Submission to DEECA Engage

"Managing the Biodiversity Impacts of Renewable Energy"

Ian Penna, 23 January 2025.

I request this submission be published in February 2025 without my contact details.

Summary

The focus of this submission is the impacts of operating wind turbines on the endangered Southern Brolga (*Antigone rubicunda*).

I conclude from the Engage documents that the Victorian government and its environment department, DEECA, are preparing to act against the interests of the Brolga by narrowing wetland buffers and reducing other protection standards.

The potential contribution of wind energy production in Victoria to resolving what is a global problem of increased Carbon emissions is tiny. Victoria has a technical opportunity to closely and publicly examine future energy production options. Until this is done, there should be a moratorium on the expansion of wind farms in Victoria.

However, the potential for such a democratic action was sabotaged by the Victorian and Commonwealth ALP governments with the announcement in late January of a $200 million investment to subsidise the aluminium industry's shift to 'renewable energy'. This will force increased restructuring of the land, biodiversity and human communities of western Victoria for wind farm expansion in the interests of large energy investors and consumers, as well as ALP governments.

The conflict of biodiversity protection with rural wind farm establishment is reflected in the fact that there is no published analysis of the economics of wind energy production in Victoria. The Victorian government should publish a comprehensive analysis of the options for, and economics of, 'renewables' expansion in the state.

DEECA has no scientific justification for the proposed 900m buffer for Brolga nesting sites. Inka Veltheim's work does not provide any information that could logically be used to legitimately justify such a narrow buffer for Brolgas, in particular because it was not conducted near operating wind farms. DEECA should apply the Precautionary Principle, and opt for a minimum buffer of 5kms around all known and potential breeding sites for this endangered species.

Since 2014, DEECA has ignored legitimate "citizen science" research by Hamish Cumming into the impact of operating wind farms on Brolga nesting behaviour – research that has not been challenged. This work should be used as a model to analyse post-completion reports for all operating wind farms and Brolga nesting and flocking sites in and around currently operating wind farms to help inform minimum buffer distances around Brolga nesting and flocking sites based on the Precautionary Principle.

DEECA does not understand the Brolga's population dynamics and how the expansion of wind farms in Victoria could interact with other activities, such as cropping and draining of wetlands, to impact the state's Brolga population.

Because there is no detailed understanding of the population dynamics of the Brolga, it is impossible for any proponent of wind farms or rural-based solar facilities to properly consider mitigation actions, or to show a 'net gain' or that there will be 'no net loss' from such actions. DEECA's attitude towards the cumulative impact of renewables expansion, that it "could place an unfair regulatory burden on future developments and discourage proponents" should be condemned and abandoned. It is likely to lead to weakening of environmental protections when they will need strengthening.

Contents of the ARI workshops conducted for the Engage process should be published now. DEECA has failed to publish relevant research due in October 2024. This should be released now and any Engage process extended to allow full public participation.

All submissions to the 2020 review of Interim Buffer Guidelines should be published now. All submissions to this Engage process should be published as they are received.

Introduction

The focus of this submission is the impacts of operating wind turbines on the endangered Southern Brolga (*Antigone rubicunda*), and primarily the application of buffers to their nesting/breeding sites.

On the Engage website, DEECA states in relation to Brolga:

> "DEECA has completed public consultation on the Draft Brolga Assessment and Mitigation Standards that commenced in 2020. No further feedback is sought.
> Review and replacement of the existing Interim Brolga Standards has been incorporated into the work program outlined in the Joint Ministers' Statement – A better approach to managing biodiversity impacts of renewable energy projects
> For Brolga, the key area of focus for consultation from 13 December 2024 to 16 February 2025 is on the options for applying buffers to breeding and non-breeding habitat to mitigate impacts, as well as identification and assessment of wetlands, monitoring requirements and compensatory measures."

In summary, I submit that examination of the documents provided on the Engage website shows that:

- DEECA continues to fail in its duty of care to protect the endangered Southern Brolga by not advocating a conservative Precautionary Principle for buffers around wetlands in its proposals;
- DEECA's claim that its proposed buffer of 900 metres for Brolga nesting/breeding sites is justified by the published work of Inka Veltheim is untrue and should not be repeated in any final proposal;
- DEECA and the Victorian Government are preparing to weaken already limited protections for the Brolga and implement an offset scheme that will do nothing to help Brolga. This is because DEECA has not conducted sufficient research over the last 10-15 years for it to fully understand Brolga ecology, behaviour and population dynamics. DEECA's proposals are primarily in the interest of wind energy companies and the Victorian and Commonwealth Governments, and are not in the interest of the endangered Southern Brolga.

This current superficial and misleading Engage process should be halted and replaced by a comprehensive examination of potential alternatives available for renewable energy production in Victoria within a national and global context, as well as the economics and biodiversity impacts of these options.

All submissions to this Engage process should be published as they are received and not held in secret until the process is finished in April or May or later in 2025.

DEECA should implement a wind farm buffer around all known and potential Brolga nesting sites of 5 kilometres to meet a reasonable interpretation of the 'Precautionary Principle' (Cumming 2021).

Unofficial

My argument

1. **The Handbook is unnecessary**

The discussion in DEECA's 'Discussion Paper' (DEECA 2024a) on the need for wind powered energy in Victoria is superficial and distracts from the failure of the Victorian government to competently plan a politically-untainted increase in renewable energy production. It helps disguise the complications, such as DEECA's long-term failure to do competent research on the biodiversity impacts of renewable energy production, that are inherent in the government's planning and its failure to properly resolve them.

The Victorian government's timeline is simply a political one that will not make any substantial difference to reducing the world's carbon emissions because an increasingly unstable climate is a global issue, and the state's carbon emission reductions should be considered in that context. The hidden background sabotaging the public's potential to influence this Engage consultation was exposed by the Prime Minister's January 2025 announcement for a $2 billion investment subsidy for the aluminium industry to lower its costs through a shift to 'renewable energy' (Canales 2025).

As it is currently presented, I consider that DEECA's proposal for a Handbook (DEECA 2024a; DEECA 2024b) and related actions is simply a political prop for the Victorian and Federal ALP governments, their supporters in the energy industry and large energy consumers.

The proposed handbook and current 'better approach' planning are unnecessary. They are aimed primarily at supporting the wind energy industry, when increasing the amount of rooftop solar with supporting storage batteries in Melbourne and major regional cities would create new energy supplies without the impacts on Victoria's rural biodiversity. DEECA should examine and describe the implications of a range of renewable energy production options, including a substantial expansion of rooftop solar and battery storage systems to the extent that rural-based wind farms with their inherent risks to native species, such as the endangered Brolga, are unnecessary.

Until this is done, there should be a moratorium on the expansion of wind farms in Victoria and the preparation of any 'Handbook'. This would also give time to do necessary research on the biodiversity impacts of rural wind farms and dependent infrastructure to inform future plans and suitable locations.

DEECA's discussion of the need for renewables ignores the fact that the potential contribution of wind energy production in Victoria to resolving what is a global problem of increased CO2 emissions is tiny. According to '*Our World in Data'*, in 2023, Australia contributed about 1.01% to global emissions of actual carbon dioxide (CO2) from burning fossil fuels and industrial activities (382.97 Million tonnes of 37.79 Thousand Million tonnes) (Ritchie and Roser 2024; Ritchie and Roser 2025). However, it is difficult to find consistent and uniform data sources, so it is necessary to use a mix of sources and figures to make an estimate of CO2 emission savings by wind energy in Australia.

According to the CSIRO (CSIRO 2025), in mid 2023 Australia emitted 465.2 million tonnes of CO2 equivalent of all greenhouse gases, and about 32.6% of this was from

burning fossil fuels for electricity production (i.e. about 151.6 million tonnes). Based on 'Our World in Data' figures, this 32.6% is about 40% of Australia's release of actual CO2 from directly burning fossil fuels and industry.

Recently, combustion of fossil fuels provided about 68% of Australia's electrical energy market. Thus, currently, renewable energy is substituting fossil fuel use for about 32% of Australia's electrical energy supply (or about 71.4 million tonnes). Wind energy supplied about 15% of the nation's energy supply in 2023-24, so saving the equivalent of about 33.5 Million tonnes of CO2 emissions. In early 2024, Victoria's wind energy production capacity made up about 38% of Australia's wind energy production capacity for electricity supply. This is equivalent to saving about 12.7 Mt or about 0.034% of recent global emissions of actual CO2 from fossil fuels and industry. See Table 1 (AEMO 2024; Aneroid 2024; CSIRO 2025) (Ritchie and Roser 2024; Ritchie and Roser 2025).

Table1. Australia: indicative greenhouse gas emissions (CO2 equivalent) and 'savings' due to wind-powered electrical energy supply around early 2024.

	CO2 equivalent (Millions tonnes)	Percentage (%)
Australia GHG emissions	465.2	1+% of Global GHG
Electricity supply	151.6	32.6% of Australia
Fossil Fuels for Electricity		68% of Aust. Electricity Supply
Renewable CO2 Saving	71.4	32% of Australia Electricity
Wind energy production	33.45	15% of Australia Electricity
Victoria wind energy	12.7	38% of 15% of Aust. Electricity
Global fossil fuel combustion	37,790	
Vic wind: Global fossil fuel use		~ 0.034%

Even a 50% increase in Victorian wind energy production capacity as at early 2024 would have an insignificant impact on global emissions of CO2, especially as they continue to grow (Nikiforuk 2024). Consequently, Victoria has the time and opportunity to thoroughly and openly examine the biodiversity consequences of different renewable energy options without seriously impacting global greenhouse gas emissions.

Wind farm establishment in Victoria has been too rushed already. The conflict of biodiversity protection with rural wind farm establishment is reflected in the fact that there is no published analysis of the economics of wind energy in Victoria. Not only do we not understand the full biodiversity impacts of wind energy production in Victoria, we don't understand its economics. What are the money flows? Who makes the profits and how? What is the $ value of a dead or unborn Brolga to wind energy companies and consumers? This information failure is due to government and public service negligence in supporting the Victorian government's policy agenda and investment desires of wind energy companies without requiring basic research be first published and considered.

According to prominent wind energy analysts (WeatherGuard 2024), unpublished calculations show that recently over 1/3 of Australia's wind farms have been operating so as to likely produce a financial loss over their expected 20 year life. The analysts consider Victoria to be the state where this problem is concentrated. They explain that the primary cause seems to be poor planning, with several

contributing factors: lack of understanding how the market operates; supplying the market in competition with rooftop solar; curtailments; negative pricing; continued coal-based energy production; and, higher than expected wind turbine maintenance costs because of a failure to match the most appropriate turbines with the wind characteristics of the farm location.

Victoria can afford to wait to ensure that any future wind farms are really needed and if so, they are placed at the most appropriate sites. Proper planning would involve open and transparent public involvement, not the shallow opportunity using poor information that the Government and DEECA provide through this Engage process.

2. The proposed 900m buffer around nesting sites is unjustified

DEECA has no scientific justification for the proposed 900m buffer for Brolga nesting sites. There is no published research on which to legitimately base such a narrow buffer.

The Discussion Paper (DEECA 2024a) states on page 24:

> "A recommendation from the Minister for Planning in the Hawkesdale assessment resulted in the formation of the South-West Victorian Brolga Research Project. This project aimed to develop a rigorous and scientific framework for understanding and assessing the potential impacts of wind energy facilities on the south-west Victorian Brolga population.

If the work to which this statement refers is that of Inka Veltheim, then the research project did not meet its objectives. Her work, while commendable and important, does not provide such a framework.

DEECA states on page 26 of the Engage 'Discussion Paper' (DEECA 2024a):

> *"To maximise breeding success, a more targeted breeding habitat buffer around breeding wetlands was proposed. This would replace a default 3.5 km buffer in the Interim Guidelines…….. to a standard buffer of 900 metres from any suitable Brolga breeding wetland."*

This statement is at best misleading, and at worst deceitful. DEECA knows that there is no evidence for the statement that the 900m buffer will maximise breeding success. The proposal for a 900 metre buffer around nesting wetlands is irresponsible if the objective is to maximise breeding success of Brolgas.

DEECA states on page 27 of the Engage 'Discussion Paper (DEECA 2024a):

> *"This buffer option is justified by Veltheim et al. (2019) and protects all known breeding sites and nearby wetlands and habitat that are likely to be used for roosting, foraging and movement"*.

DEECA staff know that there is no evidence for this statement: I consider it to be dishonest. A reading of Inka Veltheim's PhD dissertation and the subsequent journal article cited in the Engage Discussion paper shows that neither provide any information that could logically be used to justify such a narrow buffer or any size buffer around operating wind farms.

That is principally because Veltheim's research was not conducted near operating wind turbines. DEECA knows this. It was confirmed by Inka Veltheim in a personal communication to the Minister for Planning in 2018 (Wynne 2018)(p13). According to the Minister's report on the Golden Plains Wind Farm:

> "Although Ms Veltheim's work when published (expected shortly) will provide valuable empirical data about the dimensions of breeding home ranges for Victorian Brolgas, it will do so without direct reference to the influence of nearby wind farm infrastructure on Brolga's choice of breeding wetland or on home range size".

Also, it was discussed in comments on the proposed buffer of 900 metres circulated within DEECA during 2020 (DELWP 2022). One staffer protested the proposed narrow distance as follows:

> **"As I have said repeatedly,** {redacted}'s **work identifies movements of unfledged chicks within a home range. It does not tell us anything about Brolgas' avoidance of wind farm infrastructure in choosing nesting sites."**

This legitimate criticism was casually dismissed by DEECA 'Brolga standards' staff in the Biodiversity division with the response:

> **"No change to standards** ……. **With respect to expanding to consider potential disturbance from turbine operation in selecting breeding wetlands, this is a current data limitation. However, there is evidence of Brolga breeding pairs returning to wetlands used in previous years within wind farms, …….".**

It is extremely concerning and manifestly unsound that despite understanding the implications of this "data limitation", DEECA staff were not prepared to change the proposed standards. This narrow buffer should not be applied to wetlands in the vicinity of operating wind turbines, and should not be justified by reference to Inka Veltheim's work.

The BirdLife Australia submission to the 2020 Review of Draft Brolga Assessment and Mitigation Standards made the same general point more than once (Lau 2021):

1. "A proposed buffer distance of 900m for breeding sites; this is much less than the 2000m precautionary buffer proposed by Veltheim et al (2019)".

However, even this larger 2 kilometre buffer cannot be justified because it is not supported by information showing that wind turbines have no impact on Brolga nesting behaviour.

2. "Veltheim et al (2019) clearly state that further studies, particularly of the movements of breeding adults are required to inform buffer sizes. They advise against setting buffers for breeding sites based on the results of their study, given its focus on the movement of pre-fledged chicks.
   This study was limited to pre-fledged chick movements at breeding sites. We recognise that breeding adults may range further to forage during nest building, incubation and chick rearing. Studies focusing on GPS telemetry of breeding adult pairs are recommended, to identify if larger buffers are required to avoid potential disturbance and mortality effects from turbines during the entire breeding season from nest building and incubation, to chick fledging. Further GPS tracking studies at wind farms pre- and post-operation are warranted."

The documents provided to me by DEECA during 2022 in response to FOI request 5496 (DELWP 2022) show that the 900 metre buffer distance was not determined by Veltheim, but by DEECA's Biodiversity Division using simplistic simulations. The Division did not use any data showing the successful and consistent nesting and fledging of large numbers of Brolga chicks around turbines in operating wind farms.

During 2019 and 2020, the Brolga standards staff in DEECA's Biodiversity Division servicing the Bolga Technical Research Group wasted time and money drawing these buffer simulations on maps to supposedly protect chicks when DEECA's response to my FOI request 5496 showed, as above, that staff did not have basic information to show that adult Brolgas will consistently and in large numbers **nest and stay** near operating wind farms to raise chicks. Nevertheless, the then Executive Director of DEECA's Biodiversity Division signed off on the narrow buffer (Todd 2020). I consider this to be an irresponsible decision.

DEECA was not able to supply me through FOI with data on known active and successful nesting sites for the Southern Brolga during 2020 and 2021 that are within 5km of operating wind farms in Victoria. Nor could it give me a thorough risk analysis of the draft standards that included the now formally proposed 900m buffer. DEECA may know of Brolgas returning to wetlands within wind farms, but this is not relevant if the adults do not stay and/or abandon chicks when the turbines are operating. Data on Brolga successfully and consistently nesting around operating wind turbines in substantial numbers is not in the Engage documents. Thus, it is reasonable assume that DEECA does not have it. It now appears that DEECA, through the Engage consultation, irresponsibly justifies a narrow buffer for wind farms on the basis of the shallow work by staff of its Biodiversity Division.

No data on the impacts of operating wind turbines on Brolgas is included in the Engage documents. By saying a 900 metre buffer is justified by Veltheim's work, DEECA is in effect saying that wind turbines do not have any influence on Brolga nesting and/or chick raising behaviour. Veltheim's work does not show this, and DEECA is not prepared to publish, or has no, documents to justify this or to show that operating wind turbines have no deterrent effects on Brolgas nesting preferences.

The proposed buffer distance of 900 meters has no basis in science, including Ms Veltheim's work. It should be rejected in favour of a much larger buffer distance based on a more conservative 'Precautionary Principle'. The current 'interim' 3.5 km buffer would be more justifiable that 900 metres. However, a 5 km buffer is a better minimum to meet a cautionary and reasonable "Precautionary Principle" (Cumming 2021).

3. Other breeding wetlands preferred by Brolgas

On page 27 of the Discussion Paper (DEECA 2024a) DEECA states that the revised Brolga guidance statement will protect preferred but currently unused breeding wetlands that may be used by Brolga breeding pairs in the future or by new Brolga breeding pairs. Supposedly, these wetlands will eventually be identified by a model based on research conducted by staff of the Arthur Rylah Institute (ARI).

However, DEECA does not provide the supposed ARI research report for public perusal. This is irresponsible and shows that the prime objective of the Engage process is not public education and involvement. Clearly, it is not possible for the public to assess the validity of the research or its conclusions without access to the relevant documents and their authors. Given 'Engage's'/DEECA's misuse of Veltheim's work, this is a major impediment to securing the public's trust in the consultation. DEECA does not provide any information on the specific wetland preferences of Brolgas for the public to consider.

Nevertheless, DEECA proposes a reduced 300 metre buffer (page 28 of its 'Discussion Paper') and to allow compensation or management measures in lieu of buffers for other potentially suitable wetlands. This is unacceptable. If the identified wetlands are suitable for Brolga nesting sites, then the same 'precautionary' buffers should be applied to these wetlands as applied to known nesting sites – and not the narrow unjustifiable 900 metres as proposed by DEECA, but a 5 kilometre buffer based on applying the Precautionary Principle.

Also, if some wetlands are not currently being used by Brolgas for nesting, then it is reasonable think that those wetlands may not have desirable characteristics for nesting. Are wetlands undesirable for Brolga nesting going to be miraculously transformed into potential nesting sites, or vice versa, just because DEECA modelling says so?

Similarly, there is no discussion about the loss of Victorian wetlands to drainage and/or cropping. How many are being so destroyed and what impact is this having on Brolgas? How many wetlands were drained or cropped over the last 10 years, and how many were suitable for Brolgas nesting or flocking? How many people were prosecuted for draining or cropping wetlands over the last 10 years? What is DEECA doing to prevent wetland cropping/drainage? This is important for understanding available wetlands and the overall context for impacts from wind farm establishment; it is important if DEECA is going to consider Brolga habitat availability with or without modelling. The lack of discussion shows a gross failure by DEECA to inform the general public about this issue and its relationship with wind farm impacts on Brolga habitat. Does DEECA have the information to publish? If so, then DEECA should publish it. If not, it should say so, and explain why and what its plans are to collect and publish relevant information, and to consider it as part of this Engage process.

4. **Brolga population dynamics is unknown**

DEECA's Engage documents make no effort to discuss Victoria's changing Brolga population. I consider this to be a reflection of DEECA's lack of understanding of the Brolga's population dynamics and how the expansion of wind farms in Victoria and other activities could impact the species, especially if wetlands are being drained for agriculture. Also, it is important because DEECA seems to think that it has the knowledge and skill to model supposedly suitable breeding wetlands.

The Brolga Action Statement of 2003 (DSE 2003) discussed factors influencing the survival of Victoria's Brolgas. The semi-regular Brolga counts organised through DEECA provide total or partial/minimum estimates of the state's Brolga population. In its 2021 submission to the "Draft Brolga Assessment and Mitigation Standards:

For wind energy facility permit applications", BirdLife Australia (BLA) (Lau 2021) stated:

> "Victoria's Brolga population is poorly monitored and BirdLife Australia has low confidence in current population estimates. It is critical that Victoria commits resources to rigorous, long-term monitoring of Victoria's Brolga population to inform recovery action, track the species' conservation status, and to form the basis of metrics that may be used to determine whether the Standards are meeting stated objectives."

The legitimacy of BLA's criticism is seen in a review of the records of the SWIFFT Brolga annual survey data (SWIFFT 2024). It appears from the SWIFFT website that until 2023, despite a reasonable percentages of young birds, reflecting successful fledging, the total minimum population of Brolgas did not appear to have changed much over a relatively long period, despite a high population count over 2 days in 2013. According to SWIFFT (SWIFFT 2024), the 2024 Victorian Brolga count, excluded sites in South Australia but this time included all known flocking sites in Victoria. It produced a total of 836 birds, substantially higher than the 552 and 521 in the two previous years.

However, many of the annual counts until, and including that in 2023, were based on counters not visiting all possible flocking sites in Victoria (SWIFFT 2024). Also, according to DEECA staff in 2015 (Hough 2015):

> "The focus of recent surveys is to assess specie's reproductive status by measuring annual breeding success."

and

> "Annual relative population counts are not made due to the limitations and logistical difficulties in making accurate counts. For these reasons the annual count results are not comparable for the purpose of estimating the south eastern Australian population or to infer year to year variations in this population. Consequently, it is not meaningful to pictorially represent every annual count to infer from it trends in the south eastern Australian population."

In other words, DEECA does not understand the population dynamics of Victorian Brolgas to any significant depth. DEECA's Engage documents do not explain the reliability of the Brolga counts or discuss Brolga population dynamics. DEECA should properly fund long-term research to better understand the condition of Victoria's Brolga population before approving new wind farm construction. For a start, all the annual bird counts for each count site should be analysed and compared for changes and trends, and the results integrated with other available relevant information, including at least information on bird movements and the known locations of, and changes in, breeding and flocking sites, such as presented in relevant submissions to Wind Farm Planning Panel hearings and contained in wind farm post-completion reports.

Until DEECA can provide credible explanations for how wetland cropping/drainage, fox predation, wind farm establishment and rainfall patterns etc. have been impacting Brolga breeding and population survival, then no decision should be made on applying narrow buffers, offset compensation and any DEECA models of wetlands suitable for Brolga nesting. There needs to be more detailed long-term research into Brolga population dynamics, breeding ecology and impacts from human activities

and predators. The results of such investigations should be published to allow scrutiny before decisions are made to establish new wind farms in western Victoria or consider any new guidelines, procedures or narrow buffers as proposed by DEECA and the Victorian government in the Discussion Paper and Draft Handbook.

4. DEECA failure to research impacts of wind farms on nesting Brolgas

DEECA has ignored legitimate "citizen science" research into the impact of wind farms on Brolga nesting behaviour since 2014. This research has not been challenged and if followed up by DEECA could have produced much more useful information for directly determining buffer sizes than Inka Veltheim's work.

In December 2014, Hamish Cumming, Darlington farmer, mechanical engineer and Brolga advocate provided approximately 6 DEECA staffers with his own personal research examining the recorded behaviour of nesting Brolgas in relation to the operation levels of the Macarthur wind farm in western Victoria during 2013 (Cumming 2014; Cumming 2024).

Cumming integrated information from:

- records of Brolga sightings at the Macarthur wind farm collected for AGL, the wind farm owner, by consultant Matthew Wood (Wood 2014); and,
- records of wind farm output from the Australian Energy Market Operator (AEMO).

He compared over 120,000 AEMO data points for energy generated by the Macarthur wind farm between 1 January and 31 December 2013 with the recorded sightings - location and behaviour - of Brolgas that used and/or nested in the wind farm during 2013.

Cumming concluded that:

- On the whole, birds left the wind farm area when the average energy generation reached 30%
- Birds arrived when energy generation was lower than 30%
- While some birds attempted to stay at energy generation levels above 30%, they eventually abandoned their nest (even with eggs)
- Using Wood's data, he found that exited birds generally did not stay within 3 kilometres of the wind farm when generation exceed 30%.

Despite DEECA being provided with copies of this analysis in 2014, the department has not taken the initiative to conduct any similar investigation on other wind farms, even though post-completion reports for operating wind farms, as required by planning permit approval, show reductions in Brolgas nesting within 5kms of the turbines. The 2017 report on the utilisation of the Macarthur wind farm by Brolgas showed that one chick was successfully raised in the preceding season (Wood 2017), but DEECA published no research similar to that of Cumming to try to understand the relationship between Brolgas and the operation of the wind farm.

Hamish Cumming's work is a legitimate piece of "citizen science" research, that could have been used during the past 10 years as a model and replicated in more detail to determine how operating wind farms impacted on Brolga nesting and flocking behaviour. Instead DEECA and environmental consultants used by wind

energy companies ignored it. Consequently, legitimate questions about the actual impact of operating wind farms on Brolga were not investigated and left unanswered, so serving the interests of wind farm proponents.

Similarly, DEECA has not funded any research on the hearing physiology of Brolgas. Such research would produce useful knowledge about the impacts on Brolgas of noise and low frequency vibrations caused by operating wind farms, especially as the research produced by Inka Veltheim is being misrepresented by DEECA in this Engage process.

This work by Cumming should be used as a model to analyse post-completion reports for all operating wind farms and Brolga nesting and flocking sites in and around currently operating wind farms to help inform minimum buffer distances around Brolga nesting and flocking sites based on the Precautionary Principle.

5. **Mitigation, Net gain & No Net Loss**

The discussions on these topics in the Engage documents are totally inadequate. None recognise the fact that DEECA does not understand the population dynamics of the species. It is impossible for any proponent of wind farms or rural-based solar facilities to properly consider mitigation actions or to show a net gain or that there will be no net loss from new wind farms or mitigation actions for new wind farms. In relation to the endangered Brolga, what area will the supposed 'no net loss' calculations cover given that birds move over large areas. How will the changes in the population be determined when DEECA cannot now show the reliability of its annual population counts? On whose population estimates and over what areas will 'net gain' be calculated?

It is totally inappropriate and irresponsible for DEECA to recommend that renewable energy proponents be "*encouraged to work with Traditional Owner Corporations and/or First Nations groups to develop appropriate management and mitigation strategies*". As yet, DEECA, the proponents and Traditional Owner Corporations/First Nation groups do not have a basic understanding of all the potential impacts of wind farm facilities on Brolgas or detailed and reliable mitigation strategies. Also, DEECA is making unproven claims that narrow buffers around breeding sites would "maximise breeding success".

Thus, offsets of any sort in relation to Brolgas – wetland rehabilitation, mitigation, financial compensation, payments to offset funds - should not be used to support and allow wind farm approval and operation.

6. **Cumulative impacts**

The Discussion Paper (DEECA 2024a) shows that DEECA recognises the potential for impacts from increasing renewable investment to accumulate along with impacts from other economic activities. It states on page 10:

> "It is also likely that the threshold for 'more threatened' at a statewide level will change over time. As more renewable energy is built and other threats impact on the species – such as habitat loss and predation – the cumulative impact on species could mean that later developments will face more burdensome requirements than those built earlier.

The idea that regulation should be stronger as impacts accumulate is a sensible and logical position. However, DEECA's next sentence - **"DEECA is concerned that this could place an unfair regulatory burden on future developments and discourage proponents"** – is stupid and illogical if the aim is to protect biodiversity. It is perverse to consider such protections "an unfair regulatory burden" on investors. They aren't: they are necessary. Adopting this logic, DEECA could advocate a return to weak regulations on land clearing so new investors in the 2020s can get into agriculture.

If the marginal increase in renewable energy production is causing a disproportionate impact, then this is clearly a situation created by expansion, and any investor and the regulator have a responsibility to recognise that. Investment in a situation where biodiversity has been increasingly stressed is not one where controls should be weakened to, or maintained at, a strength that doesn't protect those values at the desired level: controls should be strengthened.

ARI experts workshops

The details of all 3 ARI workshops discussed on page 18 of the Discussion Paper (DEECA 2024a) should be made public. Released material should include names of participants, topics, literature used, records of discussions, documents produced and all other related material. It is impossible for the public to make submissions related to the topics examined at the ARI workshops without knowing the content and outcomes etc. of those workshops. This DEECA Engage process continues to fail the public by again not providing enough information for people's consideration.

7. 2020 Brolga Guidelines

DEECA continues to withhold from the public all the submissions made to the Draft Brolga and Mitigation Standards.

All submissions to the 2020 review of the Interim Guidelines, as discussed on pages 24 and 25 of the Discussion Paper, should be released now for public perusal and use. DEECA has seen them and been able to use them in preparing the Discussion Paper, the draft Handbook and other matters.

It is only fair and reasonable that the public also be able to see them and refer to them in relation to preparing their submissions and involvement in any consultation process, such as the workshops proposed for January and February.

8. Preferred breeding habitat characteristics

Page 27 of the Engage Discussion Paper (DEECA 2024a) contains the statement

> "DEECA's ARI is undertaking research, due in October 2024, to inform these preferred breeding habitat characteristics …….".

However, at the time of writing in mid-January, the relevant documents are still not available to the public, about 3 months after their supposed completion date. This DEECA failure illustrates what is clearly a rushed and poorly planned consultation process for which all relevant documents have not been published. This Engage process was instigated 2 weeks prior to Christmas, it runs over the holiday season, and we see that apparently highly relevant documents are overdue with no stated

date for release, adding to the lack of documentation described above. DEECA has failed the public it is meant to be serving.

DEECA should modify the dates for submissions and consultations to ensure all interested members of the public are catered for. Also DEECA should make available to all submitters to this Engage process all the authors of all the documents used in the process, so that they can ask questions of those people.

9. Precautionary Principle

As discussed, DEECA has no legitimate data on which to base narrow buffers, such as 900 metres around Brolga nesting sites. As such, DEECA should opt for the most conservative reasonable minimum buffer of 5kms around all known and potential breeding sites for this endangered species (Cumming 2021).

10. Submission publication

It is completely unacceptable for submissions to this Engage process be held in secret by DEECA until the new guidance is finalised and released in April or May or later in 2025. The same kind of undemocratic secrecy was imposed on the public through the failed 2020 DEECA consultation process on Interim Buffer Guidelines.

This behaviour by DEECA serves to control the process for its own interests and those of the state government. It prevents the public from properly understanding information that could be used to critique the draft and final guidance documents. All submissions should be published as they are received, similar to Parliamentary inquiries.

11. Conclusion.

My conclusion on reading the DEECA documents is that it is preparing itself to act against the interests of the endangered Brolga. Based on the Precautionary Principle, DEECA should implement a minimum conservative 5km buffer around Brolga nesting sites, and a larger buffer around flocking sites.

DEECA documents include statements that mislead the public on effective buffer distances. DEECA and the Victorian Government are preparing to weaken already limited protections for the Brolga and implement an offset/compensation scheme that will do nothing to help Brolga because DEECA has not conducted sufficient research over the last 10-15 years for it to fully understand Brolga ecology, behaviour, population dynamics or the range of potential impacts of wind farms on the species.

DEECA should publish all submissions to the 2020 the Draft Brolga Assessment and Mitigation Standards before public consultation meetings are organised for this current Engage process. The continued withholding of these documents severely contributes to eroding trust in DEECA staff and its actions as a public agency in operating this and any other Engage process.

DEECA must publish all submissions to this Engage process as soon as they are received, and modify the process to maximise public education and involvement. This must include publication of all documents mentioned in the Discussion Paper and draft Handbook. The current Engage process should be halted and reformed for more effective public education and involvement.

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