetic interference and health impacts do not occur in the area.

5.16. Social considerations

Epuron must provide accurate, honest, and complete socio-economic assessments. Claims have been made by Epuron about jobs created, increase in land values, and local benefits from a community fund but they have been quiet about social problems. Epuron must address issues raised by the community at the Miena Information session in February 2020 which included strong public opposition to the proposal – e.g. choice of SPPWF site was by convenience (not with social and environmental considerations); lot of negatives (nothing in it for Tasmania or locals); tourists come for fishing and wilderness not turbines. Epuron also heard at this meeting that wind farms are not socially good as shown by Cattle Hill Wind Farm – 'destroyed Miena way of life'; 'locals leave the community and not return'; 'rentals went from $150/week to $700/week'; need to control socially bad workers; few locals get jobs; and concern about foreign ownership.

As well as these community concerns, NTAG raises significant matters about:

- Accurate construction employment figures. A review of predicted employment numbers compared with actual employment is required in the EIS using information from other wind farms in Australia. The average jobs per MWH for recent new wind farms of similar size averages 0.6 but Epuron claim of 1.0 is almost double.[24] Less than 200 construction jobs are likely (rather than 300 claimed by Epuron in their NOI) and most will be non-Tasmanian and of short duration.
- New full time operational and maintenance employment. Epuron has publicly said 4 full time jobs would be created but has also said 12-15 jobs. Specific jobs that will be created need to be identified by Epuron and verified by Cattle Hill Wind Farm experience.
- Number of construction jobs to be filled by local, other Tasmanians, Mainlanders, and international workers need to be identified and verified by Cattle Hill Wind Farm experience.
- Number properties predicted to be bought that are adjacent to the wind farm for post construction workers need to be stated as it is used by Epuron to justify their view property prices will increase; and be verified by Cattle Hill Wind Farm experience.

[23] Queensland State Development Assessment Provisions, State code 23: Wind farm development, Department of State Development, Manufacturing, Infrastructure and Planning version 2.5 June 2018

[24] Epuron NOI page 9: "with approximately 300 jobs expected to be created during the construction period, and several full-time positions created once the wind farm is operational."

- An estimate of the total capital cost of the project, the amount expended overseas, the amount expended on the Mainland, the amount expended in Tasmania, and the amount expended locally is needed.

5.17. Fire concerns

NTAG is concerned about SPPWF increased fire risk under very-high-extreme fire conditions in the area and restricting fire control activities by helicopter and fixed wing aircraft. Individual dwellings and settlements such as Shannon will be decimated because some of the 240m high turbines are located in the wrong spot. Turbines in the wrong location prevent unhindered aerial access to water for fire control as well as unhindered low level aerial access to protect settlements and dwellings by spotter and water bombing aircraft during periods of very high-extreme fire conditions and fire weather directions. It is compounded by aircraft needing room to move because of Wedge-tailed eagles being present and the need for aircraft to avoid raptor nest buffers (as shown in 2019 wildfire). Turbines need to be located so that there is access for fire water from Wihareja Lagoon, Allwrights Lagoons, and Penstock Lagoon for any wind direction and under all fire conditions which are likely to occur over a 25 year+ period so as to provide the quickest filling return periods. Turbine placement is also required so aerial protection in depth can occur to prevent fires burning into the ridge line west of Wiburville under adverse west and north-west fire conditions; and to allow access to protect dwellings and settlements such as Shannon village under all fire weather conditions.

SPPWF and its associated processes also increase the risk of fire within the wind farm area because turbines cause fires, turbines that are 240m high act as 'Roman Candles' and spread fire, turbines on St Patricks Plains will hinder aerial firefighting, turbine location prevents easy aerial access to fire water from Wihareja and Allwrights Lagoons during fire-fighting, and Epuron's plan to fence Threatened Ecological Communities as stated in their EPBC Referral will increase flash fuels in the project area. Fuel reduction burning is required by Epuron both within and next to the wind farm area to protect the surrounding assets and environment from fire that starts on SPPWF.

AFAC policy document [25] provides guidance for authorities and individuals to develop a local fire prevention and control plan for a wind farm. It was developed using a Waterloo Wind Farm case study with turbines only 140m high rather than almost double the height (240m) as is the case for SPPWF. **Use of this policy document by Epuron does not derogate Epuron from their statutory obligations to ensure protection of adjacent dwellings because of their activity – a Fire Protection Plan for the wider area is needed.** The AFAC document requires "individuals, agencies, organisations and public bodies make their own enquiries as to the currency of this document and its suitability to their own particular circumstances prior to its use" and "it also provides guidance for AFAC member agencies, wind farm developers, wind farm operators and other stakeholders *in planning for bushfire prevention, preparedness, response and recovery activities in and around existing and planned wind farm facilities".*

Epuron must:

- Document all the known turbine fire from wind generators in Australia and the effect of the fire (such as area burned, stock losses etc.) in the EIS. NTAG know of at least 6 fires started on wind farms in Australia.
- Ensure access to fire water within SPPWF and protection of neighbours' assets are not compromised by the presence of turbines.

[25] https://www.afac.com.au/insight/doctrine/article/current/wind-farms-and-bushfire-operations-doctrine afac wind farms and bush fire operations guideline version 3.0 25, 2018

- **Ensure Fire Prevention and Protection Plans are developed as part of the EIS rather than after any approval occurs as intended in the AFAC guidelines for 'planned windfarms' because it is part of proper wind farm design.**
- Use the AFAC guidelines to help develop a 'Protection Plan for Settlements and Dwellings Adjacent to SPPWF' in association with neighbours.
- Develop a 'SPPWF and Surrounding Forest Fire Protection Plan' (including Epuron doing fuel reduction burning).
- Make sure community and emergency service communication capabilities are not impacted by SPPWF.

5.18. Tourism impacts

SPPWF is not compatible with tourist values used to promote the Central Highlands of Tasmania. The Central Highlands area is home to the barren and remote Central Plateau, iconic World Heritage Wilderness Areas and has a world-wide reputation for trout-fishing. Tourism branding under the Central Highlands Destination Action Plan [26] includes stories, activities and signature experiences that give the Central Highlands a unique sense of place - the Highland Lakes, trout fishing and World Heritage Area; Hydro and farming heritage and experience; and opportunities for adventure, including fishing and other recreational pursuits. The St Patricks Plains area has unspoiled lakes and lagoons, remarkable scenery, unspoiled access to wilderness, the birthplace of Tasmania's Hydro-Electric power system, the Steppes Heritage experience, and a developing Mountain Bike business based on the remote and scenic environment, and some of the best trout fishing in the southern hemisphere. However, the SPPWF industrial development will line 30km of Gateway Roads with 240m high turbines (three times as high as Wrest point Casino and almost double the height of Sydney Harbour Bridge) and surround the Steppes Historic site. The Western Wilds Tourist drive and the historic Highlands Power Trail are both compromised as they highlight a "rugged Central Highlands" and an "unforgiving landscape" for a "hardy" community. Turbines are not needed as a tourism feature as they are already seen at the nearby Cattle Hill Wind Farm when exploring the Power Trail.

Epuron's EIS must ensure the Central Highland brand is not compromised, Gateway Roads are protected, and remoteness and heritage experiences are maintained. No turbines should be installed on the Plains proper and Epuron should investigate alternate areas for the wind farm in the EIS - such as the West Coast of Tasmania, or restrict the turbines to south of Bakers Tier so tourism values are not compromised, or install a solar farm.

5.19. Setbacks

Epuron has been asked for over a year what setbacks will be applied for SPPWF but has not responded. Setbacks need to adopt not only current best practice but also the technical requirements of the turbine manufacturer. Plausible worst-case scenarios as required under the PSG must be applied. Turbine blades are known to disintegrate and throw debris and heavy ice for long distances. SPPWF has the equal coldest recorded temperature for Tasmania -13^{0}C at Shannon. Zones under turbines to protect life and matter are specified in Turbine Manuals, but no information has been made available on Chinese made 6.2MW turbines with 90m blade lengths which are planned to be used by Epuron. It is not acceptable for Epuron to burden others with safety and physical damage outside the wind farm boundary or on high value utilities and high conservation value features within the wind farm area. The Manual for Vestas v90 3MW turbines with 49m blades has 400m setbacks warnings (i.e. 8.2 times the blade length). Because

[26] http://southerntasmania.com.au/wp-content/uploads/2015/12/central-highlands-DAP-online-version.pdf

of the 240m turbine height adopted by Epuron, a 900+m exclusion area is required as part of these site safety and material throw setback requirements.

For the above reasons, the EIS must:

- Adopt current best practice setback distances.
- Disclose the 90m blade material throw and safely distances specified by the manufacturer for 240m turbines.
- Establish at least 1.8km distance spacing between towers (being 900m safety/throw zone from each turbine).
- Use at least 3km setbacks of turbines from settlements being best current practice.[27]
- At least 2km setbacks of turbines from isolated dwellings being best current practice.[28]
- At least 3km setback distances from Wedge-tailed eagle nests as a default requirement while GPS tracking of local eagles and expert advice is finalised.
- Setbacks from Waddamana and Highland Lakes Rd (Gateway roads) so no skyline or ridgeline silhouettes occur.
- At least 900m set back from Watkins Rd (a restricted access public road) and other road reserves being the 900m safety/throw zone from a turbine.
- At least 900m setback from private property boundaries being the 900m safety/throw zone from a turbine.
- At least 900m setback from transmission lines within SPPWF being the 900m safety/throw zone from a tower.
- At least tower height plus 60m (300m) as a buffer on nationally endangered MNES flora communities and species, to ensure environmental integrity; and
- Setbacks from water bodies to allow aerial access to water for firefighting as specified in the SPPWF Fire Protection Plan.

5.20. Cumulative impacts

PSG require the cumulative impacts of existing and approved projects to be assessed and for other proposals which have been formally proposed and for which there is sufficient information to allow meaningful assessment (with uncertainties identified). Epuron are also required to consider other significant matters from public comment or other sources. Plausible worst-case scenario also needs to be considered. Epuron has self-disclosed and publicly indicated other areas of Central Highlands identified and mapped by AEMO for a Renewable Energy Zone and as priority wind farm areas. In addition, a representative of Epuron has stated Epuron's 'next plan' is for north of Miena. Epuron has also advised NTAG that an approach has been made by the landowner of Waddamana Forest area to use the area for turbines and Epuron has contacted them. It adjoins SPPWF and the already established Cattle Hill Wind Farm. The building of turbines on Waddamana Forests by Epuron or others cannot be ruled out. Furthermore, the Government has announced Battery of the Nation, a 100% increase in the Renewable Energy Target for Tasmania, with the need for new wind farms and the introduction of Major Project legislation to allow projects such as wind farms to easily gain approval. Therefore, SPPWF must include current, proposed, and identified potential wind farms as part of the cumulative impact assessment and as part of the plausible and publicly identified scenario as required in PSG.

---

[27] SA Draft Planning and Design Code Phase Two (Rural Areas) October 2019: 2km setback for townships and settlements & 10m extra for turbine tips beyond 150m i.e. 2.9km for 240m turbines.

Also forestwind.com.au/planning=documentation Appendix A.10 Landscape and Visual Impact Assessment

[28] SA Draft Planning and Design Code Phase Two (Rural Areas) October 2019: For dwellings, a 1.2km set back plus 10m for turbine tips greater than 150m i.e. 2.1km for 240m turbines]

NTAG concerns about cumulative impacts include but are not limited to:

- Cumulative impacts on local social values of SPPWF, Cattle Hill Wind Farm and Waddamana Forest on landscape, skyline, 'cradle to the grave CO_2 production', property values, infrasound, road maintenance, and Penstock Lagoon vista/fishing values.
- Cumulative impacts on local populations of threatened and endangered flora and fauna by SPPWF, Waddamana Forest and Cattle Hill Wind Farm. This includes national and state threatened and endangered flora and fauna and in particular Wedge-tailed eagles, White-bellied sea- eagles, Tasmanian masked owl, Tasmanian devil, Spotted-tailed quoll, invertebrates and MNES flora.
- NTAG has particular concerns about the cumulative impact of SPPWF on Tasmanian Wedge-tailed eagles because of the Cattle Hill Wind Farm approval – the cumulative impacts of authorized killings, off-site monitoring sites, and offsets for nests in already protected areas.
- Furthermore, Epuron must consider the cumulative impact of approvals to use of Identiflight as applied for CHWF. NTAG understand CHWF is allowed to kill two (2) eagles; after that turbine shutdown will occur if the system detects eagles but is capped at 1% loss of total power production; and once the cap is reached, killing of eagles can restart again with offsets. The cumulative impact of both SPPWF and CHWF under Identiflight must be considered because a killing 'sink' will impact on the local and state population. Cumulative impact of unending killing of local Wedge-tailed eagles by CHWF and SPPWF must be assessed.
- Cumulative statewide impact of SPPWF, other existing wind farms and planned wind farms (undergoing assessments) need to be assessed for the above values.
- The cumulative impact of SPWF, CHWF, AEMO identified areas, and Epuron self-disclosed intentions need to be assessed for cumulative impacts on flora, fauna, visual, and skyline values.
- Cumulative impact of SPPWF and the 2019 wildfire on flora and fauna which has already put local populations under stress.

The cumulative effect of off-sets also needs to be addressed particularly for Wedge-tailed eagles and White-bellied sea-eagles give the CHWF approval and intentions for SPPWF. Rather than using off-sets to allow a project to proceed at the cost of the local environment, real protection in the local area is required by changing Wind Farm design as a priority.

5.21. Technical and data matters

NTAG are concerned technical and data matters be provided in a transparent manner in the EIS to allow peer and independent review and verification by experts and the community. As indicated earlier, Epuron must make available technical information from the turbine manufacturer about safety/throw zones as well as tip speed, shutdown time, and ice-lightning-noise damping features to be installed. Data and modelling used for Collision Risk Modelling, Noise Modelling, as well as disclosure of noise monitoring sites must also be made available for review. Assumptions behind the modelling need to be provided; as well as the result of the process required under the PSG for EPA 'approval' of Collision Risk Modelling analysis [29] prior to any eagle utilisation survey work being carried out.

NTAG are also concerned Wind Farm Design is based on Epuron's knowledge and experience but the Project is a 'black box' as far as demonstrating all technologies and alternatives have been considered and best available components are used in the best available way. Furthermore, the

[29] Targeted eagle utilisation surveys, page13, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty Ltd, St Patricks Plains Wind Farm, October 2019.

Project design (e.g. turbine spacing, heights, and reasons for the chosen turbine locations) need to be transparently presented in the EIS. For example, the original April 2019 Epuron turbine map had about 19 turbines, but this expanded to 67 without new wind monitoring results being available to inform Wind Farm design, and the expansion in numbers was an ambit claim to maximize the number of turbines on the Project Area without supply of any supporting data. Turbine placement is 'ad hoc' and technical vetting and justification is required for each turbine.

Therefore, the following is needed as part of the EIS:

- An 'Independent Technical Review of SPPWF Wind Farm Components' used by Epuron.
- An 'Independent Technical Review of Data and use of Data in Wind Farm Design.' and
- An 'Independent Report on Options for Components and Wind Farm Design for Best Environmental Outcome' as a result of the Technical Reviews adopted above.

In summary, the components used by Epuron and the wind farm design adopted by Epuron all have significant consequences for the St Patricks Plains environment and need to be assessed.

5.22. Use of Current Best Practice and Information.

NTAG are concerned Epuron will not use best current practice and will hide behind out-of-date or deficient procedures and result in a second-rate wind farm outcome. PSG refer to various Guidelines to "guide" the consideration. This includes archaic guides such as "Draft National Wind Farm Development Guideline 2010" which has remained as a draft because it was intended State jurisdictions would develop their own planning frameworks to manage concerns about wind farm developments. However "it is not a coincidence that progress at the state and territory level to develop robust wind farm development frameworks has also faltered …… and where progress has been made**, it has not resulted in assessment, monitoring and compliance frameworks that are robust enough to alleviate negative impacts on the communities surrounding wind farm developments**." [30] The EPA also appear to be using an out-of-date template for their PSG – for example March 2019 Victorian and Planning Guidelines are available, rather than January 2016 Guidelines quoted by EPA. Current best practice needs to be applied in the impact assessment.

Current best practice to be used by Epuron for SPPWF must include court precedents, recent guideline and code developments, and expert advice and review. For example, the South Australian Draft Planning and Design Code Phase Two (Rural Areas), Oct 2019 [31] provides for a base 2km setback from settlements **plus** an additional 10m of setback per additional metre of tip height above 150m (or 2.9km for SPPWF).

5.23. Business case

Epuron is required to outline the business environment for the project – general background on the proposal, likely markets and how it relates to other proposals. [32] NTAG has concerns the business case for SPPWF does not stack-up and therefore the environmental impact is not justified and can be avoided. Epuron is not the operator and has a vested interest to use whatever means to get approval and then sit on it until investors are found to construct and

[30] Page 79. Senate Select Committee on Wind Turbines Final Report August 2015

[31] SA Draft Planning and Design Code Phase Two (Rural Areas) October 2019 [Has a 2km setback for townships and settlements & 10m extra for turbine tips beyond 150m i.e. 2.9km for 240m turbines. For dwellings, a 1.2km set back plus 10m for turbine tips greater than 150m i.e. 2.1km for 240m turbines]

[32] Page 3, Project Specific Guidelines for Preparing an Environmental Impact Statement for Epuron Projects Pty Ltd, St Patricks Plains Wind Farm, October 2019.

operate. Due diligence on the business case is needed since Epuron is using it to publicly justify the business as part of the social reason for the project. Epuron has espoused their business case in public meetings saying it will meet Tasmania's medium-term power requirement, increase local energy security, help reserve hydro generating capacity, lower local electricity retail price, and "capitalise' on Marinus. NTAG investigations show SPPWF is not needed to power Tasmania and Tasmania can be choosy on wind farm locations because of the amount of new renewable energy projects under consideration. Epuron is conflating its own short-term business interests with that of Tasmania's short-and long-term interests. Therefore, it is imperative that the SPPWF business rationale and environment need to be outlined in the EIS and the project viability justified for Tasmanians. Ultimately the absence of SPPWF is the best environmental outcome for St Patrick Plains and the need for SPPWF must be demonstrated.

Thus, Epuron must outline the business environment and the business proposal in the EIS so proper consideration can occur. Specifically:

- The status of the electricity market in Tasmania – including figures on demand by Tasmania for power; available supply of power to Tasmanian consumers; supply from new solar and wind farm approvals; the increase in supply from projects currently being considered; sensitivities in supply – such as a possible reduction in demand due to key industry closures (e.g. Temco is under review and if closed would free up 12% more power); and the net surplus power available.
- Tasmania's capacity to export surplus power to the mainland – quantity available, Basslink capacity and oversubscription.
- Epuron sales opportunity without Marinus and the implications for SPPWF.
- Capacity of the transmission line network serving St Patricks Plains, current and intended usage and surplus capacity available to Epuron.
- Epuron's intended financial contribution to Marinus.
- Effect of wind power on Tasmanian network stability, the likelihood of 'blackouts' in Tasmania, upgrades required to the Tasmanian Network because of unreliable wind power (and who pays for any upgrades), and system strength issues.
- Taxpayer subsidies involved in wind power generation and taxpayer subsidies to Epuron including Epuron's contribution to the Tasmanian transmission line/network capital costs.
- Renewable energy developments on Mainland. NSW has recently announced planned for 17800MW of renewable energy from three locations, and a 2000MW Snowy 2.0 project and 2000MW Star of South wind farm in Victoria is being assessed (by comparison, HydroTas capacity is about 2300MW).
- Analysis of business risk for the investor; and the implication for a $30M+ bond to ensure Rehabilitation.

Epuron's planned Wind Farm operates in a business-economic environment that is new and changing; and without an understanding of the wind generators environment, proper consideration cannot occur either by the community or the EPA Board and appropriate safeguards adopted. This is fundamental to any EIS given the level of public interest and concern given 74 (2), (4a), 4(b) of EMPC Act (1994).

5.24. Concern about SPPWF consultation and due process by Epuron.

Epuron has not met requirements for proper consultation with the community as indicated in PSG and has not met their responsibilities under the Clean Energy Council's Best Practice Charter. Epuron has not initiated meetings with concerned neighbours to work through pathways and solutions. Epuron must include a table in the EIS outlining each concern raised, Epuron's response, and reasons for their response. Epuron has only engaged in nominal consultation practices and need to be held accountable for the concerns raised.

NTAG has also recognised due process has not been followed by Epuron and it will result in a suboptimal outcome. Epuron is required in PSG to modify, ameliorate or eliminate matters and if this is not possible to enter into compensation arrangements with those concerned. Epuron has entered into compensation 'agreements' with some landholders in the first instance before modifying, ameliorating or eliminating the concern - thereby creating an environmental cost which is borne by the broader community.

SPPWF management processes should also include Covenants on retained vegetation to avoid future impacts such as eagle nest destruction; approval conditions to avoid future turbine creep (Stage 2 additions); and financial penalties for killing any individual of a protected species (so there is an incentive for avoidance).

5.25. Concern about alternatives to be considered.

NTAG are concerned significant alternatives in the EIS will be overlooked by Epuron. The EIS needs to consider both off-site and on-site alternatives because they minimise or eliminate adverse impacts created by SPPWF.

Off-site alternatives. Off-site alternatives to be considered include but are not limited to:

- No wind farm at St Patricks Plains.
- Alternative location for the project e.g. Reece Dam as suggested to Epuron.
- Alternatives considered in Victoria and NSW. Tasmania is oversubscribed with power because of new solar and wind farm developments and Hydro power and renewable energy from closer to the market needs to be assessed.
- Waddamana Forest area rather than SPPWF as it is adjacent to CHWF and Epuron has been approached by the landowner.

On-site alternatives. On-site alternatives to be considered include but are not limited to:

- Turbines located at more benign on-site location – i.e. in the south-east of the project areas at Christian Marsh.
- Alternative project design based on fewer turbines – being the original Epuron layout for about 19 turbines identified within the potential wind resource as outlined in Epuron correspondence 17th May 2019.
- Solar farming rather than wind farming; and
- Alternative on-site project design incorporating lower turbine height and wider spacing and fewer turbines. A technical justification (backed by numbers) needs to be made for use of 240m turbines rather than using lower turbines.

Each of these alternatives needs to be evaluated against the full range of environmental and socio-economic impacts.

5.26. Use of offsets

NTAG have concerns that offsets used for wind farms do not protect local populations. Offsets are measures that are supposed to compensate for the effect of SPPWF on matters of national environmental significance – to give a net improvement or maintenance of the entity. The Australian National Audit Office indicates offsets have a net negative effect [33] because habitat

[33] Australian National Audit Office, 2020. Report into Environment Department Environment Protection and Biodiversity Conservation Act, 1999.

cannot be improved in another area to compensate for degradation (in SPPWF area). Therefore, the EIS must indicate:

- Offsets do not apply to SPPWF.
- No offsets are allowed where offsets are already applied in the local area.
- No offsets are allowed where the offset site is already protected (such as under Tasmanian Land Conservancy tenure, State Forests, Conservation Covenants on private land, or where nests are already protected under State law); and
- Wind Farm re-design is to occur rather than use of offsets.

5.27. Investment risk

The EIS should outline investor risk from an environmental perspective to inform an Investor and the Regulatory Authority of the viability of the project and likely rehabilitation consequences.

This risk includes lack of a community licence, operational restrictions such as raptor shutdowns, building of new eagle nests near turbines (additional turbine closures), non-compliance with noise conditions (compensation and shutdowns), financial risks (price taker, lack of sales to Victoria because of new renewable energy investments, increased transmission costs, loss of subsidies for wind energy, capital payment for Marinus connector) and technical risks (such as technological improvements to solar storage) as well as environmental risks (such as more restrictive Recovery Plan requirements over the next 25 years).

The EIS is required to consider a worse-case scenario. For SPPWF, investor risk is high, the likely hood of insolvency real, the probability of closing before the 25-year life span must be expected – and therefore the environmental outcome requires:

- **A bond to be held to cover the full cost of rehabilitation (in excess of $30M);** and
- **Disposal plans for blades in Central Highland Council land fill** to be outlined in the EIS (as the blades will not be recycled).

5.28. Infrastructure and overseas ownership concerns.

Community concern exists about another social issue - ownership of essential infrastructure by foreign companies. Epuron Pty Ltd, a Sydney based company, is not the investor or operator. The nearby Cattle Hill Wind farm has 80% ownership by a Chinese state-owned listed enterprise (PowerChina). The EIS should tabulate ownership of wind farms in Australia to properly inform the community about foreign ownership status of wind farms as it is a social concern. Epuron should outline whether or not the SPPWF project will be limited to Australian ownership.

5.29. Cradle to the Grave concerns.

NTAG are concerned significant matters involving 'Cradle to the Grave' matters will be overlooked by Epuron. The long-term impacts and full consequences of the wind farm need to be considered. Cradle to the grave considerations are required for social and environmental consideration for SPPWF. In this regard, the EIS needs, to consider:

- Electricity used from cradle to the grave to establish the wind farm – including turbine production, transport, concrete use, Marinus connection, decommissioning etc. NTAG understand it takes about 10 years of power from a wind farm to equal the electricity used to build the wind farm. The electricity and other resources used for the Project need to be outlined so the environmental impact can be evaluated.
- Carbon balance for cradle to the grave for SPPWF.
- Subsidies for SPPWF – from the cradle to the grave.

- Wedge tailed eagle deaths – for the project from cradle to the grave including turbine and transmission line killings.
- Instability of the electricity network from wind power and upgrades needed.
- Expenditure estimates – from the cradle to the grave including estimated expenditure in China/overseas, Mainland expenditure, and Tasmanian expenditure.

Cradle to the Grave analysis will show gaps in the Epuron proposal - such as the scale and number of pads for turbines will mean **major new gravel quarries will be required** and these should be considered as part of the impact assessment **and require a separate EIS**.

6. Conclusion

NTAG raise the above significant concerns to be addressed by Epuron in their impact assessments for SPPWF; for discussion with NTAG on pathways to address these matters; and for action by Epuron prior to submission of the draft EIS to EPA as required under PSG. St Patricks Plains is an area of very high environmental significance and requires proper consideration and protection. This cannot occur unless the forty (40) significant concerns raised by NTAG are addressed by Epuron.

David Ridley
David Ridley
Chair NTAG
21st July 2020