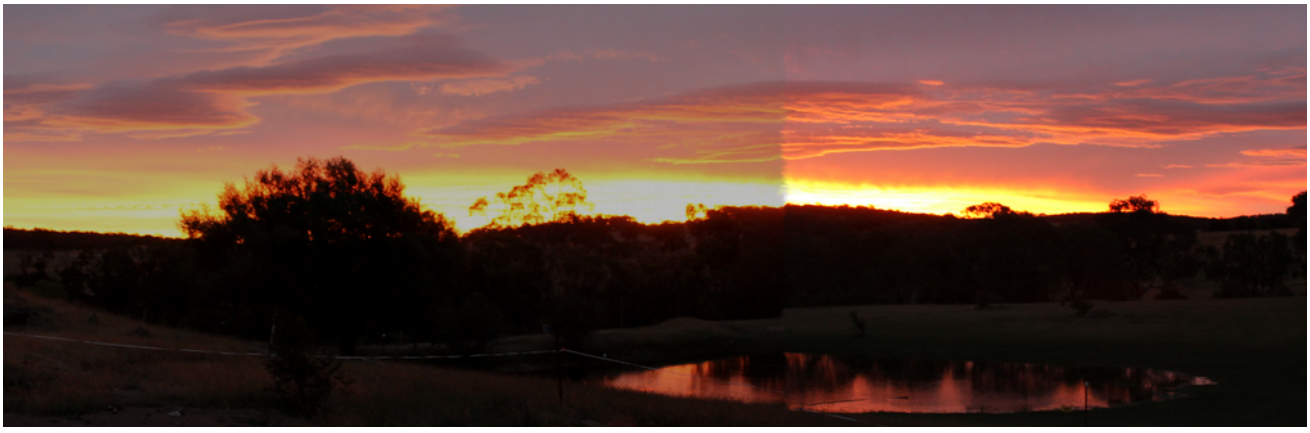
# Public Submission

# Jupiter Wind Farm EIS

# Residence J234A / J234B

Date: 5 February 2017



Sunset from J234A

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# Executive Summary

Extensive analysis of the Jupiter Wind Farm proposal by EPYC clearly demonstrates this project must be rejected. EPYC have failed to consult and engage with the local community. They demonstrate a clear disregard for safety of locals, and their EIS completely dismisses several major issues that have been identified to them during the past few years.

In the event the Jupiter Wind Farm is approved, a total of 119 recommendations have been made in this submission. The complete list of recommendations can be found in Appendix A: Recommendations. Six (6) significant themes were consistently identified throughout the EIS for the Jupiter Wind Farm. All recommendations with the Jupiter Wind Farm EIS must be addressed prior to approval. The significant themes included:

1. Insufficient information provided – such as the lack of WTG selection;
2. Compatibility and biodiversity issues – such as a complete disregard for the Eastern Bentwing Bat;
3. Community consultation and engagement – including a complete disregard for the local community;
4. Flaws in the visual assessment – for example suggesting vegetation screening should be installed on a dam wall;
5. Bushfire assessment issues – including a complete underestimation of the importance of aerial firefighting in this region; and
6. Traffic assessment errors – such as completely failing to identify local bus routes and dismissing the safety of the local children and community.

However, the Jupiter Wind Farm must be rejected. There are at least 124 reasons to reject this proposal, a summary of which can be found in Appendix B: Basis For Rejection. Five common themes were found throughout the proposal, however a total of 16 general themes were identified. The common themes included:

1. Consultation and Community Engagement – EPYC clearly demonstrate a failure to engage with the community and consult on this proposal;
2. Significant flaws in the biodiversity assessment – such as completely ignoring other assessments that would demonstrate the Jupiter Wind Farm proposal is not suitable for this area;
3. Bushfire assessment failures – this includes a complete dismissal of the risks to surrounding residences that could lead to a loss of life;
4. False and misleading claims and factual errors in the report – there are multiple cases where EPYC have made false or misleading claims, and in some cases contradicting themselves; and
5. Issues with the visual impact assessment – such as completely under estimating the impact on properties.

EPYC and their consultants have consistently excluded the owners of J234A / J234B. They have consistently ignored the local community and completely failed to engage in a genuine manner. Going ahead with this project will endanger the local community and ignores the risk to children and their parents. This project will play a factor in the loss of infrastructure during bushfires, and likely lead to the loss of life in the local community.

This EIS is only suitable to demonstrate to future wind farm developers how not to undertake community consultation and develop a project.

Finally, is such a development compatible with the existing and expanding rural lifestyle nature of the area...

*Figure 1: Can you mitigate this?*

# Main Report: 1 – Introduction

### 1.2 The Proponent

Over the last three years, all our engagement has been with EPYC Pty. Ltd. However in the EIS it now becomes apparent the proponent is Jupiter Wind Farm Pty. Ltd. What is this new entity and why the change? Who is actually responsible for the wind farm (as in the name of a person)? The contact details in Table 1.1 are for an individual associated with EPYC, not JWFPL.

> ***Recommendation 1:*** *EPYC must explain the relationship between EPYC and JWFPL, ownership and who (the names of people) are ultimately responsible for the Jupiter Wind Farm.*

### Figure 1.2 is Missing

The glossary defines the “Project Area” and refers to “Figure 1-2”. However figure 1.2 in the main report is a flow diagram for the “State Significant Development Application Process”.

> ***Recommendation 2:*** *EPYC to update their EIS to include the missing figure 1.2 or correct the relevant glossary entry.*

# MAIN REPORT: 2 – STRATEGIC JUSTIFICATION

### 2.2 Electricity Demand

The focus of EPYC's and ERM's submission is on supply and demand issues. They "acknowledge that additional intermittent generation alone may not materially improve reliability of the system...". Yet the strategic justification contains nothing about how this will be addressed. Although EPYC probably does not consider it their problem, this short-sighted narrow focus on the problem will likely lead to further instability in the grid.

Prior to the blackouts in South Australia, AEMO highlights in their 2016 ESSO:

> *"In the rare event of the unexpected concurrent loss of both Heywood Interconnector lines, there is a high likelihood of a full region blackout in South Australia".*

They go on to identify that further withdrawals of synchronous generation capacity in either South Australia or New South Wales will reduce the ability of those regional systems to be restarted if islanded.

In late 2016 due to a storm, both Haywood Interconnectors failed. A series of events then lead to power failures across South Australia – despite large scale Wind Farm generation capacity.

*Figure 2: Real world impact of imbalance between synchronous and asynchronous supply*

While supply and demand will result in the market either withdrawing or adding capacity, EPYC and ERM fail to identify the strategic implications of higher levels of asynchronous generation (wind farms) in the NEM. This is particularly important given the high number of wind farms in such a geographically localised area. This is likely to lead to localised imbalances in the grid.

> ***Recommendation 3:*** *EPYC must identify the implications of imbalances in the electricity generation market between synchronous and asynchronous generation capacity. The Jupiter Wind Farm proposal must identify how it will affect the balance, and the cumulative effect of approved and existing asynchronous generation in the region.*
>
> ***Rejection 1:*** *The Jupiter Wind Farm must be rejected. EPYC have failed to identify how the asynchronous generation will be balanced in the market, such as through the paired installation of the Jupiter Wind Farm with another synchronous generation capability (eg a new gas turbine capability).*

While NSW may not currently be as susceptible to the implications of this imbalance, it is important to begin addressing the issue now – rather than waiting till there are state-wide or regional power supply issues (such as those being experienced in South Australia).

This issue is more broadly discussed later in this chapter.

### 2.5.1 Economic Benefits

One potential benefit EPYC highlight is the potential Community Enhancement Fund. They highlight they are still in discussion with the relevant councils on this matter. Either they have come to a general agreement or not. How can a project be approved on the possibility of something happening?

> ***Recommendation 4:*** *EPYC to confirm if there will be a Community Enhancement Fund or not prior to any approval being granted for the Jupiter Wind Farm.*

### 2.5.2 Social Benefits

A supposed social benefit includes local employment opportunities and up-skilling of the local workforce. Has this actually been demonstrated in previous wind farm developments in NSW? Does EPYC have statistics on the number of ongoing FTE for wind farms that were living within 5kms of a wind farm prior to the proposed development?

> ***Recommendation 5:*** *EPYC must provide statistics from previous wind farm developments to confirm if local employment opportunities and up-skilling actually occurs when a wind farm is developed. This must include details on the number of FTE employed in a wind farm that were physically located within 2kms and within 5kms of the proposed wind farm for at least three years prior to any activities involved in the planning or developing of a wind farm.*

Another social benefit is the proposed voluntary benefit sharing agreements to neighboring landholders. While this has been proposed, as with the community enhancement fund, has there been any agreements? How many have been offered and how many have been accepted? What calculations are used to determine the benefit to affected landholders?

> ***Recommendation 6:*** *EPYC must identify how many benefit sharing agreements have been offered, when they were offered and how many have been formally accepted (i.e. signed contracts)? EPYC must also provide details on the calculations used to determine the benefit to landholders to ensure all non-involved landholders are treated fairly rather than create disunity in the local community.*

### Integration to National Energy Market

Although EPYC and ERM highlight certain key points in the 2016 ESSO, their strategic assessment fails to take into account many of the problems related to integration of wind generation into the National Electricity Market.

In AEMO's 2011 ESSO, they highlight issues with the "intermittent nature of the wind" and it's inability to meet "regional maximum demand". Figure 3 contains a table from the 2011 ESSO report showing that wind contribution factor during maximum demand (MD) for summer and winter are 9.2% and 0.4% respectively.

| Region | Average Capacity Factor (2010–11) | Contribution Factor Summer MD | Contribution Factor Winter MD |
|---|---|---|---|
| New South Wales | 25.6% | 9.2% | 0.4% |
| Victoria | 29.2% | 7.7% | 3.9% |
| South Australia | 32.6% | 5.0% | 3.5% |
| Tasmania | 39.2% | 1.0% | 1.0% |

*Figure 3: Table 2 from AEMO's 2011 ESSO*

The report continues to highlight the importance of coupling wind generation with gas turbines in order to assist with the intermittent nature of wind generation (see Figure 4).

> The recent trend of GPG and wind generation comprising the majority of new generation investments (by capacity) is expected to continue for a number of years. Wind generation is mainly driven by LRET incentives, while a mix of combined-cycle gas turbine (CCGT) and open-cycle gas turbine (OCGT) generation is meeting **increasing demand peaks that new wind generation cannot reliably supply.**

*Figure 4: Extract from 2011 ESSO report*

***Rejection 2:*** *The Jupiter Wind Farm proposal should be rejected. The strategic justification used does not demonstrate reliability of supply, such as through close coupling the development of the Jupiter Wind Farm in conjunction with other gas turbine generation.*

Another part of the 2011 ESSO report highlights a study undertaken by ROAM consulting for the Clean Energy Council on network congestion. The study identified the need for a more distributed arrangement of wind farms without network congestion (Figure 5). Multiple wind farms in one localised region may lead to a regional pool price of electricity becoming depressed.

> The study concluded that, rather than developing new renewable generation in remote locations requiring significant new transmission augmentation, **a distributed arrangement of wind farms will still meet the LRET with minimal transmission congestion.** The study also suggested there may be a price signal to encourage wind generation development in distributed locations within the existing market so that the regional pool price is not depressed by a significant amount of wind in one region.

*Figure 5: Extract from 2011 ESSO report*

The 2011 ESSO report concludes that while wind capacity is significant, it does not contribute significantly towards the peak requirements (Figure 6). Importantly the AEMO's report highlights the problems where multiple wind farms are located in close proximity to each other (Figure 7)

> While the magnitude of this wind capacity is significant, its contribution towards deferring LRC points **will be at most 10% of the installed capacity** based on the seasonal contribution factors ...

*Figure 6: Extract from 2011 ESSO report*

> Wind supply variability is one of the challenges associated with increasing levels of wind generation, **in particular where wind farms are located in close proximity to each other** or within areas of low wind diversity. Figure 8-16 shows the NEM's current distribution of wind generation by region.
>
> Note: In this context, areas of low wind diversity refer to geographical locations which experience similar wind speeds, and therefore produce similar wind generation output profiles.

*Figure 7: Extract from 2011 ESSO report*

Many of the predictions the AEMO make are quite accurate. For instance they highlight higher reliance on large scale intermittent generation will lead to higher spot prices in the NEM. This is currently being experienced in South Australia (five years after the 2011 ESSO report was written).

| **Renewable Generator** | **Capacity (MW)** | **Status** | **Total (MW)** |
|---|---|---|---|
| Boco Rock Wind Farm | 113 | Operational | 866.2 |
| Gullen Range Wind Farm | 165.5 | Operational | |
| Taralga Wind Farm | 107 | Operational | |
| Woodlawn Wind Farm | 48.3 | Operational | |
| Capital Wind Farm | 140.7 | Operational | |
| Gunning Wind Farm | 46.5 | Operational | |
| Capital East Solar Farm P2 | 0.4 | Operational | |
| Crookwell Wind Farm | 4.8 | Operational | |
| Kangaroo Valley Hydro | 160 | Operational | |
| Bendeela Hydro | 80 | Operational | |
| Capital Solar Farm | 50 | Approved | 540 |
| Capital 2 Wind Farm | 100 | Approved | |
| Conroys Gap Wind Farm | 30 | Approved | |
| Yass Valley Wind Farm | 360 | Approved | |
| Rye Park Wind Farm | 378 | Assessment | 941 |
| Crookwell 2 Wind Farm | 109 | EIS/Response | |
| Crookwell 3 Wind Farm | 58 | EIS/Response | |
| Jupiter Wind Farm | 396 (88x4.5) | EIS/Response | |
| Collector Wind Farm | 175 | Planning | 315 |
| Bango Wind Farm | 140 | Planning | |

*Table 1: Renewable generator capacity in the Snowy to Sydney transmission network (shaded cells are on the Kangaroo Valley – Canberra 330kV line)*

Table 1 contains a list of intermittent generation capacity in this region (gray highlights connections on the Kangaroo Valley – Canberra 330kV line). While it is unclear where the balance lies in terms of "how much is too much" in any one geophysical location, the Jupiter Wind Farm development would be better off being physically located in a different region of NSW. There is currently 2662.2 MW of intermittent capacity planned for this region (including the Jupiter Wind Farm), with 735.4MW of intermittent capacity (plus 240MW of hydro) operating or approved for the Kangaroo Valley – Canberra 330kV transmission line.

> ***Rejection 3:*** *The Jupiter Wind Farm should be rejected. Given installed and planned capacity already in this region, and effects on the National Electricity Market, high levels of localised intermittent generation must be avoided. A wind farm of the capacity of the Jupiter Wind Farm would be more suitable in a more geographically diverse area.*

The AEMO also highlight future difficulties predicted for Tasmania and South Australia with high levels of wind integration (AEMO's Wind Integration Studies Report, 2013). Importantly, AEMO highlight these difficulties "could also occur in other NEM regions with installation of sufficient wind generation capacity, depending on the geographic spread of wind generation". In other words, a large capacity of wind generation located in one geographic area is likely to lead to problems in the National Electricity Market.

Note: This does not mean we do not need wind farms in New South Wales. This means the Department must consider the distribution of wind farms geographically and take into account the longer term implications on the NEM. Rather than installing large quantities of intermittent generation in one geographical region, the Department should work with the AEMO to ensure a wider geographic distribution of generation in order to enable grid stability in the longer term.

> ***Recommendation 7:*** *The Department of Planning and Environment should consider geographical dispersion of wind farm development submissions in consultation with the AEMO to ensure improved future grid stability.*

AEMO's submission to the Senate Enquiry on the Renewable Energy Target in May 2014, again highlights the same challenges presented by wind energy. In particularly they highlight "challenges may still arise in the future, especially if wind generation becomes even more concentrated, or in combination with larger amounts of photovoltaic generation".

In the AEMO's advice to COAG in 2015, they again highlight certain challenges presented by intermittent generation such as wind farms: "… wind and PV generation, by themselves, are not able to provide the required control and services to maintain the power system in a secure operating state".

> The displacement of synchronous generation from the power system by non-synchronous generation, is driving **a long term trend of reducing power system inertia**, particularly in South Australia, with its high penetration of non-synchronous wind and PV generation.

*Figure 8: Extract from AEMO's advice to COAG, 2015*

AEMO have been informing the public since at least 2011 of the challenges related to large scale intermittent generation, particularly where that generation is physically located in the same geographic location. They actually have highlighted the loss of the Heywood interconnector and how this affects South Australia – an event that occurred this year. While wind is not solely to blame, it demonstrates more strategic thinking is required in the physical distribution of wind farms within New South Wales (and across Australia).

Although this area has high wind resources, geographically locating a large number of large scale intermittent generation is not a good idea. EPYC will likely argue this is not their problem to consider. Thus the Department should probably work with the AEMO, and identify suitable areas for wind farms to be developed to ensure geographic dispersal over a wider area of NSW.

> ***Rejection 4:*** *The Jupiter Wind Farm should be rejected. The strategic justification does not take into account appropriate geographic distribution of wind farms in the context of improving grid stability. The large scale installation of intermittent generation both on the Kangaroo Valley – Canberra 330kV transmission line and more broadly in the North East of Canberra will likely lead to longer term problems with grid stability.*

**Network Congestion During Summer**

According to an assessment of the Transgrid network (Attachment A, Transgrid Project Assessments Report, to an AEMO independent planning review, August 2014), during "high summer demand scenarios", grid congestion is likely to occur in certain circumstances. As per Figure 9, they also highlight additional (wind) generation in southern NSW is likely to lead to congestion in the region.

> During periods of high summer demand when power is being imported from Victoria, **the 330 kV transmission network linking the Snowy region to Sydney operates close to capacity**, and may potentially reach its limit.
> ...
> **Wind generation in Southern New South Wales is likely to cause congestion in the 330 kV transmission lines between the Snowy region and Sydney.**

*Figure 9: Extract from Attachment A, TransGrid Project Assessment Reports, 2014*

The Jupiter Wind Farm is identified in relation to the TransGrid Project Assessment Reports, however it's capacity is not listed. Figure 10 (extracted from the report) shows the Snowy region to Sydney transmission network. They also list an additional 1958.4 MW of intermittent generation capacity (wind and solar) announced (in 2014) to be added in this region. While dynamic line ratings (adjusting the line capacity based on weather conditions) may alleviate the network congestion (particularly during high wind generation), the problem will remain as the intermittent generation capacity is increased.

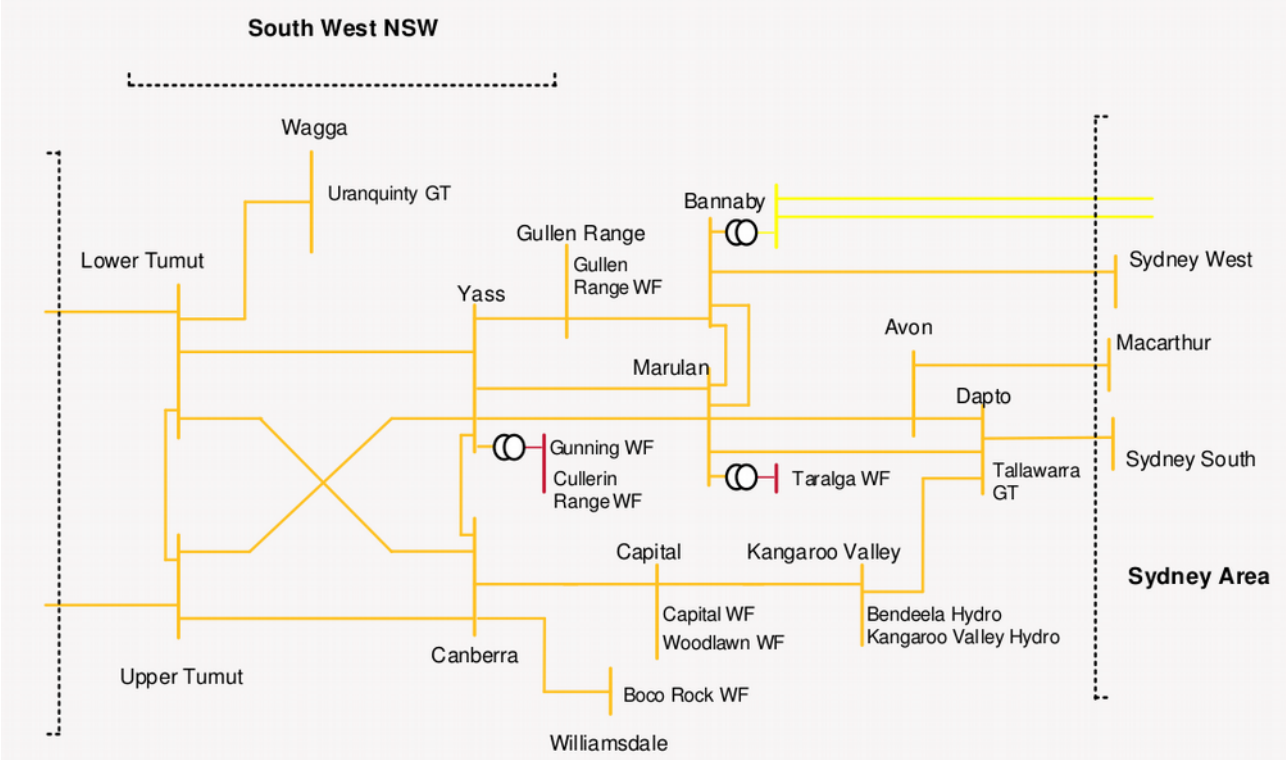


*Figure 10: Extract from AEMO / TransGrid Project Assessment Report, 2014*

> ***Rejection 5:*** *The Jupiter Wind Farm proposal should be rejected. Significant additional capacity that has now been approved in the transmission lines between the Snowy region and Sydney. This will likely lead to electricity network congestion once operational. Although dynamic line ratings may alleviate this congestion, the investment associated with the Jupiter Wind Farm would be better placed in another geographical area less likely to lead to network congestion.*

**TransGrid Connection Opportunities**

TransGrid (operators the NSW high voltage transmission network) list Connection Opportunities. In March 2016, eight locations in "NSW were identified as opportunities for additional generation connections based on existing network capability and potential renewable resource strength". Other opportunities for the Jupiter Wind Farm investment exist in NSW. For example Tamworth has similar wind resources as the Tarago region, and is listed as a connection opportunity. TransGrid state the approximate capacity available is over 700MW[1] – twice the size of the proposed Jupiter Wind Farm!

> ***Rejection 6:*** *The Jupiter Wind Farm proposal must be rejected. Less congested (and more suitable) electricity network areas in NSW are available for development and have been highlighted by TransGrid.*

1 https://www.transgrid.com.au/what-we-do/our-network/NSWConnectionOpportunities/Pages/Tamworth-330-kV.aspx

**Dalton Gas Turbine Generation**

In addition to the renewable energy generation to be connected in the same region, the approved Dalton Gas Turbine capability will play an important role in the region (near Gunning). In 2012 the project was suspended due to the economic viability in the (then) market conditions. Originally the Dalton project consisted of a stage one of 750MW, however this was reduced to 500MW[2]. The total capacity of the project is 1000MW.

Given the need to balance wind turbine generation with other generators (such as gas turbines) to provide for grid stability, the Dalton gas project will assist in balancing a large proportion of existing operational and approved wind farm development in this region (already 1165MW). The planned withdrawal of coal fired power stations and the need for grid stability will drive the need for a viable alternative to ensure a more stable grid. For example the Liddell coal fired power station is planned to be withdrawn in 2022.

> ***Rejection 7:*** *The Jupiter Wind Farm proposal must be rejected. While the capacity of the Jupiter Wind Farm will be needed in NSW moving forward, intermittent wind generation capacity must be balanced carefully with other generation such as gas turbines to ensure grid stability during peak demand. While the Dalton gas-fired turbine project may alleviate some of the intermittent generation from regional wind farms, more will be required.*

Note: AGL is the proponent for the Dalton project, and is also the owner of the Liddell coal fired power station. The withdrawal of the Liddell capability will likely lead to the Dalton capability being more viable – particularly with a need to provide peak demand. Although it should be noted the Dalton project will only provide an offset of 500MW generation capacity – compared to approximately 2000MW of existing or approved capacity in the region.

2 https://majorprojects.affinitylive.com/public/e6d429da20576cf2514d5de9b7c80f4f/PAC%20Determination%20Report.pdf

# MAIN REPORT: 3 – PROJECT DESCRIPTION

### 3.2 Project Overview

EPYC fail to identify anywhere in their report the distance / length of the 33kV transmission line connecting to the southern precinct is.

> ***Recommendation 8:*** *EPYC to update their EIS to include the length of the 33kV transmission line to the southern precinct.*

The EIS states "Up to four permanent meteorological monitoring masts", however figures 3.1, 3.2 and 3.3 only show three monitoring masts. Where does EPYC plan on building the fourth mast?

> ***Recommendation 9:*** *EPYC to identify where the fourth monitoring mast is to be installed.*

### 3.3.1 Wind Turbine Generators

The WTG identified by EPYC as being used for the EIS is based on the "largest model option". Did EPYC use the noisiest model for the noise assessment? Given EPYC also highlight they want flexibility in WTG selection, will the noise modeling be accurate if another model is used at a later point in time?

> ***Recommendation 10:*** *EPYC to identify specific WTG models that were used in the development of the EIS for noise modeling.*

> ***Recommendation 11:*** *The Jupiter Wind Farm is not to use any model of WTG that generates more noise than that used in the development of the EIS and the modeling of noise.*

The WTG type (one through four) also plays an important role in relation to interaction with the electricity grid. AEMO's "Wind Turbine Plant Capabilities Report" covers in detail the types of WTGs and the effect of integrating different types of WTG into the electricity grid. Even if EPYC have not selected a specific model, they should at least be able to identify possible types of WTG they intend on using.

> ***Recommendation 12:*** *EPYC need to identify what type of WTG they intend on using.*

### 3.3.3 Site Access and Internal Access Roads

There has been no consideration of the use of Lower Boro Road to access the control building. This submission discusses this issue extensively in the section on Annex H – Transport Assessment. This is a significant omission in EPYC's EIS submission. Despite the lack of assessment of Lower Boro Road in the Jupiter Wind Farm submission, EPYC highlight there are "No works proposed within Lower Boro Road".

> ***Recommendation 13:*** *EPYC to explain why no works are proposed for Lower Boro Road, taking into account the first 4kms will be used extensively on a daily basis during operations.*

### 3.3.5 Permanent Operations and Maintenance Building

Located adjacent to the substation, the operations and maintenance building will be large enough to cater for up to 32 full time staff. While the buildings will need to comply with the National Construction Code (NCC), EPYC should had identified how sufficient water will be supplied to this workforce and more importantly, how they intend on treating the septic waste from this facility. This is particularly important given the facility's proximity to Boro Creek (part of the Shoalhaven catchment).

> ***Recommendation 14:*** *EPYC must identify at least at a general level the waste treatment system to be used for the Operations and Maintenance Building for the Jupiter Wind Farm. Additionally EPYC must identify the potable water supply required for the operations building, and demonstrate sufficient catchment for this supply.*

### 3.3.6 Meteorological Monitoring Masts

As previously highlighted, diagrams only show three monitoring masts. The EIS can identify where they will install everything else, but they are unable to identify where the three (or maybe four) monitoring masts might be installed? EPYC delayed providing details to the local community about this project up to this point (including not providing copies of the photomontages). From sections such as 3.3.6, EPYC appear to be delaying information to be provided to the Department. EPYC can not provide the WTG model. They can not provide the location of the monitoring towers.

> ***Recommendation 15:*** *EPYC must provide the final locations of the monitoring masts prior to approval.*

> ***Rejection 8:*** *The Jupiter Wind Farm should be rejected. EPYC are unable to provide sufficient information on the locations of monitoring masts for the project.*

### 3.3.8 Micrositing

While this is discussed elsewhere, micrositing of all the project components could result in variations to the project. Given EPYC's inability to provide relevant information at this point in time, if the project is to be approved, the community must have further input once the relevant detailed design of this project is available.

> ***Recommendation 16:*** *The local community must have further input into the project (if approved), once EPYC have determined the final detailed design.*

> ***Rejection 9:*** *The Jupiter Wind Farm must be rejected due to EPYCs approach of delaying provision of information that should be available at this point in time.*

### 3.4.1 Staging and Construction Activities

EPYC claim the Jupiter Wind Farm could be operational by 2020, and provide a timeline for the project over 24 months. If we for the moment assume mid 2017 to mid 2019 align with this 24 month period, the first oversize deliveries (ie the WTGs themselves) would be in early to mid 2018. Assuming a minimum three month sea shipping period, and a three month construction period prior to these deliveries, the construction of the WTGs would need to commence in early 2018. If we also assume the project is approved in March 2017, this leaves nine (9) months before the WTGs are manufactured. EPYC claim they have not selected a WTG model at this point in time. Even taking into account a six (6) month delay before the project commences, this leaves EPYC with just three months to select a WTG model.

> ***Recommendation 17:*** *EPYC must provide the wind turbine model to be used for the Jupiter Wind Farm prior to approval. The community must be allowed to provide input to the project based on relevant information.*

### 3.6.1 Servicing and Maintenance

According to the EIS, EPYC may replace the WTGs during the life of the project with improved technologies. The definition of “improved technology” is subjective to the context of “improved”. While a more efficient technology might allow more generation, it might result in more noise. Thus such an “improved technology” could occur if this project is to be approved, yet could result in a negative impact on the local community.

> ***Recommendation 18:*** *Any replacement of equipment with improved technologies on the Jupiter Wind Farm is not to negatively impact on the local community or environment.*

### 3.7 Decommissioning and Rehabilitation

Please see comments in Annex O – Preliminary Decommissioning and Rehabilitation Plan.

# MAIN REPORT: 4 – SITE ANALYSIS

### 4.3.1 Residential Dwellings

Given the rural lifestyle nature of this area, there is the potential for a much larger number of dwellings to be established on lots large enough (under the relevant LEPs). While almost 300 dwellings have been identified in this proposal, EPYC have not taken into account the expansion of this area. Additionally, while minimum lot sizes are specified, local councils can approve smaller lot sizes for construction of new dwellings in certain circumstances. The areas could also be rezoned (this has already occurred once in the last ten years).

> ***Recommendation 19:*** *EPYC must identify the potential expansion of this area taking into account potential subdivisions down to 80ac lot sizes.*

### 4.4 Site Setting

The approach taken by EPYC is to only identify the nature of the "Project Area", rather than the surrounding land. The impression obtained by reading section 4.4 is that the area is only made up of rural farm land, and completely ignores the fact there are hundreds of rural lifestyle properties surrounding the site.

> ***Recommendation 20:*** *EPYC need to update their EIS to reflect the true nature of the area in which the project is located. This area is not just rural farmland, but has hundreds of rural lifestyle properties within close proximity to the proposed Jupiter Wind Farm.*

### 4.5.4 Environmental Sensitive Areas – Terrestrial Biodiversity

EPYC completely dismiss the impact on the Eastern Bentwing Bat (and other bat species) due to the close proximity to a cave known to be utilised by this vulnerable species at Mount Fairy. Extensive details can be found in Annex D – Biodiversity Assessment (Eastern Bentwing Bat).

### 4.5.4 Environmental Sensitive Areas – Erodible Lands

EPYC identify two WTGs located on erodible lands. However many of us who have lived in this area are well aware of how quickly erosion can take place across any properties. Heavier rainfall is expected as a result of climate change, and in some cases is already being experienced. Along Boro Creek there are numerous areas demonstrating headwall erosion, and other areas clearly visible from Lower Boro Road that are eroding.

> ***Recommendation 21:*** *EPYC must reassess the erosion risk of every turbine and access path. A plan, monitoring and yearly reporting must be developed and implemented. EPYC must also undertake to ensure immediate corrective action is undertaken if erosion results from any of the Jupiter Wind Farm development.*

### 4.5.7 Land of Potential Scenic Value

EPYC fail to highlight the substantial number of properties within 3kms of wind turbines. Their own visual impact assessment highlights that at this distance, the WTG is “likely to dominate the field of view and appear large scale”. EPYC downplay the impact of 88 WTGs up to 173m in height. More details can be found in the chapter Annex F – Landscape and Visual Assessment.

### 4.5.8 Rural Residential Character

EPYC appear to be relying on the legal definition of “rural residential” contained in the Local Government Act 1993 as “not less than 2 hectares and not more than 40 hectares in area”, and using this as the basis to claim that given the minimum lot sizes are too big, and thus the area does not support the development of “rural residential” properties.

The Secretary’s Environmental Assessment Requirements (2 March 2016) requested suitability in relation to “future surrounding land uses (including rural residential development ...”). By EPYC’s own analysis a large portion of the 273 non-involved properties are not “rural residential”. This highlights the obvious question – if these properties are not “rural residential” by definition, what are they?

Many of these properties are very close to 40 hectares – simply to allow construction of a house. Very few of these properties are used for primary production – those that are do so are typically hobby farms. While not a formal definition, these properties could be classed as “rural lifestyle”. The SEARs also discuss the future surrounding land uses. Given the popularity of larger lot sizes in the area, basing the future development on a legal definition of “rural residential” is constrained thinking on EPYC’s behalf.

In some cases the reason for preferring larger lot sizes in this area is many people are trying to provide for sustainable living. Several of our neighbors on Lower Boro Road have small numbers of sheep for either milking or meat. Many have large vegetable gardens and orchids on their properties. Many rely on firewood they collect from their own properties in a sustainable fashion. And in many cases we live off-grid on solar power systems.

The rural lifestyle nature of this area is focused on sustainable living. As a renewable energy precinct, not everything must be large scale wind farms. There needs to be a suitable mix of large scale wind farms, and smaller scale rural lifestyle properties, and some rural residential properties. This provides an important balance of development.

> ***Rejection 10:*** *The Jupiter Wind Farm proposal should be rejected. While the area surrounding the project is not rural residential by definition (by a legal definition), it is rural lifestyle in nature and provides an important balance in a renewable precinct where large lot rural lifestyle properties are utilised for sustainable lifestyles.*

EPYC fail to take into account the changing nature of this area. Local government policies usually lag behind changes as it takes time to develop policies and ensure they are approved. In the last three years there have been additional “subdivisions” and houses built nearby that show a clear trend towards large rural lots being used for rural lifestyles. For example, between the northern precinct of the proposed Jupiter Wind Farm and the Kings Highway, a large lot subdivision of at least three (exact number unknown) properties was created. Along the Kings Highway another subdivision was recently put in near Mullon Creek (multiple lots).

The trend in this area is towards large lot rural lifestyle properties. The strategies quoted by EPYC may not indicate this is a good idea, however this is the trend in the area. This trend is probably more due to demand for this type of property.

> ***Recommendation 22:*** *EPYC review their EIS and take into consideration the increasing* ***trend*** *towards large lot rural lifestyle properties surrounding the project area.*

# MAIN REPORT: 5 – PROJECT ALTERNATIVES

### 5.2.2 Alternative Energy Sources

The EIS does briefly mention other alternative energy sources, highlighting the maturity of wind and briefly mentioning solar. However there is no exploration of solar as a project alternative. The following is a proposed alternative and comparison to the proposed solution.

The following assumptions have been made:

- $300m is available for the project alternative;
- A 5kW solar power system can be purchased and installed for approximately $4,000;
- The solar price is based on bulk buying power associated with $300m purchase;
- If installed around the southern NSW region, an average generation of 4.5 times the capacity each day;
- It takes two people half a day for each install;
- Installations can occur on 250 days in the year;
- 1% of solar power systems would require maintenance in any one year (averaged over the system lifespan).

Based on these assumptions, approximately 75,000 solar power systems could be installed on houses across the state. This would generate approximately 5kW x 4.5h x 365 x 75,000 = 616 GWh. These numbers are conservative and would likely be higher.

Additionally, households could opt to pay a little more for a larger system. Assuming an average of $1000 extra is spent in each household to increase the capacity from 5kW to 6.5kW. This would increase the generation capacity by 184GWh to 800GWh.

Table 2 contains a comparison between the proposed Jupiter Wind Farm and an alternative solar rooftop scheme. While the Jupiter Wind Farm would offset greenhouse gasses and generate more jobs, the majority of the benefit goes to a small group of people (the owners / operators).

An alternative scheme using solar would offset 73% of the greenhouse gas emissions compared to the Jupiter Wind Farm. While it would generate less jobs during construction, it would provide significant benefit to the households for which their electricity bills are offset. This would mean 75,000 households would be spending less on their electricity, and more on other things – generating substantial economic growth over a 25 year period. The proposed Jupiter Wind Farm is claimed to generate about 20% of the economic benefit of such a scheme.

There are two key benefits for an alternative solar project to 75,000 households:

- The benefit of the project is to the households installing the systems rather than the majority of the profit going to corporation;
- An economic stimulus of $4,125m is provided over 25 years compared to $700m for the Jupiter Wind Farm.

| Aspect | Jupiter Wind Farm | Rooftop Solar | Alternative |
|---|---|---|---|
| Generation capacity | 1,100 GWh | 800 GWh | Worse |
| Offset | 150,800 households | 109,600 households | Worse |
| Expected lifetime | 25 years | 25 years | Same |
| Installation workforce | 300 people for two years | 75 people for two years | Worse |
| Maintenance workforce | 30 people over 25 years | 2 people over 25 years | Worse |
| Cost to NSW households | Tax payer dollars provided to proponent as incentives | Average of $1000 extra for each of the households with a system | Better |
| Household electricity savings per year | Nil | At 30cents / kWh and 7.3MWh / year = $2190 (price rises over 25 years would likely increase this) | Better |
| Household electricity savings over 25 years | Nil | Estimated to be $2200 x 25 years = $50,000 | Better |
| Economic stimulus provided | ($7m + $21m) x 25 = $700m over the life of the project | $2200 x 75,000 households x 25 years = $4,125m | Significantly better |
| Environmental impact | Destruction of local environment, Impact on bat species | Minimal | Better |
| Bushfire risks | Significant increase in risk | Nil | Better |
| Impact on transport | Significant impact over 24 month period | Minimal | Better |
| Rapid changes in generation | Yes – wind resources can change rapidly | Minimal – distributed over 75,000 NSW households | Better |
| Impact on “poles and wires” | More needs to be spent on the poles and wires to deliver the generation across the state. | Generation is localised to the population. Smaller localised upgrades may be required | Better |
| Baseload supply | Incapable | Can be retrofitted with batteries | Better |
| Benefit for the householder | Minimal | More aware of their electricity consumption patterns, and generally reduce consumption | Better |
| At end of life | WTGs are either decommissioned or replaced | Most solar panels will continue producing (even though at a lower capacity) after 30+ years. | Better |
| Ongoing maintenance costs | Unclear | Reasonable quality inverters should last about ten years | Unclear |
| Impact on local community | Generally negative | Positive – solar does not attract the negative attention of wind farms | Better |
| Visual impact | Significant for hundreds of rural residents. 88 turbines at 173m in height is hard to miss. Completely overwhelms the environment. | Negligible – installed on existing houses, and seen as acceptable by majority of population | Better |
| Profits | Go to proponent and operators | The local householder gains a significant benefit in reduced electricity bills | Better |
| Ownership | Proponent and operators | The local householder | Better |

*Table 2: Comparison between wind generation and alternative solar generation*

***Rejection 11:*** *The Jupiter Wind Farm proposal should be rejected – although an alternative rooftop solar solution would not generate quite as much electricity, the benefit is distributed across the state. Additionally a rooftop solar solution to 75,000 households would generate approximately $4,125m in economic stimulus over 25 years compared to $700m for the Jupiter Wind Farm.*

***Recommendation 23:*** *EPYC must provide a detailed analysis comparing the benefits of the Jupiter Wind Farm to an alternative solar rooftop scheme.*

**5.3 Site Selection Process**

EPYC highlight the site was selected after three meteorological monitoring masts were installed. They have made no effort to identify other sites, and why this particular site was considered a better option rather than the other sites?

***Recommendation 24:*** *EPYC must identify the other sites they had considered in relation to the Jupiter Wind Farm. They must identify why these alternative sites were found not to be suitable. Their assessment must include an assessment of the number of residences within 2kms, 3kms, 4kms and 5kms of each site.*

The project involves approximately 15kms of powerlines, likely to be installed below the surface from the substation to the southern project area. Given EPYC have included the cost of this installation in the project, they should have also considered other areas to the north and south of the powerlines for all wind turbines to be installed.

***Recommendation 25:*** *EPYC conduct studies of other areas that are suitable for the wind farm, including the collection of wind data. Their wind farm proposal must compare data from these locations to show why a specific site has been selected. Suitable studies must include areas up to 20kms from transmission lines.*

**Micro-Siting WTGs**

EPYC seek permission for micro-siting of wind turbines by up to 100m. With modern technology available, this should not be required. For example, Ground Penetration Radar (GPR) is in common usage and can often be seen on the television show “Time Team”. GPR allows detection of sub surface content including rocks and other objects. If such technology is used, there is no need to micro-site due to the unknown subsurface conditions.

***Recommendation 26:*** *Micro-siting of WTGs for Jupiter Wind Farm is not permitted. Modern technology including modeling, soil sample analysis and Ground Penetration Radar surveys should ensure there is no requirement for micro-siting.*

***Recommendation 27:*** *EPYC to conduct soil sample analysis from each WTG site to ensure micro-siting is not required.*

***Recommendation 28:*** *EPYC to conduct Ground Penetration Radar surveys from each WTG site to ensure micro-siting is not required.*

**WTG Selection**

The lack of wind turbine selection at this point in the project is a concern. This suggests EPYC either do not have the expertise to select a model, or they expect significant delays in their project and will not be able to select a WTG model for many years. EPYC claims the lack of selection is due to to new technologies that will be available at the time of commissioning. However if we assume a three month delivery by sea, and a three month construction timeframe, there is at least a six month lead time prior to delivery to site. If the Jupiter Wind Farm is approved, construction may commence in mid 2017. EPYC should have selected a WTG model by this stage of the project.

***Recommendation 29:*** *EPYC to provide the WTG model to be used prior to approval of the Jupiter Wind Farm.*

The WTG model also has an impact on noise levels generated. The noise modeling method selected also results in variations between WTG models[3]. Given the importance of noise modeling in approvals for the Jupiter Wind Farm, it is difficult to identify how suitable noise modeling could have been conducted without suitable selection of a WTG model.

> Noise of the turbines is a major consideration in determining the acceptance of a wind farm planning application.

*Figure 11: Extract from "Comparison of Sound Power Prediction Models of Wind Turbines[4]*

***Rejection 12:*** *The Jupiter Wind Farm proposal should be rejected due to the lack of Wind Turbine Generator model selection.*

EPYC's original PEA to the Department (dated 2 December 2013) contains "Table 2.1 – WTG's Currently under Consideration" (see Figure 12). Nine (9) models are listed from eight manufacturers including general specifications (capacity and sizes). Given EPYC had a list of turbine models in 2013 (three years ago), surely they have a list of possible models now? EPYC seem to have gone backwards between 2013 and 2016.

3 http://iicbe.org/upload/5427C1014154.pdf, Comparison of Sound Power Predition Models of Wind Turbines, Zidan, E., Elnady, T. and Elsabbagh, A. (2014).

4 http://iicbe.org/upload/5427C1014154.pdf, Comparison of Sound Power Predition Models of Wind Turbines, Zidan, E., Elnady, T. and Elsabbagh, A. (2014).

*WTG's Currently under Consideration*

| Manufacturer | Model | Capacity (MW) | Blade Length (m) | Rotor Diameter (m) | Tower Height (m) | Overall Tip Height (m) |
|---|---|---|---|---|---|---|
| Vestas | V117 | 3.3 | 58 | 117 | 91.5 | 150 |
| REpower | M114 | 3.2 | 56 | 114 | 93 | 150 |
| Gamesa | G114 | 2.5 | 56 | 114 | 93 | 150 |
| Gamesa | G128 | 4.5 | 63 | 128 | 95 | 159 |
| Siemens | SWT-113 | 2.3 | 55 | 113 | 100 | 156 |
| Alstom | ECO 122 | 2.7 | 60 | 122 | 89 | 150 |
| Nordex | N117 | 3.0 | 57 | 117 | 91 | 150 |
| GE Energy | 2.5-120 | 2.5 | 59 | 120 | 110 | 170 |
| Acciona | AW-116 | 3.0 | 57 | 116 | 92 | 150 |

*Figure 12: Table 2.1 from Jupiter Wind Farm PEA. Why are EPYC unable to list models in their EIS?*

# Main Report: 6 – Statutory Framework

This chapter contains a quick review of the statutory framework for the Jupiter Wind Farm project. Many claims by EPYC are dependent on other parts of their EIS such as the visual impact assessment and biodiversity assessment. Given significant flaws already identified within this submission to the Department, issues in this chapter related to those flaws not considered elsewhere.

### 6.2.1 Environmental Protection and Biodiversity Conservation Act 1999

Analysis of EPYC's Biodiversity Assessment demonstrates they have understated the impact on at least on vulnerable species (the Eastern Bentwing Bat). It is likely they have understated the impact on other species in the area, including the Glossy Black Cockatoo.

> ***Recommendation 30:*** *The Department should take into account the understated impact of the Eastern Bentwing Bat when considering compliance in relation to the Environmental Protection and Biodiversity Conservation Act 1999.*

### 6.3.6 Threatened Species Conservation Act 1995

See above comments in relation to 6.2.1.

### 6.5.1 Palerang Local Environment Plan 2014

Table 6.3 (d) is discussed below in relation to the E3 zoning.

Table 6.3 (e) suggests the Jupiter Wind Farm is suitable as the "project has been designed to minimise impacts on the natural environment to the extent practicable". This is incorrect as shown in the impact of the project on the Eastern Bentwing Bat. These turbines will dominate the local environment according to EPYC's own submission.

### 6.5.2 Goulburn Mulwaree Local Environment Plan 2009

Table 6.4 (g) identifies the Jupiter Wind Farm as being supposedly "compatible with the character of the zone". Yet EPYC's own visual impact assessment (by Clouston Associates) characterises the Jupiter Wind Farm as altering the landscape pattern to one of strong vertical forms (Figure 13 and Figure 14 extracted from EPYC's visual impact assessment).

> This landscape character zone is of a large scale and mostly open in nature with a gently rolling landform. The overall landscape pattern created by the grass pasture is smooth, regular and uniform. Trees are present in groups or as isolated individuals. Areas of tree planting also surround the majority of rural dwellings in the form of evergreen windbreaks.

*Figure 13: Visual impact assessment's characterisation of the zone*

> The **JWF will become a prominent new element** within this landscape zone. Overall, the Project is described as having a Moderate/High impact on its landscape character, limited to the undulating grassland in proximity to the WTGs, **altering the landscape pattern to one of strong vertical forms**.

*Figure 14: Visual impact assessment's statement on the impact of the character of the zone*

> ***Rejection 13:*** *The Jupiter Wind Farm proposal should be rejected. EPYC's own visual impact assessment characterises the area as "mostly open in nature with a gently rolling landform", yet the 88 wind turbines will clearly dominate the character of the landscape to that of "strong vertical forms" up to 173m in height.*

Also in table 6.4 (j), EPYC highlight the Jupiter Wind Farm has been refined to minimise visual impacts where practicable. They go on to identify there are high impacts on some dwellings, then claim the visual impacts can be mitigated. As demonstrated in this submission, this is not possible in our case, and the visual mitigation then detracts from individual's views of the surrounding area, including the undulating farmland. Visual impact mitigation also poses a bushfire risk and would damage our dam integrity.

In comparison to the E3 Management Zone, EPYC claim they have mitigated the biological impact, however as demonstrated in the analysis related to the Eastern Bentwing Bat, EPYC have dismissed and understated the impact in their report. EPYC's visual impact assessment has been shown to be incorrect and visual impact mitigation measures as unsuitable. Their claim the wind farm will diversify the development and economy within the rural lands – however it will be for less than 20 involved households.

**NSW Department of Planning Practice Note 09-002**

EPYC claim their project is consistent with the objectives of the E3 zones. However, the NSW Department of Planning's Practice Note 09-002 highlights "Additional zone considerations". The objectives of this zone are contained in Figure 15. It should be noted the proximity of the Jupiter Wind Farm to the Mount Fairy cave used extensively for multiple bat species, including the vulnerable Eastern Bentwing Bat. 75 wind turbines up to 173m in height could hardly be seen as protecting the ecological significance of this species.

> Objectives [of E3 Zone]
>
> The mandatory zone objectives focus on **protecting, managing and restoring areas with special ecological**, scientific, cultural or aesthetic values and to provide for **a limited range of development that does not have an adverse effect on those values**.
>
> Additional local objectives may be applied if they are compatible with the mandatory objectives and uses.

*Figure 15: Extract from Practice Note 09-002, NSW Department of Planning*

As per Figure 16, “All other forms of retail premises and industries are prohibited in the zone”. The Planning Note goes on to identify if more intensive agriculture is to be undertaken in the area, then a rural zone would be more appropriate. This would suggest that while some of the project area for the Jupiter Wind Farm is rural in nature, the intent is actually to be more compatible with an E3 zone.

> Councils may generally (but need not) permit, with consent, home industries, kiosks, cellar door premises, neighbourhood shops and roadside stalls in the zone. ***All other forms of retail premises and industries are prohibited in the zone.***

*Figure 16: Practice Note 09-002 - guidance to local councils on Additional Uses for E3 zones*

> ***Recommendation 31:*** *WTGs located in E3 zones and Rural zones related to the Jupiter Wind Farm must be removed. They are inconsistent with the objectives of E3 zones. The rural zones in proximity to E3 are zoned rural due to their use in farming, however the intent is that of an E3 zone.*

The NSW Department of Planning’s own guidance is also quoted in Figure 17. The intent from the Department itself is to maintain the existing usage of the E zones.

> It is important that councils maintain the integrity of the E zones by including only uses consistent with the zone objectives. **As well, councils should, wherever appropriate, retain existing uses that maintain conservation land capabilities.**

*Figure 17: Another extract from Practice Note PN 09-002*

Installation of 75 wind turbines in close proximity and within an E3 zone (and a rural zone intended as an E3 zone) is not appropriate according to the Department’s own guidance to local councils. At the very least the turbines in close proximity to the E3 zone must be removed.

> ***Recommendation 32:*** *Turbines within 2kms of the E3 zoned areas of the Jupiter Wind Farm project area must be removed. Their proximity to the E3 zone is not compatible with the intent of this zone.*

> ***Rejection 14:*** *The Jupiter Wind Farm proposal should be rejected. Although the area is predominantly zoned rural in nature, this is in line with the nature of existing practices in the area. In the absence of rural activity in this area, it would be zoned E3. As such the Jupiter Wind Farm is not compatible with the intent of the area.*

# Main Report: 7 - Community and Stakeholder Engagement

### Initial Contact

EPYC never contacted us initially. Our first knowledge of this proposal was through a neighbor who provided us details on how to contact EPYC. Although it is recognised that there are commercial sensitivities involved in such a project, at the time we found out about the project, EPYC had already collected sufficient wind monitoring data to be well advanced into their planning.

The NSW Draft Wind Farm Guidelines and the CEC Guidelines recommend early and regular community consultation. We had to contact EPYC to find out what was going on. In hindsight it is clear EPYC had no intent to consult with us unless they had to.

### EPYC's Response to Inquiries

Table 3 contains a list of questions and issues submitted to EPYC by email (prior to the successful submission of the EIS). Across the top are the dates in which the questions were raised. Green cells indicate a positive interaction (such as a question being answered or arranging a photo shoot). Red cells indicate the question was never answered prior to the release of the EIS (In many cases EPYC responded, but never actually answered the question raised).

Gray cells in the table (on the right side) are those where I was encouraged by the direction provided by the Department of Planning and Environment to EPYC to improve their consultation. It is clear from this table that despite the Department's direction, EPYC failed to improve their community engagement prior to submission of the EIS.

> ***Rejection 15:*** *Despite direction from the Department of Planning and Environment in late 2015, EPYC failed to improve their consultation. The Jupiter Wind Farm proposal must be rejected.*

Viewing Table 3, it is obvious that when EPYC wanted something from me, they got it (access to take a photo for the photomontage). However when it came to obtaining any information from EPYC, they were reluctant to do anything. In many cases they never responded, and never considered my suggestions in their submission. In other cases it took multiple emails to obtain even the smallest piece of information (such as the wind turbine locations).

> ***Rejection 16:*** *EPYC have failed to engage in honest and open communications with the local community. Their EIS submission claims they have engaged with the local community, however they have ignored almost every attempt to engage in a positive manner. Their EIS submission does not highlight the true nature of their engagement with the community.*

| Question / Issue | 4 Feb 2014 | 12 Jun 2014 | 25 Jun 2014 | 1 Jul 2014 | 10 Jul 2014 | 8 Aug 2014 | 9 Aug 2014 | 17 Dec 2014 | 1 Mar 2015 | 16 Mar 2015 | 27 May 2015 | 8 Jun 2015 | 30 Jun 2015 | 5 Aug 2015 | 28 Aug 2015 | 7 Jul 2015 | 9 Sep 2015 | 1 Dec 2015 | 24 Jan 2016 | 9 Feb 2016 | 12 Feb 2016 | 24 Mar 2016 | 5 Apr 2016 | Result |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Invite to community meeting | | | | | | | | | | | | | | | | | | | | | | | | Phone conversation identified EPYC would not attend. |
| Taking of Photo from J234A / B | | X | | X | | X | X | X | X | X | | | | | | | | | | | | X | | N/A |
| Copy of Photomontage from J234A / B | | | | | | | | | | | X | | X | | | | | X | | X | X | X | X | Continual attempts to bully us into meeting |
| Alternatives to vegetation screening | | | | | | | | | | | | | X | | | | | X | | | | X | | Never provided alternatives |
| Decrease in property values | | X | | | | | | | | | X | | | | | | X | X | | X | | | | Delayed till EIS |
| Suggestion to seal Lower Boro Road | | X | | | | | | | | | | | | | | | | | | | | | | Never responded |
| Increased Bushfire Risk due to unique direction of Lower Boro Road | | X | | | | | | | | | | | | | | | | | | | | | | Never responded |
| Suggestion to provide additional fire fighting equipment | | X | | | | | | | | | | | | | | | | | | | | | | Never responded |
| Possible access to wind farm for local horse riders | | X | | | | | | | | | | | | | | | | | | | | | | Never responded |
| Request for confirmation EPYC received my email / will respond | | | X | | | | | | | | | X | | | | X | | | X | | | | | Continually had to check if EPYC had received my earlier emails |
| Request for turbine locations | | | | X | | | | | | | | | | X | | | X | X | | X | | X | | Closest three turbines provided after six (6) emails |
| Update of contact details | | | | | X | | | | | | | | | | | | | | | | X | | | N/A |
| Confirming contact numbers used by EPYC | | | | | | | | | | | | | | | X | X | X | X | | X | X | | | Six (6) before EPYC finally confirmed what number in use |
| Mobile phone coverage limited | | | | | | | | | X | | | | | | | X | | | | X | | | | EPYC never identified this during communications |
| Noise due to valley funneling sound / acoustic testing | | | | | | | | | | | X | | X | | | | | X | | X | X | X | | EPYC delayed till EIS |
| Progress on EIS development and formation of CCC | | | | | | | | | | | X | | | | | | | | | | | | | EPYC never answered my questions |
| Other projects EPYC staff have been involved in. | | | | | | | | | | | | | | X | | | | X | | X | | | | EPYC refused to answer my questions |
| Difficulties engaging with EPYC highlighted | | | | | | | | | | | | | | | | X | X | X | | X | | | X | EPYC made no effort to improve their engagement |
| Request details on benefit sharing | | | | | | | | | | | | | | | | | | X | | X | X | X | | EPYC never provided details of the scheme |

*Table 3: First two phases trying to engage EPYC*

Table 5 contains some examples of the type of response EPYC would provide when asked questions. As per one of the later comments in the questions sent to EPYC, their responses were typically to RESPOND (not ANSWER), EVADE, or IGNORE the questions. As examples of how many times I had to ask questions before I received a response, Table 4 contains the issue, the number of times it was raised, the time period over which it was raised prior to the EIS release.

| Issue Raised | First Raised | Period | Number of times raised | Addressed in EIS to satisfaction |
|---|---|---|---|---|
| Copy of Photomontage from J234A / B | 12/06/14 | 663 days | 7 | Yes |
| Alternatives to vegetation screening | 12/06/14 | 902 days | 3 | No |
| Decrease in property values | 12/06/14 | 902 days | 5 | No |
| Suggestion to seal Lower Boro Road | 12/06/14 | 902 days | 1 | No |
| Increased Bushfire Risk due to unique direction of Lower Boro Road | 12/06/14 | 902 days | 1 | No |
| Suggestion to provide additional fire fighting equipment | 12/06/14 | 902 days | 1 | No |
| Possible access to wind farm for local horse riders | 12/06/14 | 902 days | 1 | No |
| Request for confirmation EPYC received my email / will respond | 25/06/14 | - | 4 | N/A |
| Request for turbine locations | 01/07/14 | 632 days | 6 | Yes |
| Confirming contact numbers used by EPYC | 28/08/15 | - | 6 | N/A |
| Mobile phone coverage limited | 01/03/15 | 640 days | 3 | No |
| Noise due to valley funneling sound / acoustic testing | 27/05/15 | 553 days | 6 | No |
| Progress on EIS development and formation of CCC | 27/05/15 | - | 1 | N/A |
| Other projects EPYC staff have been involved in. | 05/08/15 | 483 days | 3 | No |
| Difficulties engaging with EPYC highlighted | 07/07/15 | 512 days | 5 | No |
| Request details on benefit sharing | 01/12/15 | 365 days | 4 | No |

*Table 4: Number of times issues were raised with EPYC*

While not all the issues raised are listed in Table 4, it contains a total of 16 issues. Each issue was raised on average 3.56 times. Two (2) of the sixteen (16) issues were adequately addressed in the EIS (a copy of the photomontage from J234A and the list of wind turbine locations). A further three issues were non applicable to be addressed in the EIS. This means eleven (11) of the thirteen issues (13) raised with EPYC have not been adequately addressed (or 85% of the issues).

Response times for issues raised that were answered were significant. Given the EIS does not adequately address many of these issues, many of them remain unanswered at this point in time.

| Question sent to EPYC | Response received from EPYC |
|---|---|
| 1. Could I please get an update on how things are going in relation to the photo montages? When am I likely to see some images? | At the moment the photomontages have not been finished. **Upon public release of the EIS, the selected photomontages will be available for all to view.** |
| 3. We have also discussed the issue in relation to property values, and obtaining a valuation prior to construction of the Jupiter Wind Farm? Does EPYC have a timeframe on when this might occur? | Similarly, **your concerns regarding property values have been noted.** We do not expect the construction to begin sooner than end of 2016 or early 2017. Any valuation if required would be done closer to the time. |
| I was under the impression I would have the opportunity to see what the visual impact from my new residence would be, and hence be able to discuss this prior to the EIS being released. Given your email below, and previous discussions when EPYC visited the building site, I must raise the issue as to how EPYC will address the visual and noise impacts at my new residence. | As for the visual impact, the consultants are in the process of preparing the photo montages. Once they are done we will review them to see if there are any impacts and if so we will contact you to discuss the best course of action forward. With respect to your new dwelling, we have asked the consultants to prepare the photo montages from your new dwelling. Similarly, we have the GPS coordinate of your new dwelling which is to be built and it will be considered for the noise assessments. **Should the results indicate an impact, we will contact you to discuss the best way forward.** |
| Is EPYC going to respond at all? As I indicated in my last email, I would like to confirm you are calling the correct number (which you should have from when we arranged EPYC to visit my property). However given phone coverage, as I stated in my email from 28 August, probably best to just send an email and let me know about the turbine locations. I also asked about what other projects EPYC employees have been involved in. | I did call your work and spoke to a gentleman twice who said that he has sent you an email with my details and my request to be called back. That was some weeks ago.The other number didnt work.<br><br>**As for the turbines, their location are not yet finalized.** Consultants are working on various assessments, but they have not yet been completed. Hence the locations of the turbines may change.<br>This information is required before we could have further and a **more meaningful conversation regarding any impact.** |
| I have reviewed my notes, and as I have highlighted MULTIPLE times, **your best method to engage with me is through email. You continue to ignore this**. Until you can provide me an outline of what you would like to discuss, I am not going to waste EPYC's or my own time meeting in person. These are all things EPYC are more than capable of providing via email.<br><br>At this point in time, the following issues remain outstanding from my previous emails: | We discussed via email the response to your questions previously and **some of the answers are also provided in the minutes of the CCC meetings which are available from our website as well** as the Palerang and Goulburn Malwaree council websites. There are matters that are best discussed in person to avoid any misunderstandings, hence the request for face to face meeting. You will shortly receive an email request for meeting with the team to further discuss the project update and the benefit sharing EPYC is considering. We encourage you to make an appointment at a time suitable to you so that we can discuss matters further. |

| | |
|---|---|
| 1. Turbine locations - please provide a copy.<br>2. A list of other large scale projects staff at EPYC have been previously involved in (regardless of country) - such as other wind farm projects (please include location of the project, number of turbines, name of the project, turbine capacity etc.)<br>3. What contact details you do have for me so I can confirm if you have the correct details?<br>4. A copy of the relevant photo montage from my property.<br>5. The loss of value of my property.<br>6. Other alternatives to vegetation screening for my new residence due to the nature of the terrain surrounding the residence.<br>7. Increased costs for my new residence in relation to the requirement for double glazing/additional insulation to ensure reduced impact of noise from the wind turbines. | |
| You have not provided the turbine locations. I asked for the lat/long details for the turbines (ie GPS coordinates). This information is not on any website and has not been provided to me. | These were provided to the CCC in October in anticipation that the EIS will be made public shortly thereafter. Given that EIS is currently being updated, at this stage it is still not a public document until finalization and public exhibition. However, in the interest of current discussions, we are happy to provide you with locations of the turbines which are within 2km of your dwellings.<br>You need to keep in mind that given **the EIS is not on public exhibition, there still may be some changes to come**. |
| I have asked for what other large scale projects EPYC staff have been involved in. This information has not been provided and is not on any website. | **This is not a requirement for the project.** Just for your information, EPYC has identified a number of sites for development in NSW and Victoria, the Jupiter project being one of them. As you may know these projects are intellectual property of EPYC and will be made public when decided by EPYC. **As for previous staff's previous experiences, this information is not pertinent to Jupiter project and for privacy reasons will not be discussed.** |
| I have asked for the contact details you have for me so I can confirm they are correct. This has not been provided. | These are the only two numbers we have for you, [removed] and [removed]. |
| I have asked for the relevant photo montage from my property. This has not been provided and is not available on any website. | As stated above and as you have already noted, t**he EIS is not on exhibition, therefore it is not a public document and the photomontages prepared as part of the EIS will not be available from any website as yet.** We have tried to arrange a few meetings with yourself as you are aware, but unfortunately, they have not yet eventuated. One of the |

| | |
|---|---|
| | purposes of meeting next week is to show you your specific photo montage and discuss matters related to that, but please note that **we will not be able to leave a copy for you at this point in time**. Once the EIS has been completed and gone on exhibition, we will be more than happy to forward you a copy of the photomontage. |
| I have asked what EPYC intends to do in terms of the loss of value of my property. EPYC has not provided any answer. | **The property value is one of the items addressed in the EIS.** |
| I have asked what alternatives there are to vegetation screening. EPYC has failed to state what else there is. | **Without you having seen the photomontages and discussion with you, it is not possible to properly have any discussion about this.** We are happy to discuss this matter further once we meet and have a another look at what may be required and work for your dwelling. |
| I have asked what EPYC about additional costs I now incur in relation to ensuring my new residence is not affected by noise. No answer has been provided. | The noise assessment, when completed , will determine whether your dwelling is affected or not. We will adhere to the legislated noise limits. Should the noise limit exceed, mitigation measures will be put in place to ensure compliance. We are happy to further discuss this with you when we meet. |
| I have asked for details of the benefit sharing scheme. EPYC has not provided any details. | This will be discussed with you. **We will not be emailing information at this stage of the process.** |
| You claim EPYC would like to discuss these things in person to avoid misunderstandings. I have asked for this information to be provided prior to any meeting so I have the time to review the content and then ask any questions (if necessary in person). However EPYC continues to refuse to put anything in writing or provide any details in writing | Some discussions are part of consultation process and need to be face to face, **for other matters we have communicated them by various methods**, when available. |
| 2. Photo montage from my property | We will be able to show you the photomontage from your place when we meet. Please see our response above. |
| In theory ALL of these details should have already been provided to the NSW Dept of Planning in EPYC's first submission that was rejected. | **The information is only made public once it has been put on public exhibition.** Since we are updating the EIS and we didn’t go on exhibition, the results and details are not completed and yet not a public document. |
| Let me make this absolutely, positively 100% clear to you: EPYC has continually failed to provide an ANSWER to my enquiries. EPYC has only ever RESPONDED, EVADED or IGNORED my questions and attempts to engage. I will not waste my time meeting with EPYC until you can provide in an email the absolute minimum I have listed above. | EPYC has provided response according to the status of the project and availability of the information. **We are unable to provide you with some of the information requested as the technicality of some of your questions are best responded to through the assessments reported in the EIS**. As the EIS is not yet on exhibition, the details you requested could not be addressed at this point. Once all the updating has been completed and the EIS has been put on exhibition feel free to review it all and then should you still have any questions or require further clarification, please don’t hesitate to contact us. |

| | |
|---|---|
| | We appreciate that you have some questions about the project, but based on the progress of the process and the development stage of the project, there will be limitations as to some of the answers. Until such time that EIS has been completed and approved for exhibition by the DP&E, the details will be under review and subject to change. **Consequently, the details could not be made public until such time.** |
| 1. As per below, the photo montage I have requested on multiple occasions. EPYC have indicated (12 Feb 2016) you have the photo montage. | As indicated in our email to you dated February 12th, the photo montages will be available to view during the meeting and for the purpose of further discussions, **however until EIS is on public exhibition, copies of the photomontages will not be given out for individuals to keep**. Post exhibition, everyone is free to make copies of the montages for their own reference from the EIS. |

*Table 5: Typical responses from EPYC during engagement*

**EPYC Insistence on Phone or In-Person Communications**

Throughout this process, EPYC have been reluctant to engage in communications other than meeting in person or over the phone. This indicates a reluctance to retain a detailed record of conversations.

Modern communication methods include the use of things such as social media. This includes sites such as Facebook – where a wind farm proponent could create a site so people interested in the progress could subscribe. Simple announcements such as having received a report by a consultant on the local birds or endangered species would have gone a long way to demonstrating to the community they are taking the process seriously, and they are keeping people informed.

One aspect of modern communications is the expectation of more frequent communications. EPYC started out with infrequent communications, varying about one to three months between any form of communication. At the end of this process, EPYC have not (to our knowledge) sent out any communications to the general community between Christmas 2015 and Christmas 2016 (twelve months). While the CCC is there to represent the views of the community, EPYC has demonstrated a lack of community consultation through the lack of communications for almost twleve (12) months.

No newsletters and no emails. No updates to their website other than very delayed updates in relation to the CCC meeting minutes. No announcements as to when the next CCC meeting would be. EPYC have refused to use modern communications mediums to reach a wider audience.

EPYC's reluctance to use modern communications methods (including emails) as a form of communications demonstrates they prefer to rely on methods where the message can easily be misrepresented later. Ironically, EPYC have claimed they would prefer to communicate in person to avoid misunderstandings (Figure 18).

> We discussed via email the response to your questions previously and some of the answers are also provided in the minutes of the CCC meetings which are available from our website as well as the Palerang and Goulburn Malwaree council websites. **There are matters that are best discussed in person to avoid any misunderstandings, hence the request for face to face meeting.**

*Figure 18: EPYC's basis for wanting to meet in person (email 8 Feb 2016)*

***Recommendation 33:*** *EPYC provide summaries of all communications with all parties to those parties involved within two weeks. The summaries must be provided in writing. The parties involved must agree to those summaries. In the event the parties can not agree on the summary of communications, EPYC must not count those communications as consultations. EPYC must also identify to the Department where parties have not agreed to the summary provided by EPYC.*

**Community Consultative Committee (CCC): Notification of Meetings**

While the CCC is generally for committee members, the NSW Draft Windfarm Guidelines do state that observers can attend the meetings with the committee's approval. This however is not generally possible if the meetings are not advertised in any way. EPYC did not notify the community of when any of these meetings were being held. In fact the only notification we received of a CCC meeting was from the NSW DPE when they presented at the Tarago Hall on 7 December 2016.

> ***Recommendation 34:*** *EPYC must notify the community 21 days in advance of all CCC meetings.*

> ***Rejection 17:*** *EPYC has failed to engage the community by not notifying them of CCC meetings.*

**Community Consultative Committee: Release of Minutes**

EPYC's approach to the release of minutes from the Community Consultative Committee has been limited at best. The NSW Draft Windfarm Guidelines highlight the minutes need to be released within 28 days of the meeting being held. For example:

- The 2 March 2016 CCC minutes were released by EPYC on 28 April 2016 (almost two months);
- The 6 July 2016 CCC minutes were released by EPYC on 7 September 2016 (two months); and
- The 13 December 2016 CCC minutes were released by EPYC on 1 February (seven weeks).

It should be noted, these delays are for CCC meetings held after the initial failed EIS submission in late 2015. According to the NSW Department of Planning and Environment press release "The community has a legitimate interest in major development in their area. That is why the company was required to consult with the community … about the impacts of its proposal"[5]. Given the Department's stressing of legitimate community interest and the need for consultation, it is obvious EPYC have failed to apply community consultation – they simply do not care about the CCC or the local community.

> ***Rejection 18:*** *EPYC have failed to apply an appropriate level of community consultation. EPYC failed to provide meeting minutes for the CCC within the timeframes specified by the department. The community has not been informed of the reasons for these delays.*

**EPYC's Information Sharing**

EPYC used three primary methods of sharing information. They demonstrated a reluctance to share information via email. The second method of information sharing was via occasional newsletters. The third main method used by EPYC was through their website.

The website used by EPYC was rarely updated in a timely manner. In the 12 months prior to their successful EIS submission, EPYC barely updated the website. The images in Figure 19, 20 and 21 were taken on 27 November 2016 – just prior to the release of the EIS by the Department:

5 http://www.planning.nsw.gov.au/~/media/Files/DPE/Media-Releases/2015/October/29102015-jupiter-wind-farm-told-to-improve-project-environmental-statement.ashx

- Figure 19 shows the main page – which had not been updated in about twelve (12) months and implies they are still reviewing the changes required by the Department;
- Figure 20 shows the news page – not updated for twelve (12) months; and
- Figure 21 shows the CCC page – not updated for three (3) months.

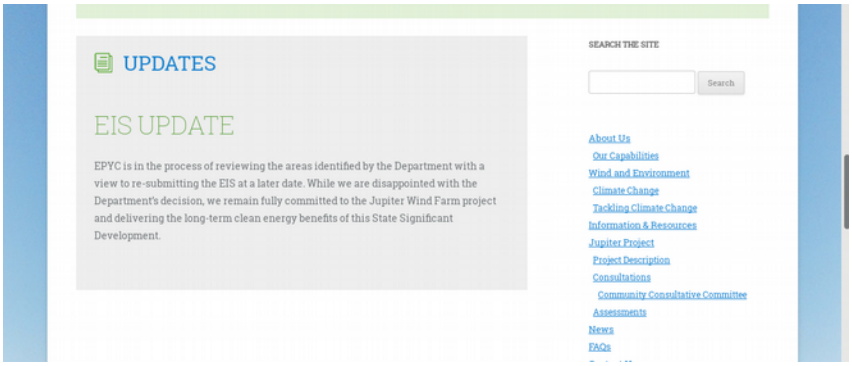


*Figure 19: EPYC's main page - not updated for 12 months*

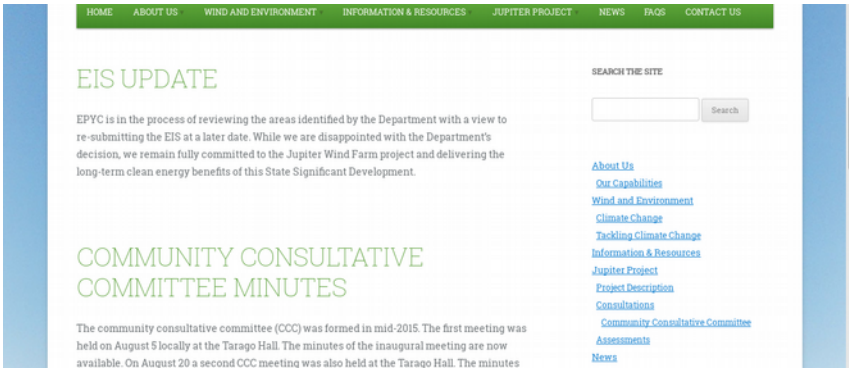


*Figure 20: EPYC's news page - not updated for 12 months*

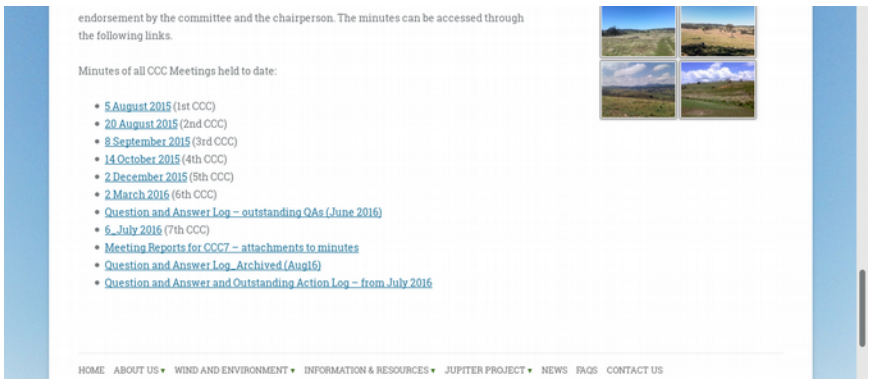


*Figure 21: EPYC's CCC page - not updated for 3 months*

Modifying a website a simple task – millions of people update pages every day around the world. EPYC's lack of website updates indicates their clear disregard for communicating information with the local community.

***Rejection 19:*** *The Jupiter Wind Farm must be rejected due to EPYC's lack of providing up-to-date information to the local community.*

***Recommendation 35:*** *EPYC to update their website at intervals no more than three months apart. EPYC to provide detailed updates on the progress of the project at all times including reports being developed, and progress towards the development of the project.*

**Inappropriate Communications**

On 23 December 2016, EPYC sent an email to local residents in relation to "Season's Greetings and the latest Newsletter from EPYC" (see Figure 22). Many people in the local community felt that this email was completely inappropriate, and that such an email should never have been sent. While EPYC may have had good intentions, this action clearly demonstrates a complete misunderstanding that such a greeting would have on people against the wind farm. Such actions are antagonistic in nature towards the local community.


*Figure 22: Inappropriate communications from EPYC*

***Rejection 20:*** *The Jupiter Wind Farm proposal should be rejected. EPYC has been completely insensitive during community engagement, particularly in relation to the Christmas greeting sent on 23 December 2016.*

***Recommendation 36:*** *EPYC staff undergo training from an external provider selected by the Department on communications and engagement with local communities.*

On Thursday 22nd December 2016, EPYC sent out newsletter number 7 to the local community, including (of all things) a calendar fridge magnet with "Season's Greetings & Happy New Year". EPYC clearly have not engaged with the local community in the last twelve (12) months since their first greeting card. The local community found the first greeting card to be inappropriate. If EPYC had truly been engaging with the local community, they would have demonstrated they learned from twelve (12) months ago, and not sent something out for Christmas again.

> ***Rejection 21:*** *The Jupiter Wind Farm proposal must be rejected. 12 months after EPYC sent out an inappropriate Christmas greeting, they sent out a second one – clearly demonstrating they have not engaged with the local community in the previous 12 months and identified that such a communication strategy simply antagonises the local community.*

**Consultation After First EIS Submission was Rejected**

Table 3 contains shaded gray columns used to indicate engagement with EPYC after the rejection of their first EIS by the Department.

The last correspondence we received from EPYC prior to the successful EIS submission was on 05 April 2016 (eight months prior). We had made it quite clear in multiple emails to EPYC that we would like an electronic copy of the photomontage related to our property prior to any meetings with them (Figure 23). This allows us time to consider the appearance and discuss possible approaches to the visual impact at a meeting in person (particularly since vegetation screening was not appropriate).

> Ibrahim,
>
> I sorry, I no longer have time to waste on EPYC's so-called negotiations. As you are not willing to provide relevant information to me prior to meeting, I must regretfully turn down the opportunity to meet. EPYC has made it quite clear it will not provide a copy of the photo montage without bullying an affected community member into a meeting.
>
> Please provide a copy of the photo montage in electronic form.
>
> Thank you,
>
> [REMOVED].

*Figure 23: Email sent to Ibrahim Eid, EPYC on 5 April 2016*

It is also obvious from other locals that EPYC have taken a similar approach to bullying the local community into only meeting on EPYC's terms. In an email from another affected community member (Figure 24), they eventually allowed EPYC onto their property and were able to see a hard copy of their relevant photomontage.

> [removed], we had the same response re photo montages from near our place. Eventually we did allow them onto the property to discuss benefit sharing (cynical joke), and we were given a quick look at the photo montage taken from near our place. **The printing was so faint that I could barely see the detail well enough** to count how many turbines would be part of our view.
>
> regards
> [removed]

*Figure 24: Email from another affected local (names removed), 18 November 2016*

Until the release of the EIS by the NSW DPE on 30 November 2016, we had not seen any photomontages or wire-frame views related to our property (J234A/B). We had not seen the details of any benefit sharing scheme. We had not been able to discuss alternatives to vegetation screening.

***Rejection 22:*** *EPYC has failed to provide relevant information to stakeholders in a timely manner in order to engage in genuine consultation.*

## A Process of Exclusion

Rather than include us in the consultation process, EPYC have used a process of exclusion. They refuse to provide information of relevance prior to the submission of the EIS. For example some of our neighbors have indicated they were provided details such as in relation to vegetation screening. EPYC claimed in their PEA (2 December 2013) they attempt to "include properties within 2km in to the PA, and where not feasible, provide alternative benefits to those land owners". EPYC have made every effort to prevent us from accessing information and exclude us from the process.

We have attempted to engage EPYC multiple times over a period of 37 months (since February 2014). EPYC are aware J234A and J234B are within two kilometers of three turbines. They have no excuse not to include us in the consultation process. They have no excuse to have treated us differently from neighbors who have been provided additional information.

## A Third Attempt to Engage EPYC

On Thursday 8 December 2016 (following the DPE presentation at Tarago Hall and the release of the EIS), I attempted to engage EPYC once again. Table 6 contains a summary of that engagement.

| **Question / Issue** | **7 Dec 16** | **8 Dec 16** | **16 Jan 17** | **21 Jan 17** | **Result** |
|---|---|---|---|---|---|
| Request for higher resolution photomontages | X | | | | Higher resolution images were provided |
| Request for alternatives / compensation in relation to vegetation screening | X | | | | Alternatives were to install external shutters or awnings. |
| Request for information on shared benefit scheme | X | X | | | $5,500pa, indexed to CPI annually, and one off $2,000 sign up payment |
| Request for details of the contract | X | X | X | | EPYC finally shared a draft contract on 16 Jan 2017 |
| Highlighted bushfire risks as a result of vegetation screening in close proximity to J234A. | | X | | | No comment or response. |
| Highlighted damage / integrity issues to dam walls as a result of vegetation screening in proximity to the dam. | | X | | | No comment or response. |
| Asked if EPYC was concerned their project was off the rails in relation to a link EPYC sent in relation to Rye Park developers trying to get their development through. | | | X | | No comment or response. |
| Highlighted changes that would be required to the contract in relation to shared benefit scheme. | | | | X | No comment or response. |
| Asked if EPYC had considered changing the size of the WTGs or removing some turbines. | | | | X | No comment or response. |
| Raised issue the agreement with EPYC would likely be considered an encumbrance on the property, and as such my mortgage would be at risk. | | | | X | No comment or response. |

*Table 6: Summary of third attempt to engage EPYC*

EPYC were very rapid to respond (at first) and offered financial compensation of $5,500pa indexed to CPI annually. They also offered a $2,000 sign on payment for “legal assistance”. We highlighted to EPYC on 9 December 2016 the issues with vegetation screening not working on our site – and the fact we sited the new house to take advantage of the views. In addition, we highlighted the compensation did not meet our expectations, and expected more.

EPYC finally responded on 16 January 2017 – a full five weeks after our email. They will likely use an excuse of “the Christmas period” - so while they expect the local community to work through the Christmas period on submissions to the Department on the proposed Jupiter Wind Farm, they can take a holiday?

The response from EPYC was very typical of their approach so far. We tried to negotiate on the compensation. Our comment and their response is contained in Figure 25. At no stage has EPYC ever varied from their position – this is a “take it or leave it”, and does not constitute negotiations.

| |
|---|
| **J234A/J234B:** It is not that we do not want mitigation, it is that it does not work for this site and defeats the purpose of the view. And $5500 pa hardly covers the 20+ turbines that will be visible from this site. At the very minimum I was expecting $1000pa per hub that was visible. With the 9+ turbines that are particularly prominent I would have expected at least $2000pa each. So $5500 is well short of expectations. In addition, the $2000 "sign on" is well short of expectations. |
| **EPYC’s Response (16 Jan 2017):** Your dwelling is just over 1700m from the nearest proposed turbine. All up there are three proposed turbines between 1.7km and 2km of your dwelling. Taking the above into account we feel the $5,500 annually for the life of the project (approx. 30 years) with an increase of CPI is a substantial benefit and we believe this offer is a reasonable and fair offer. Any wind farm is a long term project and we would like to include the neighbours that are living in the vicinity of the project area to share the benefits from the wind farm, hence we have introduced the voluntary benefit sharing for those with dwellings within 2k of a turbine. We are sure that you appreciate that such undertaking needs careful allocation of funds to ensure that more neighbours are benefiting and the overall community is better off. |
| **EPYC’s Response (19 Jan 2017):** A host landowner within the site, with 1 turbine, can see the majority of the project and is much closer to turbines (700m-1000m) only gets $10,000. The nearest turbine to you is 1711m away.<br><br>Given the above we would not be in a position to negotiate if you are requesting $18,000+ (offer based on 9+ turbines at $2000 each). I think you would agree this is quite a significant gap and almost double what a host landowner with 1 turbine gets. I can seek approval to increase your $5,500 slightly but certainly cannot meet your expectation of 18,000+. |

*Figure 25: EPYC's approach to negotiations – absolutely no change in position!*

We tried once more on 16 January 2017 to negotiate with EPYC. They continued to refuse to change their position. EPYC does not value to local community and refuses to negotiate.

> ***Rejection 23:*** *The Jupiter Wind Farm proposal must be rejected. EPYC’s approach at community consultation and engagement is a one way street. They refuse to negotiate or discuss any aspect of their project.*

EPYC claim in Newsletter 7 that consultation will continue as long as required, and highlight the Voluntary Benefit Sharing offer will conclude on 30th April 2017. Yet when we try to negotiate, EPYC refused to change their position. This is not negotiation. Not only do EPYC try to bully us into meeting them in person. Not only do EPYC restrict access to information we need to make a decision. They continue the bullying with the threat of not receiving any benefit sharing. This sort of behavior by EPYC is not consultation.

> ***Rejection 24:*** *The Jupiter Wind Farm proposal must be rejected. EPYC's tactics of bullying and threats to withdraw benefit sharing if you don't sign up are completely inappropriate method of community consultation.*

We even attempted to educate EPYC on how negotiations work (Figure 26). EPYC completely ignored this – demonstrating EPYC have no intent to negotiate or work with the local community.

> So lets work on your negotiation first. You offered $5500pa indexed, I countered with $2000pa indexed per hub visible from my property. So do your calculations and come back with a counter offer. This is how negotiations work.
>
> If you are not willing to come back with a higher offer, it demonstrates you are not willing to negotiate (at all).

*Figure 26: We even attempted to explain negotiations to EPYC - they ignored us!*

**Failure to Undertake Consultation Proposed in PEA**

According to EPYC's PEA (dated 2 December 2013), they had two objectives for community and stakeholder consultation (Figure 27). We attempted to raise multiple concerns, predominantly through emails. EPYC have ignored, dismissed or delayed any responses to these concerns – despite their claims of "a variety of accessible platforms" and to have those "concerns addressed". They have also failed to "ensure stakeholders are regularly updated".

> The objectives for the community and stakeholder consultation are to:
> - ensure stakeholders are given the opportunity to raise any concerns and issues through a variety of accessible platforms and to have these concerns **addressed and responded to by EPYC** or an informed delegate; and
> - ensure stakeholders are **regularly updated** on key Project information through a variety of accessible sources.

*Figure 27: Claims made by EPYC in PEA demonstrated to be false*

> ***Rejection 25:*** *The Jupiter Wind Farm proposal should be rejected. EPYC has previously made claims in documents submitted to the Department (the PEA from 2 December 2013) that have been demonstrated to be false.*

Other claims in the PEA section 6.3.2 include access to information and its potential impacts on their livelihood "throughout the EIS process" and "adequate measures are provided for participation". EPYC has restricted access to information through the process. For example we were unable to obtain a photomontage from our property until after the EIS was released. This is hardly a proactive approach to community consultation.

> ***Rejection 26:*** *The Jupiter Wind Farm Proposal should be rejected. EPYC failed to provide relevant information to the local community during the consultation process, including things such as photomontages prior to the release of the EIS. This demonstrates a lack of consultation.*

Also claimed in the PEA section 6.3.3, EPYC state it is their "practice to attempt to incorporate properties within 2km into the Project Area, and where not feasible, provide alternative benefits to those land owners (dwellings).". It took three years and multiple emails to EPYC to obtain any information about the proposed "benefit sharing scheme" from EPYC. The statement made by EPYC in their original PEA is completely misleading.

> ***Rejection 27:*** *The Jupiter Wind Farm proposal should be rejected. EPYC have failed to provide relevant information in a timely manner in relation to the benefit sharing scheme. EPYC falsely claimed this information would be provided in a timely manner in their PEA.*

Given in 2013 EPYC was discussing consultation with dwellings within 2kms of WTGs, EPYC's continual claim over the 2014/2015 period that they did not have WTG locations available is completely false (how can they engage with residences within 2kms if they do not know the locations of WTGs?). Multiple claims were made by EPYC in their original PEA, many of which are clearly misleading or false. How can EPYC be trusted with their claims in the EIS if they can not be trusted based on demonstrated history of misleading and false claims?

> ***Rejection 28:*** *The Jupiter Wind Farm proposal must be rejected. EPYC can not be trusted based on prior claims made in the PEA which they did not undertake in the last three years.*

**General Comments on Community Consultation**

EPYC's approach to community consultation appears to be directly related to the level of a residence's involvement in the project. A few tens of farmers that are hosts are consulted. Hundreds of rural residential landholders around the proposed wind farm are not consulted. EPYC simply tells the non-involved landholders a few pieces of vague information, and does not listen to any of our concerns or issues. Many of these concerns and issues are simply dismissed by EPYC in their EIS submission.

The quality of material provided by EPYC (where it was provided) prior to the EIS was low quality in nature. Rather than provide a full list of WTG locations, EPYC provided a map. Photomontages provided to neighbors were of low quality. The timeliness of materials was also poor. In many cases EPYC delayed providing information or answers – frequently requiring followup emails to ask if they had even read earlier emails!

One of the significant "consultation methods" utilised by EPYC was bullying. Unless you had the time (or willingness) to meet with EPYC in person, you were not provided with anything of use. We were sometimes given less than 24 hours notice of an opportunities to meet with EPYC. They refused to provide us with details of the benefit sharing scheme unless we met. They refused to provide a copy of the photomontage unless we met. Bullying as a method of community engagement is not justified.

***Rejection 29:*** *The Jupiter Wind Farm proposal must be rejected. EPYC have demonstrated a negative approach to community consultation, including delaying information and using bullying as an engagement tactic.*

# Main Report: (Missing) – EPYC's Social License to Operate

### CEC Guidelines

The Clean Energy Council (CEC) considers itself as the "peak body for the clean energy industry in Australia". Their "primary role is to develop and advocate effective policy to accelerate the development and deployment of all clean energy technologies".[6] In mid-2013, the CEC released their Community Engagement Guidelines for the Australian Wind Industry[7].

The CEC Community Engagement Guidelines contain eighty (80) pages on the best practice for community consultation and engagement throughout the life of a wind farm project. The CEC encourages all wind companies to commit to using these guidelines.

Table 7 contains a summary of the guidelines in relation to how the wind industry should engage with the local community. A comparison is made to the approach EPYC have undertaken in relation to the Jupiter Wind Farm engagement. EPYC has failed on the majority of these guidelines. They have not been Open, Inclusive, Responsive or Accountable.

| Reference | CEC's Foundation Principles | EPYC's Approach | Pass |
|---|---|---|---|
| Open | Have we introduced ourselves to the relevant landowners and local government authorities as needed? | No – We had to approach EPYC after they had been engaged in activities in the area for over two years. | Fail |
| | Are we providing clear information on the exploratory status of the project? | Yes – in the early days of the project, they actually did do this. | Pass |
| | How are we communicating information to the local authorities and landowners? | EPYC's approach seemed hit and miss. Sometimes they did letterbox drops, but some people never received these. | Fail |
| | Have we clearly described the bases on which we make decisions about citing turbines? | No – EPYC eludes to some turbines being removed or moved, but there is nothing explicit in their EIS. | Fail |
| | Are we disclosing balanced, timely, clear and complete information about the project process? | No – all information provided by EPYC was pro-wind based. The main part of their EIS often ignores negative aspects highlighted in specialist reports in the Annexes. | Fail |
| | Are there mechanisms in place to ensure that stakeholders are up to date with the planning and approvals process? | EPYC occasionally provided information of where they were up to in the approvals process, but never provided details on when we have a say in the process. | Pass* |
| | Is information about these processes clear and accessible? | Information on the DPE website was better than that provided by EPYC | Pass* |
| Inclusive | Have we identified all the stakeholders who might be affected by the project and approached the relevant ones (i.e. involved landowners and local councils) at this stage? | EPYC never approached us – we had to approach them. Some of our neighbors were completely unaware of the project until we discussed it with them. | Fail |

6 https://www.cleanenergycouncil.org.au/about.html
7 https://www.cleanenergycouncil.org.au/technologies/wind-energy/community-engagement-guidelines.html

| Reference | CEC's Foundation Principles | EPYC's Approach | Pass |
|---|---|---|---|
| | Have we investigated all the relevant issues? | Several obvious issues have clearly not been investigated. School buses. Lower Boro Road usage during operations. | Fail |
| | Is the process of decision-making sufficiently open to community participation? | At every point in this community consultation, EPYC has not been open with community engagement in their process. | Fail |
| | Do we have a good record and understanding of all the stakeholders' concerns and expectations? | Unknown | Unknown |
| | Are there opportunities for all stakeholders to raise questions and input their opinions in the project design? | No. We raised multiple issues and raised multiple questions. Many of these were dismissed by EPYC. | Fail |
| | Are planning decisions sufficiently open to discussion? | No. EPYC's community consultation meetings for example were one way discussions. Meetings in person were one-way. | Fail |
| Responsive | Are there any issues we need to address at this stage (site selection)? | N/A | N/A |
| | Are there mechanisms in place to ensure that stakeholders can request and receive information? | Yes, to request information. However useful information was rarely received. | Pass and Fail |
| | Have we identified non-negotiable aspects of the project? | From what we can tell, everything to EPYC was non-negotiable. | Unknown |
| | Have we responded to the issues raised by the stakeholders? | EPYC responded, but often did not answer issues. In most cases they delayed information and refused to provide relevant information such as photomontages. | Fail |
| | Have we established a system to register and address any issues that the community might have with the planning process? | Unable to answer, however if EPYC did have something established, they did not apply it and address the issues we had. | Fail |
| | Are we aware of the questions from the community during the approval period and providing answers as needed? | EPYC were reluctant to provide answers to questions – they responded, but often did not answer. They ignored multiple questions and issues we raised. | Fail |
| Accountable | Are we providing timely information on the status of the research to relevant stakeholders? | EPYC provided basic information only on the "EIS" as a whole. Nothing on any components of the EIS. | Fail |
| | Do we have clear processes for communication? Are community members are of these processes and how to use them? | While EPYC claimed to have a clear process of communication, we had to send multiple followup emails to confirm if they had even received our email. | Fail |
| | Have we identified all the potential impacts of the wind farm and communicated these to all relevant stakeholders? | EPYC refused to provide information until either the EIS was released, or unless we met face-to-face. Trying to get information from EPYC took multiple emails over multiple months – even then information was very basic. | Fail |

| Reference | CEC's Foundation Principles | EPYC's Approach | Pass |
|---|---|---|---|
| | Are we providing regular updates to the community on the status of the project approval? | In the 12 months between the original rejection and final acceptance of the EIS for exhibition, EPYC simply stated it was "updated the EIS". There was nothing on when the EIS was going to be submitted, progress of their work etc. | Fail |

*Table 7: Comparison of EPYC's approach to CEC's recommended approach*

### EPYC's Social License to Operate is Denied

The CEC guidelines contain a notional concept of a "Social License to Operate" - there is no formal license per-se (Figure 28). EPYC has completely ignored the CEC guidelines. This is despite EPYC being a Corporate member of the CEC.

> The general level of acceptance or approval continually granted to a wind developer's proposed or actual project by local communities and other stakeholders.

*Figure 28: CEC's definition of "social license to operate"*[8]

We have recommended to the CEC that EPYC be removed as a member. Their behavior in this proposal goes against many of the CEC guidelines. From the community reaction to this proposal, it is clear the community is not permitting the "Social License to Operate" in this area.

> ***Recommendation 37:*** *The NSW Department of Planning and Environment should use EPYC's Jupiter Wind Farm Proposal as an example of how not to propose a wind farm development.*
>
> ***Recommendation 38:*** *Any proposal for wind farm development in a similar area to that proposed by EPYC should be made aware of the high community expectations in the area.*
>
> ***Rejection 30:*** *The Jupiter Wind Farm proposal must be rejected. EPYC have not achieved a "Social License to Operate" (a Clean Energy Council concept) in the local community.*

While EPYC may claim they have a "Social License to Operation", it is the community who decides if they do or do not have such a "License"

> ***Recommendation 39:*** *The Department undertake a survey of the local community to determine if EPYC has a "Social License to Operate".*

8 CEG Guidelines, 2013, page 5

# Main Report: (Missing) EPYC Reputation and Experience

This section considers the importance of EPYC's reputation and experience. Simply put – would you pay a builder to build you a new house worth $500,000 if they could not answer the following simple questions:

- What have you worked on prior to this?
- Were your previous customers satisfied?
- Have you previously breached any development conditions?

**Building in NSW**

The NSW Department of Fair trading has significant information to Tenants and Home Owners in relation to utilisation of Tradespeople to undertake certain work. This includes building construction works, plumbing and electrical work. Tradespeople undertaking this work must have formal qualifications and experience before they can obtain a license[9].

Also, the Department of Fair Trading also suggest Tenants and Home Owners check the license of the individual, but also encourage asking around. This could include asking the Tradesperson for examples of work they have recently undertaken. Being able to confirm the satisfaction of prior customers is an important part of ensuring the Tradesperson is competent and responsive to customer requirements[10] [11] [12].

**Extrapolation to Wind Farm Development Proposals**

Although information in relation to building in New South Wales is not directly correlated with proposing State Significant Development, several concepts can be extrapolated and are applicable to wind farm development proposals. These concepts include:

- **Formal Qualifications:** Different types of work requires different types of qualifications. A plumber has qualifications to undertake plumbing work and they are not allowed to undertake electrical work of certain types. It is acknowledged there are no formal qualifications related to proposing a wind farm development. As such more emphasis must be placed on other other factors.
- **Prior Experience:** A plumber who has never installed a toilet may not be aware of certain tricks that can assist during the installation. The same applies to a wind farm. A proponent who's staff have never engaged in community consultation is unlikely to understand or appreciate the importance of, or how to undertake such an activity.

9 http://www.fairtrading.nsw.gov.au/ftw/Tradespeople/Home_building_licensing/Licence_classes_and_qualifications/Building.page

10 http://www.fairtrading.nsw.gov.au/ftw/Tenants_and_home_owners/Home_building_and_renovating.page?

11 http://www.fairtrading.nsw.gov.au/ftw/Tenants_and_home_owners/Home_building_and_renovating/Selecting_a_tradesperson_or_builder.page?

12 http://www.fairtrading.nsw.gov.au/ftw/Tenants_and_home_owners/Home_building_and_renovating/Selecting_a_tradesperson_or_builder/Questions_to_ask.page?

- **Ask Around:** When employing a builder or other trades person, you are encouraged to ask other people about their experience of that individual. In some cases there will be negative “reviews”, and in other cases “positive”. The level of positive and negative reviews of a person’s previous work will give an indication of how responsive they are to engagement. In the case of a wind farm proponent, if there has been previous negative encounters, then this raises questions as to if they will be capable of a more positive approach this time around.
- **Check Previous Work:** Being able to check on previous work a trades-person has undertaken can confirm the quality of their work. Visually inspecting the work may identify flaws such as broken pipework etc. In the case of a wind farm, did they make any changes without informing the Department? How do the actual images compare to photomontages?
- **Don’t Use Someone Who Refuses to Answer Your Questions:** A builder or trades-person who refuses to provide details in relation to their license, skills or experience is likely to be hiding something. Applying this to wind farm development, it would not be a good idea to trust or rely on someone who does not want to answer questions about prior skills, experience or previous work they have undertaken.

**EPYC’s Reputation and Experience**

EPYC claim their management team have experience that encompasses a broad range of wind farm projects (Figure 29).

| |
|---|
| The EPYC management team comprises of renewable energy experts whose experience encompasses a broad range of wind farm projects on a national and international basis. Our team of local engineers and experts is at the forefront of the industry. |

*Figure 29: Claim from EPYC's "About Us" web page: www.epyc.com.au, 17 November 2016*

EPYC have been asked on multiple occasions (Figure 30, Figure 31 and Figure 32) to provide details of this experience. EPYC have argued these details are not relevant to the Jupiter Wind Farm proposal. They are proposing a $318m project be developed based on their unproven claims experience.

| |
|---|
| I have asked for what other large scale projects EPYC staff have been involved in. This information has not been provided and is not on any website. |
| This is not a requirement for the project. Just for your information, EPYC has identified a number of sites for development in NSW and Victoria, the Jupiter project being one of them. As you may know these projects are intellectual property of EPYC and will be made public when decided by EPYC. As for previous staff’s previous experiences, **this information is not pertinent to Jupiter project** and for privacy reasons will not be discussed. |

*Figure 30: Extract of email to EPYC (9 February 2016) and response (12 February 2016)*

| | | | | | | |
|---|---|---|---|---|---|---|
| 17. | Detailed information about EPYC's prior experience in the planning, construction and operation of wind farms in Australia and in environmental management. | Meeting 1 | CCC | EPYC | Meeting 3 | 10/3/16 We are not at liberty to discuss other projects. The Jupiter CCC is clearly formed to discuss the proposed Jupiter project matters |

*Figure 31: Extract of CCC Q&A in response to question on skills and experience*

| | | | | | | |
|---|---|---|---|---|---|---|
| 20. | What other large scale projects (of any type greater than AU$5m in value) has EPYC undertaken in the past? What other large scale projects (of any type greater than AU$5m in value) have staff in EPYC undertaken? Details should include the name of the project, dollar value in Australian currency, physical location, and a short description of the project.<br>Justification: EPYC does not need to list which staff member was involved. We are also not asking for what other projects EPYC are currently | Out of session | ?? | EPYC | Meeting 7 | This is not a matter for Jupiter CCC. Staff will not be discussing previous projects due to commercial in confidence. |

*Figure 32: Extract of CCC Q&A log, Aug 16 in response to question on skills and experience*

EPYC have refused to provide details on their relevant skills and experience. They hide behind things such as "commercial in confidence". Their community consultation to date demonstrates a complete lack of skills and experience in any large scale development. This raises several critical questions that must be answered in order to determine the capacity for EPYC to pursue the Jupiter Wind Farm proposal (or any other wind farm proposal for that matter). These questions include:

- What large scale projects (wind or other projects, greater than AUD$10m) have EPYC staff been involved in developing in the past?;
- What was the outcome of those proposed developments?; and
- Have any EPYC staff ever been involved in projects that have breached development guidelines in any jurisdiction around the world?

Anyone can claim they have experience in a particular field on a website. However those claims also need to be backed up by factual information that can be confirmed. Given EPYC's refusal to provide a response on their experience on a proposed $318m project, and the NSW Department of Fair Trading guidelines to check qualifications, experience and prior work on projects as small as $5,000, the Jupiter Wind Farm proposal should be rejected.

> ***Recommendation 40:*** *EPYC must provide details on the projects their staff have previously worked on. This should include the name of the project, location, cost of the project, and any breaches of planning or development requirements.*

> ***Rejection 31:*** *The Jupiter Wind Farm be rejected on the basis of the developer's inability to demonstrate suitable skills, experience or qualifications to undertake such a project.*

**Example of Getting it Right**

Within EPYC's EIS submission for the Jupiter Wind Farm, Appendix D, the Biodiversity Assessment (Part 2) contains Annex A - "Qualifications of Personnel". Table A1 provides a detailed list of the personnel involved in the studies conducted including their qualifications and how they were involved. This includes things like "Accredited BioBanking Assessor". This sort of information serves to highlight EPYC's reluctance to provide this sort of information for the project.

During the CCC meeting on 13 December 2016, EPYC goes to great length to explain the experience of the consultants they use. But they never provide their own experience or skills. The question must be raised – what are EPYC staff so afraid of? Have they done the wrong thing in the past in relation to developments?

## Main Report: 8 – Environmental Risk Assessment

Given substantial inaccuracies, and the dismissal of the local communities concerns in almost every aspect of the EIS, the Environmental Risk Assessment contained in the EIS is inaccurate. For example, EPYC dismiss the increase of traffic related to operations on Lower Boro Road in their Traffic Assessment. Table 8 contains a list of Risk aspects that have been under-rated by EPYC in the ERA. The details of why these under-ratings have occurred can be found in each of the references found in this table.

| Aspect | Current Likelihood | Comment | New Likelihood |
|---|---|---|---|
| Avifauna strike during operation of the Project | (C) Possible | Extensively covered in Annex D – Biodiversity Assessment (Eastern Bentwing Bat). EPYC completely dismiss the impact. | (A) Almost certain |
| Impacts to threatened species and communities | (C) Possible | Extensively covered in Annex D – Biodiversity Assessment (Eastern Bentwing Bat). EPYC completely dismiss the impact. | (A) Almost certain |
| Operational Noise | (B) Likely | Covered in more detail in Annex E – Noise Assessment. Significant limitations in modeling identified in EPYC's report. | (A) Almost certain |
| Visual Impact | (A) Almost certain | Covered in detail in Annex F – Landscape and Visual Assessment - however it is difficult to have a rating higher than (A) Almost certain | (A) Almost certain |
| Road Safety | (C) Possible | Covered in detail in Annex H – Transport Assessment in relation to complete dismissal of children's safety and impact on Lower Boro Road. | (B) Likely |
| Damage to Local Roads | (C) Possible | Covered in detail in Annex H – Transport Assessment in relation to damage to Lower Boro Road. | (B) Likely |
| Property Values | (D) Unlikely | Extensively covered in Main Report: 15 – Socio-Economic Issues (Property Values), and confirmed loss of property values have already occurred. | (A) Almost certain |
| Bushfire | (E) Rare | Demonstrated clearly in Annex N – Bushfire Risk and Hazard Assessment and Annex N – Bushfires in the Real World (Part 1) to be almost certain to occur in the event of a bushfire. | (A) Almost certain |
| Interference to communications infrastructure | (D) Unlikely | Covered in Annex K – EMI and EMF Assessment - this is an area of marginal reception. | (C) Possible |
| Waste | (D) Unlikely | Discussed briefly in relation to human waste related to the operations building and 32 FTE using this facility on a daily basis. | (C) Possible |

*Table 8: Under-rating by EPYC of likelihood for Environmental Risk Assessment*

***Rejection 32:*** *The Jupiter Wind Farm proposal should be rejected. EPYC has under-rated ten of the risks they identify in their Environmental Risk Assessment.*

## Main Report: 9 – Biodiversity

A brief review of the biodiversity assessment can be found in Annex D – Biodiversity Assessment. Time constraints did not permit a full review, and as such a focus on the Eastern Bentwing bat has been considered in detail in Annex D – Biodiversity Assessment (Eastern Bentwing Bat). EPYC completely dismiss the significant impact of the Jupiter Wind Farm on this (and other bats) vulnerable species.

## Main Report: 10 – Noise and Vibration

Issues with the Noise Assessment can be found in Annex E – Noise Assessment.

## Main Report: 11 – Landscape and Visual Assessment

A detailed analysis of the Landscape and Visual Analysis section is contained in Annex F – Landscape and Visual – Part 1. It is hard to imagine how 88 WTGs up to 39m higher than the Sydney Harbour Bridge would not dominate the landscape. From J234A there will be 35-53 WTG hubs visible. This also fails to take into account the view from a small rocky knoll to the south of J234A. We requested a photomontage from this location during EPYC's site visit, however no photos were taken, and thus no photomontage provided.

## Main Report: 12 – Cultural Heritage

We have no comment on this part of the EIS in relation to J234A and J234B.

## Main Report: 13 – Traffic and Transport

An extensive review of the Traffic and Transport assessment has been undertaken in Annex H – Transport Assessment. It is difficult to imagine a situation where 64 extra vehicles per day would not impact upon Lower Boro Road. EPYC have also taken a careless disregard to local children's safety – they have completely missed the school buses used in this region.

## Main Report: 14 – Water Supply, Water Quality and Hydrology

We have no significant issues with this aspect of the EIS.

# MAIN REPORT: 15 – SOCIO-ECONOMIC ISSUES

### 15.2.2 Employment

According EPYC's EIS, they claim "The Project Area is comprised predominantly of people employed in farming". EPYC have been very careful to define the "Project Area" as "the parcels of land associated with the Development Footprint". It would be easy to mistake their claim to mean the landholders around the Jupiter Wind Farm are also "farmers".

What EPYC fail to highlight, is while the 23 involved landholders directly involved in the project are farmers (15 involved landholder dwellings), the other 273 non-involved residences are predominantly people who commute to work every day or are retired. EPYC are relying on the reader to misinterpret their report, and simply assume the local population are "farmers". EPYC have dismissed the local community.

> ***Rejection 33:*** *EPYC's Jupiter Wind Farm proposal is rejected on the basis they have implied the local community as "farmers", and have not identified the true nature of the workforce in the area surrounding the wind farm.*

> ***Recommendation 41:*** *EPYC must update their EIS to correctly represent details of the local community, in particular the nature of the workforce of non-involved landholders within 5kms.*

### 15.2.4 Renewable Energy Developments

On 21 December 2010, the NSW Department of Planning approved the Capital Solar Farm (application number MP 10_0121). This information is available on the Department's "major projects" website, and the solar farm is relatively well know by locals. The Capital Solar Farm is to be build on the Bungendore / Tarago Road approximately 15km west of the proposed Jupiter Wind Farm. Given the Capital Solar Farm was approved in 2010, it is difficult to understand how EPYC did not identify this project in Table 15.5. This is no small Solar Farm either – at 50MW capacity.

> ***Recommendation 42:*** *EPYC must update their EIS to identify the Capital Solar Farm as another Renewable Energy Development.*

### 15.3.2 Increased Economic Activity

The Jupiter Wind Farm EIS claims there will be an "increased employment opportunities in the local and regional area". The skills and qualifications of many landholders in this area are unlikely to be transferable, and as such most operational staff for the capability will likely live elsewhere and commute to the project site each day.

> ***Recommendation 43:*** *EPYC to undertake study of skills and education of interested local community members. They must identify at least 25% of the relevant full-time ongoing workforce for the project for local individuals to be trained in priority over staff from outside 5kms of the project.*

EPYC propose the establishment of a Community Enhancement Fund. EPYC highlights this fund will be established as agreements with the LGAs (former Palerang and Goulburn Mulwaree). While it is claimed this will be a direct contribution to the local community, it does not highlight which "local community". Are the funds to be allocated to projects within the immediate wind farm area? Or will they be spread over the two LGAs? They highlight in "15.4 Mitigation Measures" the funds will also go to Council funded infrastructure projects?

Any Council funded infrastructure in this area would require far more than funding typically proposed by Wind Farm Proponents (the highest identified so far was $250,000 per year). We do not have curbside garbage collection. Our mobile phone coverage is limited at best. Our television coverage is also limited at best. Our telecommunications infrastructure is outdated. Even our local community hall is aging.

The pre-tax income generated from this wind farm will be large. Assuming a 30% capacity factor, and 88 x 4.5MW turbines, approximately 1,041GWh will be produced each year. Using an Annual volume weighted average spot price[13] of $54/MWh for NSW in 2015-16, this equates to $56 million dollars a year. Even assuming 50% taxes, this leaves $28 million. Assuming 1% maintenance costs of $3 million a year, $4 million in wages (32 FTE x $125k) and $12 million in loan payments, this leaves over $9 million for profit margins and a few token gestures to the hosts and local community. The majority of the profit will go to a small number of owners of the wind farm. And this does not take into account any Federal Government incentives or renewable energy certificate generation.

### 15.3.3 Decrease in Property Values

The issue of Property values has been covered more extensively in Main Report: 15 – Socio-Economic Issues (Property Values). EPYC selectively chooses information biased towards their preferred outcome.

### 15.3.4 Decrease in Visual Amenity

The issue of Visual Amenity is covered extensively in Annex F – Landscape and Visual Assessment of this submission. The assessment by Clouston Associates for J234A is incorrect. Other assessments are also likely to be incorrect.

### 15.3.6 Increase in Noise

The issue of Noise is covered extensively in Annex E – Noise Assessment of this submission. EPYC dismissed our concerns over noise, not taking into account that on many evenings (even with light winds) we can hear vehicles on the Goulburn / Braidwood Road. This is due to a valley on the North West side of our property that acts as a funnel for sound.

### 15.3.7 Increase in Traffic

The issue of traffic is covered extensively in Annex H – Transport Assessment of this submission. The transport assessment is inaccurate and fails completely to take into account operational issues and the safety of children, their parents and the local community.

13 https://www.aer.gov.au/wholesale-markets/wholesale-statistics/annual-volume-weighted-average-spot-prices

### 15.3.8 Increase Risk to Aviation Safety

The issue of aviation safety is covered extensively in Annex J – Aeronautical Assessment and in relation to bushfires is covered in Annex N – Bushfire Risk and Hazard Assessment. EPYC highlight there are some limitations to aerial firefighting operations and consider the ground based means would be sufficient to mitigate this risk. However EPYC fail to take into account the worst case scenario due to the prevailing wind directions and the direction in which Lower Boro Road exists in the landscape.

### 15.3.9 Disruption to Local Communications

The issue of local communications is covered extensively in Annex K – EMI and EMF Assessment of this submission. EPYC have not taken into account the requirements of residents of J234A / J234B in their assessment. The Jupiter Wind Farm will have a significant impact on local communications in this instance.

### 15.4 Mitigation Measures

We attempted to obtain details of the shared benefit scheme on four (4) occasions from 1 December 2015 to 21 March 2016 prior to the EIS release. EPYC refused to provide details unless we met in person (a bullying technique). After the Department accepted the EIS for exhibition, EPYC finally provided details of the benefit sharing scheme to us when we pointed out mitigation from our property was not possible.

Other mitigation measures suggested by EPYC have been addressed in the relevant sections of this submission. The relevant mitigation measures suggested by EPYC for J234A / J234B are inappropriate.

### Summary

EPYC are quick to point out the importance of balancing the positive and negative impacts of a Project. What EPYC do not point out, is the impacts of the project they have completely ignored. In many cases EPYC have completely dismissed the local community – to the extent of ignoring things like school buses and children's safety. They have missed the impacts on Lower Boro Road completely.

> ***Rejection 34:*** *The Jupiter Wind Farm proposal should be rejected. While on balance EPYC's EIS appears to demonstrate a relatively positive benefit from the project overall, the EIS completely ignores the local community and places the safety of the local community at risk.*

# Main Report: 15 – Socio-Economic Issues (Property Values)

EPYC have extensive coverage in relation to property values in section 15.3.3. They claim a perception of property values decreasing. In this chapter we demonstrate using real data that our property value has decreased during the time period EPYC have been known to be pursuing the Jupiter Wind Farm.

### Valuation of Existing Property

During the construction of our second residence, we have been required to undertake multiple valuations of our property. These valuations were conducted by professional valuers selected by our lending institution – as such they are the expected value based on what the bank could sell the property for if there was a need to sell it quickly (i.e. the actual market value is higher).

As can be seen in Table 9, the increases in property values over the last nine years is quite reasonable. However, when values since 2013 (when the Jupiter Wind Farm PEA was released) to now have been far below trend. While rural residential/lifestyle properties increase and decrease in proportion compared to town / city prices, there is a clear discrepancy in the values (3% compared to 20-30%).

| Location | Increase in median value (mid 2007 to now) | Increase in median value (mid 2013 to now) |
|---|---|---|
| Bungendore | 122% | 19% |
| Goulburn | 54% | 26% |
| Braidwood | 70% | 30% |
| J234A/J234B | 49% | 3% |

*Table 9: Increase in property values over last nine years*

The Jupiter Wind Farm proposal has already resulted in a loss in value of at least 12% (assuming the increase over the last 3 years was 15%). This represents a significant loss in value for a rural residential property. This does not take into account additional improvements made to the property during the last three years, and is based on the property value excluding the new construction (J234A). Taking into account improvements (other than the new construction), the loss in value is at least 15%.

### Urbis (2016) Report

EPYC relies heavily on findings of the Urbis (2016) report to demonstrate rural properties used for agricultural purposes are not significantly impacted, and there is limited data to make a conclusive finding on rural lifestyle properties. Of particular significance is the note that wind farms in NSW have not generally been constructed in rural lifestyle areas. While the Jupiter Wind Farm is being constructed on farmland, there are hundreds of rural lifestyle properties within 5kms of the proposed project. The Urbis report also identified overseas studies where a negative impact was identified in higher population density areas.

**Other Reports**

The Jupiter Wind Farm EIS includes references to multiple reports related to property values in Australia (Table 10). The general impact discussed in the report has been extracted and any specific quotes on the impact on Rural Residential / Lifestyle properties.

| Report | General Impact | Impact on Rural Residential / Lifestyle Properties |
|---|---|---|
| Urbis 2016 | wind farms may not significantly impact rural property values used for agricultural purposes | Limited data available to make a conclusive finding relating to value impacts on residential or lifestyle properties located close to wind farm turbines, noting that wind farms in NSW have been constructed in predominantly rural areas. |
| Duponts and Etherington (2009) | no quantifiable effect on property values was identified | Although a small number of rural residential properties (lifestyle properties) reported lower than expected property sale prices |
| Henderson and Horning (2006) | The study concluded that there was no measurable reduction in values of properties | (unable to obtain report) |
| Hives (2008) Wind Farms | landowners involved in the Project experienced an increase in land value and rural property values were unaffected | lifestyle properties in the vicinity of the township were most vulnerable. Some detrimental effects were evident on lifestyle properties. |
| NSW Valuer General (2009) | The main finding was that the wind farms do not appear to have negatively affected property values in most cases | Results were mixed, some possible reductions in sale prices. |

*Table 10: Quotes related to assessment of property values in Australia in relation to wind farms*

EPYC quote the Department in relation to the Secretary's Environmental Assessment Report for the Yass Valley Wind Farm. However as highlighted, many of the reports assess there is no quantifiable loss related to rural properties (due often to a lack of data). As Table 10 demonstrates, while these reports consistently state there is no quantifiable effect overall, they all report rural residential / lifestyle properties as having an impact. Given wind farms to date have been in lower population density areas in Australia, then there has been no way until now to demonstrate the loss of value to rural residential / lifestyle properties.

Finally, EPYC selectively quote the NSW PAC Report on the Collector Wind Farm. However the NSW PAC Report also highlights "The Commission acknowledges the results of the study which suggested that a property's underlying land use may affect the property's sensitivity to price impacts from development of adjoining lands or intrusions on the landscape".

It is clear EPYC is relying on the impression the Jupiter Wind Farm is being proposed in a rural area, and thus will not have any impact on Rural Residential / Lifestyle properties. As is noted by EPYC in their report, wind farms are not typically built in rural residential / lifestyle areas. EPYC dismiss the local rural residential / lifestyle community by ignoring the devaluation of our properties.

**NSW Valuer General and Land Values**

In August 2009, the NSW Valuer General released a report in relation to wind farms and values[14]. The report concluded (again based on limited sales data) that "wind farms do not appear to have negatively affected property values in most cases". The results for rural residential properties "were mixed and inconsistent; there were some possible reductions in sale prices identified in some locations alongside properties whose values appeared not to have been affected". The report also highlights "an increase in the time it takes to sell a property might be a possible effect of wind farm developments".

The report concludes: "A relatively small number of 'lifestyle' type properties located version close (less than 500 meters) to wind farms in Victoria were found to have lower than expected sale prices".

Given the age of the report, and the size of WTGs and scale of wind farms studied, this effect of lower than expected property values for 'lifestyle' type properties is likely to be experienced far more where 88 WTGs are proposed in the Jupiter Wind Farm, with a height of up to 173m – a height which will dominate the rural lifestyle nature of this area.

**NSW Value General's "Your Review Guide"**

In January 2016, the NSW Valuer General release a guide on rights in relation to review of land values assessed by the Valuer General[15]. The guide details how values are assessed, how to lodge an objection to the value assessed, and provides example reasons why a review might be requested. This is in relation to the unimproved value of the land.

Under "Reasons for requesting a review", the guide includes a section on "Features of the land". This includes "the land's location and views". The example provided in this guide is contained in Figure 33.

14 Preliminary Assessment of the Impact of Wind Farms on Surrounding Land Values in Australia, NSW Valuer General, August 2009.

15 Your Review Guide, NSW Valuer General, January 2016

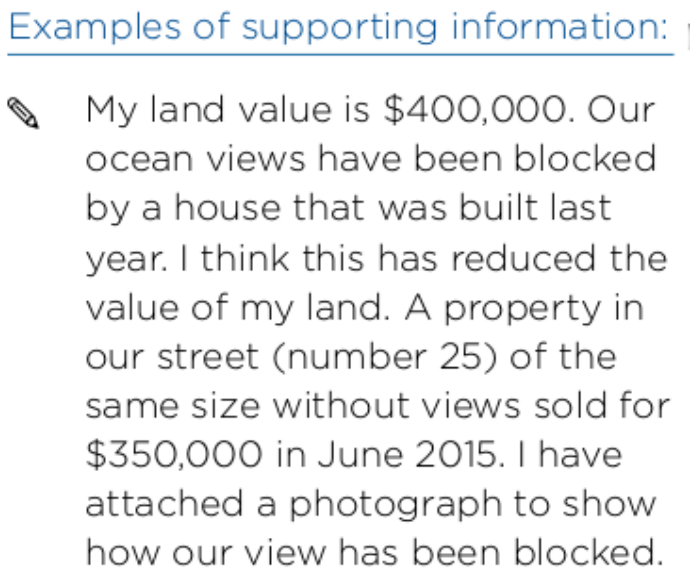


*Figure 33: Extract from NSW Valuer General's guide on reviewing land values*

A review can be requested based on land values of a property in relation to scenic views from that land. While the primary feature of rural properties is primary development, a prominent feature of rural residential properties is the scenic views and visual amenity. This is particularly the case for properties zoned E3 (as discussed elsewhere in this submission) as is the case in J234A / J234B.

Assuming a devaluation of rural residential / lifestyle properties in this area, local councils will receive less revenue each year due to the loss of rates collections. Not only does this loss of land value affect the landholder at the time of sale, but it will also affect our local council's ability to provide services we need. This has a flow-on effect which is not taken into account by EPYC.

> ***Recommendation 44:*** *EPYC must identify the loss of land value and the impact this will have on local council rates. Suitable compensation to the relevant councils must be identified for this loss of rates and paid yearly (indexed to CPI yearly).*

**Use of Vegetation Screening**

EPYC proposed the use of vegetation screening from J234A. However one reason J234A was sited where it was, was to take advantage of the views of the surrounding natural environment. This includes a large entertainment area on the west side of the house to take advantage of stunning sunsets (shown elsewhere in this submission).

The use of vegetation screening would prevent access to these views, and thus reduces the value of the property further. 20-30 wind turbines clearly visible from this location also detracts from the view and also decreases the property value.

**Impact on Rural Residential / Lifestyle Property Prices**

Almost all of these reports discussed highlight that although there is insufficient sales data, there seems to be a negative impact on rural residential / lifestyle properties. EPYC glosses over this factor, a concern given there are hundreds of rural residential / lifestyle properties in this area. Even the NSW Valuer General must take into account loss of views when assessing unimproved land values.

EPYC have claimed there will be no loss of value. This is incorrect. We can already demonstrate a loss of about 12-15% of our property value (for J234A/J234B) when compared to regional sales – likely as a direct result of EPYC's Jupiter Wind Farm proposal.

The Jupiter Wind Farm proposal will affect the value of hundreds of rural residential / lifestyle properties in this area. These properties were purchased by people seeking a lifestyle that allows them to enjoy the scenic views and rural lifestyle. 88 WTGs that by EPYC's own definition will "dominate" the landscape up to 173m in height will definitely affect the value of these properties.

**Mortgagee's Responsibilities**

The responsibilities of mortgagee's (the owner) to the mortgagor (the lending institution) include identifying to the lender any instances where the value of the property is affected. As a result of property valuations conducted during the last few years, we can show the Jupiter Wind Farm proposal is having an impact on our property value. During this period we have undertaken other property improvements, and all other regional sales have demonstrated a significant increase compared to the 3% for J234A / J234B.

EPYC claim there is no impact on property prices, and as such is fundamentally conflicting with independent (of the owner) valuations undertaken by lending institutions. Given this conflict, EPYC will need to engage with our lending institution to highlight the more recent under-valuations of our property were incorrect. EPYC will need to be able to uphold their claims when engaging with our lending institution.

> ***Recommendation 45:*** *EPYC will need to engage with the mortgagor for J234A / J234B and explain why the Jupiter Wind Farm proposal is not the cause of recent under-valuations of the property.*
>
> ***Recommendation 46:*** *EPYC will need to engage with relevant lending institutions to ensure any other relevant losses are identified to the lending institution.*

**Senate Select Committee on Wind Farms**

The Senate Select Committee on Wind Farms (date) considered at length the impact of wind farms on property values. Their conclusion was that the impact is unclear, and some properties may be affected. The committee noted planning processes are "designed to avoid such situations".

| |
|---|
| 4.29 Although the impact of wind farms on property values is unclear, the value of some properties that are close to turbines may be adversely affected. In most cases, the Committee understands that **planning processes such as setbacks are designed to avoid such situations.** |

*Table 11: Chapter 4, Senate Select Committee view on property views, extract*

If planning processes are design to avoid such situations, then the Department must determine if in this instance the property values will be affected. If a small number of properties are affected, and appropriate mitigation is not possible, it may be suitable for the project to go ahead with voluntary acquisition of those affected properties. However if a large number of properties (due to the high density of rural residential properties in the project area), then the development may not be suitable for this area.

> ***Recommendation 47:*** *The Department must ensure that voluntary acquisition is available for those properties where a loss of value can be demonstrated, and mitigation strategies are considered unsuitable.*

The (Draft) NSW Wind Farm Guidelines also contain extensive provisions related to turbines within 2kms of residences and a "Gateway process" related to approval of those turbines. Given the Senate Select Committee identifies planning processes are generally designed to avoid impacts such as loss of property value, this raises a question as to if the Department can validly ignore the need for the planning process to take into account loss of property values.

> ***Recommendation 48:*** *Based on the Senate Select Committee's views, the Department needs to take into account the need for the planning process to limit loss of property values as a result of development in proximity to a property.*

## Main Report: 16 – Hazards and Risks

Issues with this part of the EIS submission are discussed in more detail in other chapters of this submission.

# Main Report: 17 – Cumulative Impacts

A large portion of the issues with cumulative impacts are discussed in other relevant chapters of this submission (such as the Annex D – Biodiversity Assessment (Eastern Bentwing Bat)). A more extensive assessment of the impact on grid stability is considered in the chapter in this submission on Main Report: 2 – Strategic Justification.

**Cumulative Impacts of Wind Farms on Grid Stability**

Wind farms are unable to provide base load electricity supply for the electricity grid. Multiple recent events in South Australia during 2016 have demonstrated this.

Having such a large capacity of wind farms in a small geophysical area increases the impact of rapid changes in wind on electricity generation. Assuming a spread of 100km and a change in the wind coming through at 30kph, a dramatic shift in the supply of electricity could occur as the wind farms go from generating very little electricity to probably peak capacity. Based on EPYC's Table 17.1, this is estimated to be approximately 820MW of capacity.

South Australia is a leader in Australia in terms of Wind Farm generation capacity. During the recent storm and blackouts, the failure of the interconnector to Victoria, combined with a lack of base load to provide stability resulted in significant fluctuations in the South Australia grid (in its "disconnected state"). The AEMO now requires two major gas-fired power stations to remain online at all times to ensure grid stability in South Australia.

In NSW this is less likely to occur at this point in time due to the number of synchronous power generation capabilities (such as coal-fired power stations). However with a very strong push towards renewable energy sources (and the withdrawal of the Liddell coal-fired generator), care needs to be taken to ensure the impact of rapid fluctuations in the electricity supply are limited, and that base load supplies can be maintained.

Putting "all of ones eggs in one basket" so to speak will lead to greater fluctuations in the grid within that area. While there are good wind resources in this region, wind farm development must be distributed over a much larger area – even where there are lower levels of wind resources. This will reduce the impact of fluctuations and provide a better "averaging" of power generation across a wider physical area of NSW.

> ***Rejection 35:*** *Given the large number of wind farms currently approved, but not yet constructed in this region, the Jupiter Wind Farm proposal should be rejected. Developers of Wind Farms should be encouraged to ensure a wider physical distribution of wind farms to reduce the cumulative impact on the grid and improve grid stability.*

## Main Report: 18 – Environmental Management

The majority of the issues with this section of the EIS have been covered in other parts of our submission.

# ANNEX B – CONSULTATION STRATEGY

Although EPYC's supposed consultation has been discussed extensively in Main Report: 7 - Community and Stakeholder Engagement, this chapter will consider aspects of the consultation strategy.

### 1.2 Objectives

The primary objectives listed by EPYC in their Consultation Strategy are all clearly one way. For example they "document all issues … and procedures for responding". But at no point do they have anything that states "to provide the opportunity for stakeholders to have input into the proposal". In addition, the final objective of "ensuring compliance" sounds more like EPYC are trying to tick a box with the Department. Compliance with the NSW Draft Wind Farm Guidelines will be covered later in this chapter.

> ***Rejection 36:*** *The Jupiter Wind Farm proposal should be rejected. EPYC's Consultation Strategy demonstrates they have no primary intent to allow stakeholders to have a say in the project.*

### 2.1 Site Location and Environmental Setting

EPYC are very careful to only highlight the character of the "Project Area", rather than the character of the surround 273 residential properties within 5kms of WTGs. This makes the project sound like it is being placed in the middle of sparsely populated farmland – rather than in the midst of a rural lifestyle / residential area.

> ***Rejection 37:*** *The Jupiter Wind Farm proposal should be rejected. EPYC claim the location is predominantly commercial grazing and some cropping. The proposal has at least 273 residences within 5kms of wind turbines. EPYC's claim is misleading.*

### 3.2 Renewable Energy Developments

In multiple tables in the EIS for Jupiter Wind Farm, EPYC contain lists of "renewable energy developments" in the region. However all of these tables contain different lists of Wind Farms. EPYC needs to ensure there is consistency within their report – why do they exclude certain wind farms from certain tables. This demonstrates poor quality control on their part. For example Table 3.5 excludes Yass Valley Wind Farm and the Capital Solar Farm.

> ***Recommendation 49:*** *EPYC must update their EIS to ensure consistency in relation to other renewable energy developments in the region. They should also assess the impact (if any) of any changes to tables and reflect this impact within their proposal.*

### 5.2 Identified Stakeholders

EPYC and ERM have failed to identify two other groups of stakeholders in their process, and thus failed to identify impacts to the local community.

The first group they fail to identify are lending institutions. Many of the landholders in this area (including the 273 residences within 5kms of wind turbines) have mortgages with lending institutions.

> ***Recommendation 50:*** *EPYC must engage with lending institutions associated with the landholders with mortgages. They must discuss at least property values and demonstrate the properties mortgaged to the institutions will not loose value as a result of this project. They must also at least discuss potential encumbrances placed on properties as a result of the project.*

The second group they fail to identify are insurance institutions. Many properties are insured, particularly against bushfire. As demonstrated in this submission, impact on aerial bushfire operations will occur, and this has implications for insurance purposes. Additionally the vegetation screening suggested for many properties increases the fire risk from this project. An increase in fire risk will lead to higher premiums.

> ***Recommendation 51:*** *EPYC must engage with insurance institutions associated with landholders within 5kms of proposed WTGs. They must identify the increased risks of bushfire due to vegetation screening, and the impact on aerial firefighting activities.*

> ***Recommendation 52:*** *EPYC must identify who will pay the delta in insurance premiums as a result on increased bushfire risk as a result of vegetation screening to be installed in close proximity to insured residences.*

> ***Recommendation 53:*** *EPYC must identify who will pay the delta in insurance premiums as a result of the restrictions that will be placed on aerial fire fighting activities once WTGs are in place.*

### 6.1 Overview

As with the objectives discussed earlier in this report, EPYC's Community and Stakeholder Engagement Strategy is all one way. Table 12 demonstrates the nature of all of EPYC's consultation strategy is all one way. At no stage do they identify where the community's concerns or issues will impact on the project.

| Statement | Nature of Activity |
|---|---|
| Stakeholders… are provided with adequate and accurate information regarding the Project. | One way |
| … the timely delivery of relevant information. | One way |
| Regular updates on Project information such as changes in Project design | One way |
| Facilitate effective consultation with key stakeholders, allowing them the opportunity to voice their comments and concerns | One way |
| Ensure a transparent platform for the delivery of information to stakeholders is provided | One way |
| Demonstrate that EPYC is committed to ensuring that all relevant stakeholders are consulted throughout all stages of the Project through a robust consultative approach | One way |

*Table 12: The true nature of EPYC's consultation strategy.*

> ***Rejection 38:*** *The Jupiter Wind Farm proposal must be rejected. EPYC's consultation strategy is based on one-way communications and demonstrates no intent at genuine consultation.*

### 6.3 Stage two – Consultation During the Preparation of the EIS

While EPYC claim they have undertaken comprehensive community consultation during the preparation of the EIS, Table 13 demonstrates this is not the case. Of particular note are EPYC's claim they engaged with the local community on the shared benefit scheme. We emailed EPYC four times between 1 December 2015 and prior to the release of the EIS requesting details about the scheme. It was not until after the release of the EIS, when we asked EPYC for details of the scheme once again that they finally provided us with anything. When we attempted to engage with EPYC on the proposed payment, EPYC refused to negotiate or change their position at any time.

> ***Rejection 39:*** *The Jupiter Wind Farm proposal must be rejected. EPYC claims they have undertaken genuine consultation during preparation of the EIS. EPYC failed to undertake genuine consultation with the owners of J234A / J234B on the shared benefit scheme – delaying information and discussions until after the EIS was released.*

An additional significant failure in consultation was in relation to the visual impact. We tried to obtain relevant information in relation to our property so we could engage in sensible discussions with EPYC during preparation of the EIS. EPYC refused to provide any copy of the photomontage for J234A, and would only show us a copy if we met with them. This is not genuine consultation.

> ***Rejection 40:*** *The Jupiter Wind Farm proposal must be rejected. EPYC claim the engaged with the community on significant visual impacts. The owners of J234A / J234B were never provided an opportunity to consider the visual impact on their property prior to release of the EIS. EPYC attempted to bully them into meeting without providing information the owners needed in order to engage in sensible discussions with EPYC.*

| Claimed Activity | Comment | Assessment |
|---|---|---|
| provision of factual information regarding wind farms for residents in the vicinity of the preliminary investigation area; | Information provided by EPYC has been selective to support their cause. While "factual", they do not provide a balanced argument. | Failed |
| face-to-face meetings with those landholders interested in hosting Project infrastructure to discuss the details of the Project and planning approval process, and terms of agreement for involved landholder; | N/A | N/A |
| ongoing open dialog with involved landholders hosting Project infrastructure to address their queries and provide updates on the Project; | N/A | N/A |
| establishment of a project website, telephone information line and email address; | As discussed elsewhere in this submission, their website is often outdated. | Failed |
| distribution of newsletters; | We have only received five of the seven newsletters in our letterbox. Anecdotal evidence from neighbors suggests they did not receive all newsletters. | Failed |
| Community information sessions, including distribution of feedback forms; | While we were not able to attend any information sessions conducted by EPYC, other local residents indicated EPYC refused to answer questions at these sessions. | Failed |
| door-knocking in the local community and one-on-one meetings with non-involved landholders in the vicinity of the Project, regarding the Project generally, and in response to specific issues of concern to individual landholders; | Unknown – we did highlight to EPYC not to enter our property due to safety requirements that need to be met on our construction site. | N/A |
| establishment of a Community Consultative Committee (CCC); | EPYC attempted to establish the CCC in a misleading manner to start with before the local community forced the Department to ensure the Department fulfilled its role correctly. | Failed |
| advertisement of important events in the local media; | Really? There was barely a whisper about the project by EPYC in the Tarago Times. Television reception is limited. "Local media" is not distributed to residents in this area. | Failed |
| targeted and specific discussions with non-involved owners of nearby dwelling regarding the proposed benefit sharing programme; | We emailed EPYC multiple times prior to the release of the EIS in relation to the shared benefit scheme. EPYC failed to provide anything to us until after the EIS was released. | Significant Failure |
| targeted and specific discussions with non-involved owners of nearby dwellings identified as having potential for significant visual impacts associated with the Project, to discuss potential impacts at their property and site specific mitigation options. | EPYC refused to provide us with anything to consider prior to engaging in these discussions. In many cases they delayed information and discussions until after the EIS was released. In every case we had to pursue EPYC for these discussions, rather than EPYC come directly to us. | Significant Failure |

*Table 13: Assessment of EPYC's "consultation activities" during the preparation of the EIS*

**Table 6.1 Summary of Key Community Consultation Activities – Pre EIS Lodgement**

The last key activity ("Notification of Public Exhibition of EIS") was due to take place "Just Prior to the Public Exhibition of the EIS"). EPYC failed to update their website prior to the release of the EIS. The only newsletter we received was on Friday 23rd December 2016 – over three weeks after the EIS was released. They even claim this activity was completed!!! This entry is a complete fabrication.

> ***Rejection 41:*** *The Jupiter Wind Farm proposal should be rejected. EPYC delayed informing the community about the EIS exhibition to the last minute before the Christmas holiday period. Many people will be on holidays in other locations, and as such will not receive information from EPYC until the new year – a delay of at least 30 days after the EIS exhibition.*

### 6.3.1 Establishment of the Project Website, Information Line and Project Email Address

Although EPYC claim their website included regular updates on the environmental approvals process, almost nothing was included about what studies were being undertaken, when they were occurring or anything like this. They never provided details on proposed community consultation activities, and never provided advanced notice of upcoming CCC meetings. Minutes for the CCC were delayed before being placed on the website with no explanation (by at least one month).

> ***Rejection 42:*** *The Jupiter Wind Farm proposal must be rejected. EPYC's claims in relation to the information provided on their website is misleading. Regular updates were not provided and community consultation activities were sporadically identified, if at all. Their website was only updated twice between November 2015 and November 2016 (to provide a delayed set of minutes to the CCC).*

### 6.3.3 Community Information Sessions

While we were unable to attend any of the community information sessions conducted by EPYC, some of our neighbors were able. They highlighted that all communications were one-way, and that EPYC refused to answer any questions.

### 6.3.5 Community Consultative Committee

A review of the minutes for all CCC meetings reveals EPYC engaged in the same tactics of DELAY, RESPOND but NEVER ANSWER the questions unless absolutely necessary. The frustration of all members of the CCC is quite evident in the minutes. EPYC do not highlight the fact they tried initially to establish the CCC in a biased manner and it was not until the local community pressured the Department to step in that the CCC was properly established with an independent chair and appropriate community representation.

> ***Rejection 43:*** *The Jupiter Wind Farm proposal must be rejected. The minutes for the CCC clearly demonstrate EPYCs attempts to evade providing details of the project in a timely manner, and demonstrate a lack of genuine community consultation.*

> ***Rejection 44:*** *The Jupiter Wind Farm must be rejected. The (Draft) NSW Windfarm Guidelines identify the need to establish the CCC very early in the process. EPYC made no attempt to ensure the CCC was established until June 2014, over three years after they started undertaking activities in the area. The committee did not hold its first meeting until August 2015, three years after knowledge of the proposed wind farm was in the local community.*

### 6.3.6 Consultation Regarding Proposed Shared Benefit Programme

As already identified, EPYC refused to provide the owners of J234A and J234B any details until after the release of the EIS. Even then it was only when we requested the information. They have also failed to respond to our further negotiation on this issue. EPYC claim they undertook this activity for residences within 2kms after 14 October 2015 ("Through one-on-one consultation, EPYC has also extended this offer..."). This is misleading. We identified to EPYC we were unable to meet with them in person, and they would need to email us details. This is one-on-one communications. Yet EPYC refused to provide details until after the release of the EIS – 14 months later!

EPYC also state that "following negotiations" (and if agreed) an agreement would be put in place. We attempted to negotiate with EPYC during the EIS exhibition period. They refused to negotiate – their first offer was their only offer. This does not constitute negotiations or genuine consultation.

> ***Rejection 45:*** *The Jupiter Wind Farm proposal must be rejected. EPYC makes false and misleading claims in relation to consultation regarding the proposed shared benefit programme. EPYC refused to provide details of the scheme to the owners of J234A / J234B until after the EIS was released. They also refused to negotiate or engage in genuine consultation with the owners.*

### 6.3.7 Consultation Regarding Visual Amenity

As with the Shared Benefit Scheme, we attempted to engage EPYC on multiple occasions (see other chapters of this submission). EPYC claim that most landholders wanted to see the full EIS before making a decision, and that EPYC continued with consultation. We never stated we wanted to see the EIS – in fact EPYC told us we would have to wait for the EIS to be on exhibition before they would provide us with more details. We also made it quite clear that visual mitigation strategies would not work for J234A prior to the EIS. EPYC ignored this.

EPYC claims their consultation log shows the effort undertaken to consult in relation to visual amenity. As with many aspects of their so-called consultation, we attempted to gain information from EPYC on multiple occasions – EPYC either DELAYED the answer, or RESPONDED but did not answer the question.

> ***Rejection 46:*** *The Jupiter Wind Farm proposal must be rejected. EPYC failed to undertake genuine consultation with regard to visual amenity. Their Consultation Strategy contains false and misleading claims. Their consultation log implies far more consultation was undertaken than actually was. All consultation was a one-way.*

### 6.4.1 Stage Three – Consultation During Public Exhibition of the EIS

We sent an email to EPYC trying to engage them on multiple issues during the exhibition period. When we tried to engage in negotiations with EPYC on the shared benefit programme, EPYC simply refused to change their position in any way.

> ***Rejection 47:*** *The Jupiter Wind Farm should be rejected. Even while the EIS has been on exhibition, EPYC continue to exhibit the same behaviors. They refuse to negotiate and only engage in one-way "consultation". There is no "give" in their position. If EPYC does not like the position you present, they ignore you. This does not constitute genuine consultation.*

### 6.4.2 Stage 4 – Post Approval Consultation

Given EPYC's historic approach to consultation, false and misleading statements, and one-way communications, EPYC are unlikely to be able to undertake genuine consultation without significant ongoing direction from the Department. EPYC have demonstrated they are incapable of engaging in genuine consultation.

> ***Rejection 48:*** *The Jupiter Wind Farm proposal must be rejected. Based on EPYC's historical approach to consultation, they are unlikely to engage in future genuine consultation with the community or stakeholders.*

### NSW (Draft) Wind Farm Guidelines – (b) Community Consultation

Under section 1.3 "Key matters in the assessment process", section (b) contains a list of key requirements in relation to "Community consultation". The paragraph states that "proponents must undertake a **comprehensive and genuine community consultation** and engagement process". This includes the applicant that effective consultation has occurred **prior to lodgement** of the application and that issues raised as a result have been addressed in the assessment".

We attempted to engage EPYC on a large number of occasions prior to the successful EIS submission. EPYC delayed provision of information until after the EIS was released. EPYC refused to provide information despite our inability to attend meetings face-to-face. EPYC delayed providing responses. EPYC provided responses but not answers to questions raised. Their EIS does not adequately address (as shown in this submission) the issues we attempted to raise. Their EIS contains false and misleading statements.

> ***Rejection 49:*** *The Jupiter Wind Farm proposal must be rejected. EPYC failed to undertake comprehensive and genuine community consultation prior to lodging of the EIS. Furthermore, EPYC have made false and misleading statements to the Department to indicate they have undertaken this activity. EPYC have failed to address issues raised during the community consultation process.*

### Assessment Against Their Own Strategy

Not only has EPYC failed to apply the NSW (Draft) Wind Farm Guidelines as directed by the Department, they have failed to meet the objectives of their own strategy. Table 14 contains an assessment of EPYC's own approach against their own Consultation strategy.

| EPYC's Consultation Objective | Comments | Assessment |
|---|---|---|
| identification of all key stakeholders that require engagement during the consultation process; | EPYC failed to identify lending institutions and insurance institutions who are affected by this project. | Failed |
| identification of the relevant techniques and methods and the extent of engagement with the identified stakeholders; | We informed EPYC the best way to engage us was through email. They insisted on face-to-face communication. EPYC never used social media. EPYC did not bother with the Tarago Times. | Failed |
| to ensure all stakeholders understand the environmental approvals process for the Project; | EPYC failed to inform stakeholders about the release of the EIS until after it was released. | Failed |
| to ensure that the community and stakeholders are routinely informed throughout all stages of the Project through the provision of factual Project information; | EPYC refused to provide information we required to make decisions such as photomontages. EPYC's so called factual information was selective and biased to support their arguments only. | Failed |
| to devise a system to document all issues raised by the stakeholders and the community and procedures for responding to the issues raised; and | Although EPYC actually did this, this is all about one way communications. Responding to issues is not the same as answering questions. EPYC also failed to address multiple issues we raised with them. | Pass, but in doing so failed! |
| to ensure compliance with the consultative requirements specified under Part 4 of the EP&A Act, the DP&E NSW Draft Planning Guidelines: Wind Farms 2011 and other relevant guidelines and policies. | EPYC never engaged in genuine consultation. | Significant Failure!!! |

*Table 14: Assessment of EPYC's on Consultation Objectives against their approach*

Even when compared to EPYC's own strategy, EPYC have failed to achieve their objectives (with one exception). While they appear to have establish a system to document all issues raised, they typically responded but did not answer questions. Often they would delay any form of response until the EIS was available.

> ***Rejection 50:*** *The Jupiter Wind Farm proposal must be rejected. EPYC failed in meeting their own objectives at community consultation.*

**Other Neighbor's and Community Experiences**

Most of this is based on our experience with EPYC. The local community on Lower Boro Road communicate regularly through informal meetings, typically during mid winter and mid summer (such as a Christmas gathering). Many of us also "drop in" and visit neighbors, or communicate at work. During some of these events and meetings, discussions have been raised in relation to the Jupiter Wind Farm proposal, and EPYC's interaction with the community.

Every neighbor identified that EPYC had been difficult to engage or obtain information. Phrases such as "impossible to deal with", "a complete nightmare" and "a waste of time" were commonly used. In the last three months prior to the release of the EIS and during the EIS exhibition, more nasty phrases were expressed in relation to EPYC's approach.

It was also evident during the community meeting held by the Department in December 2016 that large numbers of the local community had not had genuine consultation with EPYC. Some questions raised to the Department clearly highlighted a complete failure by EPYC to engage the community.

Although anecdotal, it is blatantly obvious that EPYC has failed (despite their claims) to undertake genuine community consultation. At first glance the EIS on Community Consultation appears to demonstrate consultation has occurred. However based on our own informal interactions with the local community (in particular Lower Boro Road), EPYC has misled the department and made false statements in relation to the consultation undertaken.

> ***Rejection 51:*** *The Jupiter Wind Farm must be rejected. Anecdotal evidence suggests EPYC has failed to undertake genuine community consultation prior to the release of the EIS.*

# ANNEX D – BIODIVERSITY ASSESSMENT

Due to the size of the EIS, in this section we consider general high level aspects of the Biodiversity Assessment. The next chapter specifically focuses on one aspect of the Biodiversity Assessment – the Eastern Bentwing Bat. The conclusions from that chapter are then extrapolated to highlight other potential deficiencies in the overall Biodiversity Assessment.

> ***Rejection 52:*** *The Jupiter Wind Farm project must be rejected. The residual impact on the Glossy Black cockatoo and removal of White Box, Yellow Box and Blakeley's Red Gum Grassy Woodland is excessive.*
>
> ***Recommendation 54:*** *Wind Farm proposals and other industrial scale developments within 10kms of the Jupiter Wind Farm should not be permitted due to the ecological sensitivities of this area.*

### 4.1 Literature Review and Database Searches

The literature review failed to conduct searches of the Internet for other relevant research. Some studies are conducted outside the scope of the databases used in their search, and as such EPYC does not appear to have identified these studies.

The exclusion of other relevant studies such as Collector Wind Farm should be noted. In particular the Biodiversity study for Collector Wind Farm has significant implications for the Jupiter Wind Farm proposal. Specific Bat surveys undertaken for the Capital Wind Farm have also been excluded. Consideration of these studies have been included in the chapter on the Annex D – Biodiversity Assessment (Eastern Bentwing Bat).

> ***Rejection 53:*** *The Jupiter Wind Farm proposal should be rejected. Desktop studies other wind farm environmental studies explicitly exclude other wind farms in the region where those reports would be damning for the Jupiter Wind Farm.*

**Figure 5.5a**

It is clear EPYC have no regard for the Tablelands Snow gum etc. They make no reference to alternative sites for the substation and operations building.

> ***Recommendation 55:*** *EPYC must identify alternative sites for the substation and operations building in the Jupiter Wind Farm proposal. Other sites that do not impact on species such as the Tablelands Snow Gum needs to be identified before the project is approved.*

### 5.5.2 Introduced Flora

There is a disregard for introduced flora in the vicinity of the project, in particular noxious weeds. Substantial effort is required to tackle these species including Serrated Tussock and Blackberry. Extensive spraying of Blackberry is often undertaken along the Goulburn – Braidwood road. And a large number of properties along Lower Boro Road have large volumes of Serrated Tussock (particularly visible coming into the summer period where the purple tingle can be spotted). This disregard for noxious species suggests EPYC has not taken sufficient care in identifying the species in proximity to the project.

> ***Recommendation 56:*** *EPYC must undertake spraying of all declared noxious weeds at least twice a year within 500m of any project infrastructure.*

### 5.7 Fauna Species

EPYC identifies within their own report that detection of fauna species can be "influenced by weather conditions during surveys". Many of the surveys were conducted over a limited number of days during one particular season of the year – rather than multiple surveys during multiple seasons. Do they really expect all species to be active in the one specific period which they undertake their surveys?

> ***Recommendation 57:*** *EPYC must conduct further flora and fauna surveys in the area at other periods of the year, prior to approval of the project.*

> ***Rejection 54:*** *The Jupiter Wind Farm should be rejected. The narrow focus of flora and fauna surveys was not conducive to identification of species that may not have been active during other periods of the year.*

### 5.7.4 Birds – Raptor Surveys

One aspect EPYC does not address is the disruption to thermal air currents downwind from the WTGs. Many bird species use these including raptors – the Wedgetail eagle is well known for exploiting thermal currents when hunting. Given the extensive height of the WTGs being proposed by EPYC, the thermal currents used by these birds are likely to be disrupted.

> ***Recommendation 58:*** *EPYC must updated the biodiversity assessment to take into consideration the cumulative disruption of thermal currents by the wind turbines (including other regional projects), and the impact this has on the hunting area utilised by raptors in particular.*

### 5.7.5 Bats

Please see additional chapter specifically focused on the Eastern Bentwing Bat Annex D – Biodiversity Assessment (Eastern Bentwing Bat).

### 6.3.2 Frogs

Although EPYC claim a desktop survey was undertaken, they seem to have missed at least one report available on the Internet related to threatened species in the Boro Creek area.

| Report | Extract | Implications |
|---|---|---|
| Report Card for the Boro Creek Management Zone, Draft Water Sharing Plan, 2010 | • 1 threatened fish species<br>• 8 threatened frog species<br>• 2 threatened macroinvertebrate species<br>• 4 threatened bird species<br>• 2 other threatened species<br>• high rarity<br>• high diversity | Eight threatened frog species have been identified in relation to Boro Creek, yet EPYC's supposed extensive coverage over a few days did not really identify anything. |

> ***Rejection 55:*** *The Jupiter Wind Farm proposal should be rejected. EPYC have failed to undertake a suitable survey of frog species in the area, including failing to identify threatened species reported to have been identified in relation to Boro Creek.*

### 6.3.5 Bats – Eastern Bentwing Bat

See additional chapter Annex D – Biodiversity Assessment (Eastern Bentwing Bat).

### BioBanking – A Real Alternative?

EPYC have included what they consider suitable mitigation for the environmental impact – in the form of BioBanking. It is difficult to understand how putting money into a "protected" area in another location protects the fauna (including birds and bats) in this location. Is the Eastern Bentwing Bat going to move their cave to somewhere more protected from wind farms? Is the Glossy Black Cockatoo capable of moving the trees they use to a "safer location"?

The implication that the Eastern Bentwing Bat and Glossy Black Cockatoo are going to move simply due to BioBanking is misleading. Kangaroos do not look left and right when crossing the road.

> ***Rejection 56:*** *The Jupiter Wind Farm proposal must be rejected. While BioBanking is included in the proposal, it is unlikely the Eastern Bentwing Bat will utilise another site. It is also unlikely the Glossy Black Cockatoo will migrate to another area. Regardless of BioBanking, these and other species are likely to be impacted negatively in proposal area.*

At what point do we trade off the human demand for renewable energy with the survival of other species?

# Annex D – Biodiversity Assessment (Eastern Bentwing Bat)

Due to the large volume of information related to the Eastern Bentwing Bat, a chapter has been dedicated to the related analysis. The Eastern Bentwing Bat was selected as a primary focus due to a lack of time to analyse the full EIS in relation to the Biodiversity Assessment. The end of this chapter extrapolates additional recommendations and rejections based on the errors found in the EIS.

## 4.1 Literature Review and Database Searches

EPYC and ERM claim they undertook a review of "field based ecological investigations of nearby proposed wind farms" in 2013. They go on to claim the desktop sources have been "reviewed reiteratively throughout the ecological impact assessment period to access recent records". According to their document control, the FINAL version was released on 15 November 2016 – two weeks prior to the exhibition of the EIS. The Wind Farm fauna related assessments used in the Jupiter Wind Farm Biodiversity Assessment are listed in Table 15.

> The methods and results in the report present the most recent desktop findings.

*Figure 34: Bold claim by EPYC and ERM*

| Wind Farm | Report | Authors | Date of Report | Distance from proposed Jupiter Wind Farm |
|---|---|---|---|---|
| Capital | Assessment of Bat Fauna | Greg Richards and Associates Pty Ltd | 2005 | 13km |
| Bango | Ecological Impact Assessment | ERM | 2013 | 101km |
| Crookwell 3 | Supplementary Ecology Report | ERM | 2013 | 56km |
| Paling Yards | Response to Adequacy | ERM | 2013 | 109km |
| Biala | Preliminary Ecology Report | ERM | 2015 | 70km |

*Table 15: Wind farm assessments used by EPYC, and distance from proposed Jupiter Wind Farm*

EPYC and ERM have clearly ignored at least three (3) assessments listed in Table 16. These reports are available to the public, are within the same time period as the reports in Table 15, and are within the distances of other studies utilised.

| Wind Farm | Report | Authors | Date of Report | Distance from proposed Jupiter Wind Farm |
|---|---|---|---|---|
| Collector | Biodiversity Assessment | NGH Environmental | 2012 | 38km |
| Rye Park | Biodiversity Assessment | NGH Environmental | 2014 | 105km |
| Capital II | An Assessment of the Bat Fauna at the Proposed Capital II Wind Farm | Dr G.C. Richards | 2010 | 14km |

*Table 16: Wind farm assessments excluded from the desktop study by EPYC and ERM*

It should be noted that EPYC's Consultation Strategy actually lists the Capital II Wind Farm and the Collector Wind Farm. As such EPYC demonstrate awareness of these wind farms in other parts of their submission. This suggests they have deliberately excluded from the desktop study in relation to biodiversity in the project.

> ***Rejection 57:*** *The Jupiter Wind Farm proposal should be rejected. EPYC have explicitly excluded reports from the biodiversity assessment which they demonstrate awareness of the projects in other parts of their EIS.*

### 6.3.5 Bats

EPYC and ERM highlight the Eastern Bentwing Bat congregates in maternity caves between November and February. While the Mount Fairy cave has been called a 'staging' cave in many sources, data collected from mast mounted bat detectors for the Jupiter Wind Farm demonstrate a very high level of activity peaking in October and continuing through till February (Figure 35). They also highlight the lack of calls from mast mounted units in the migratory period in March.

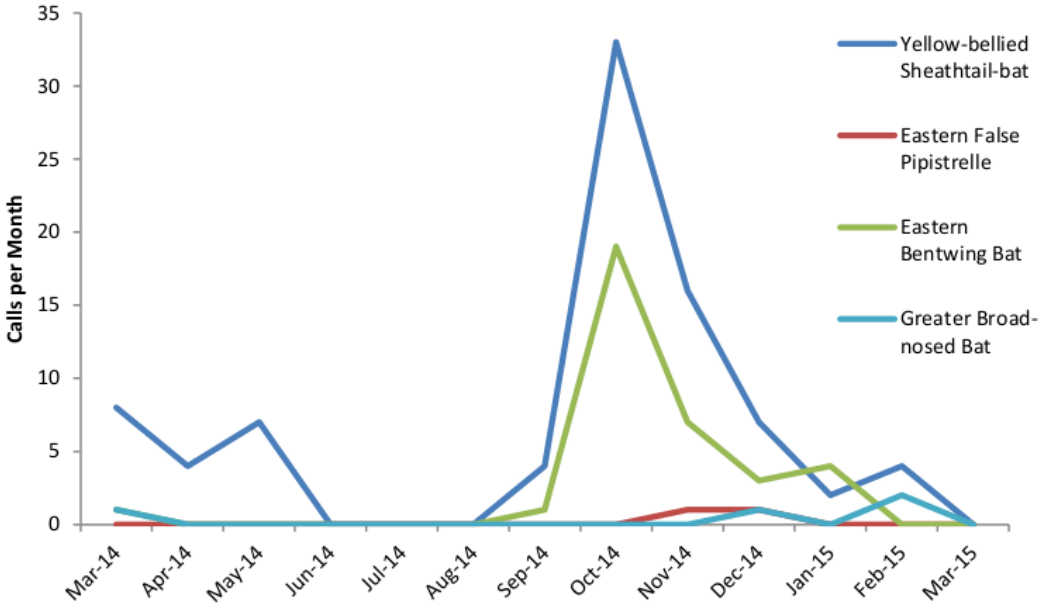


*Figure 35: High levels of activity right before and during breeding period (October/November)*

It is entirely possible the existing knowledge in relation to the Mount Fairy cave is incorrect. If the cave is not being used for migratory purposes (there was a lack of activity to identify this), and there is a higher level of activity from October to February, then the cave may be used for breeding. This possibility has been overlooked by EPYC and ERM. A peak in October and November may be the migration to the cave for breeding.

> ***Rejection 58:*** *The Jupiter Wind Farm must be rejected. There is a high probability the Mount Fairy cave is used for breeding of the Eastern Bentwing Bat – not just a staging cave.*

### 7.1.4 Fauna Mortality

The Impact Evaluation does not appear to assess the actual impact on Fauna. It simply states that bats (and other Fauna) die as a result of wind farms. It does not assess the impact on the populations.

> ***Recommendation 59:*** *EPYC and ERM must assess the impact of the deaths on the Eastern Bentwing Bat population.*

EPYC and ERM suggest management plans such as a “Bird and Bat Adaptive Management Plan”. A large number of such plans are typically proposed for other wind farm developments. Yet these plans are not available to the public. They do not indicate if there will be reports on mortalities, where these reports will be release etc. As with other aspects of this project, EPYC delay the relevant information related to their management plans until after approval. Has any NSW Government Department seen these plans for any wind farms? Or is such a measure just a token gesture from the proponents?

> ***Recommendation 60:*** *EPYC must identify when the environmental management plans will be available, and where they will be published. EPYC must also produce an annual report detail the detection of fauna mortalities and mitigation that have taken place to reduce the deaths.*

### 7.3.2 Residual Impacts - Bats

EPYC and ERM state the Eastern Bentwing Bat was most likely to fly at height in the Study Area during migrations (which implies March). However their mast mounted monitors detected the Eastern Bentwing Bat throughout the October to February period. Their conclusion (Figure 36) has no basis, and thus the residual impact is completely incorrect.

> There was **no evidence** to suggest that significant proportions of the population pass through the Study Area at height and therefore it is anticipated that the impacts will not affect the subspecies population as a whole.

*Figure 36: Baseless conclusion - EPYC's own data show at height movement from October to February*

As is demonstrated in the rest of this chapter, EPYC have not taken into account things such as temperature changes during migration periods. Also, when compared with other wind farms, and the cumulative effect of the turbines, the Jupiter Wind Farm poses a significant threat the the Eastern Bentwing Bat.

### Period of Detection

EPYC and ERM clearly highlight eight (8) Songmeters were deployed from 5 March 2015 to 26 March 2015 for the migration period. However, table 4.13 shows the Songmeters as being deployed on 05 May 2015 and being collected on 26 May 2015. While this may seem like a possible typo in the report, it has major implications for the study undertaken. If the Songmeters were in fact deployed in May, and not March, it would explain the lack of any migration event detection.

> ***Recommendation 61:*** *EPYC and ERM must confirm the deployment period of the eight (8) Songmenters. If the deployment period was May, EPYC and ERM must update their report, or undertake further studies to ensure the correct analysis and impact assessment.*

In the rest of this analysis we will assume the text is correct and the table is incorrect (that is the table should be showing March where it currently has May).

**Extreme Temperatures and Migratory Patterns**

According to the BoM, temperatures in March 2015 were 1.4°C above average[16]. It was also noted in late March 2015 that an exceptional hot spell was being experienced across Central and Northern Australia[17], having a flow on effect over the proposed Jupiter Wind Farm project area (temperature anomaly for 6-9 March 2015 was 1-2°C.

Microbats are sensitive to temperature (multiple sources highlight the importance of temperature and humidity for the bats when birthing and rearing young – as such the migratory characteristics will vary based on temperature and humidity). It is likely their migration patterns will vary year-on-year with the temperature in a specific location. Given the short time period in which the sensors were deployed, and those studies align with the March time period for excessive heat, it seams fair the "worst case scenario" is study was conducted at the wrong time. The sensors should have also been lift in place for a period of at least 4 weeks prior and after the suspected migration period.

> ***Recommendation 62:*** *EPYC and ERM must provide detailed weather data for the deployment period of all bat audio detection sensors. A month by month comparison of the weather conditions (in particular temperature) must be included. Data from the BoM's weather station at Goulburn Airport should be sufficient.*

> ***Recommendation 63:*** *EPYC and ERM must undertake a longer term study of the bat population and migration patterns and resubmit the details to the Department. The study must include sensors deployed for at least four weeks before March and 4 weeks after March. This is to identify potential changes in the migratory patterns of the bats.*

**Accuracy of the Report**

According to table 4.3, Songmeters were downloaded on the following dates:

- 7-11 July 2014
- 15-17 October 2014
- 24-28 November 2014

Yet the rest of the report indicates data was available for the period 5 March 2014 to 26 March 2015 (or May?). Was the data from 28 November 2014 to 26 March 2015 ever collected? While this may seem a "minor" thing, this sort of inaccuracy calls into question the scientific methods being used, and accuracy of the methods used. Combined with inaccuracy of the dates being reported for the data, have they really taken sufficient care in their report and studies undertaken?

16 http://www.bom.gov.au/climate/current/month/nsw/archive/201503.summary.shtml
17 http://www.bom.gov.au/climate/current/statements/scs51.pdf

There is also no explanation why “SM 4 South” (Table 4.13) has an effort of 11 months rather than 12.5 months as per “SM 2 North” and “SM 3 Central”. In any study where such variations exist, they are usually explained (such as an equipment failure), including the period during which that failure occurred.

> ***Recommendation 64:*** *EPYC and ERM to provide an update to their report to indicate the correct dates and times for the deployment of bat detectors. Once updated, EPYC must confirm if the bat detectors were deployed in March, or if they were deployed in May.*

**Sensor Deployment Locations**

Figure 4.2a and 4.2b in the EIS contain the Fauna Survey locations. Each location can clearly be seen to be either open fields, lightly wooded areas, or the edge of more dense trees. The locations are also all on the western side of the project area only. How can you tell if animals are passing through the project area, if you only test one side of the project area?

> ***Rejection 59:*** *Jupiter Wind Farm should be rejected. The layout of sensors used for migration of bat detection is biased towards the eastern side of the project with no sensors on the western side.*

The lack of sensors in or around Boro Creek is significant. Anecdotal evidence from the local community suggests many houses in this area (Lower Boro Road) have been used for roosting in the past. J234B has definitely been used by microbats for roosting. Water sources (such as Boro Creek) are also likely to offer a larger source of suitable food for these bats.

> ***Rejection 60:*** *Jupiter Wind Farm should be rejected. Sensors for bat monitoring were excluded from Lower Boro Road. Anecdotal evidence from local residents suggests houses are used along this route for microbat nests.*

Although one sensor was deployed on a Stone Bridge, it should be noted this is in the middle of a dense wooded area.

**Recent Studies**

Anecdotal reporting indicates studies are currently underway at the Mount Fairy cave. The evidence suggests not only are the bats present, but they are constantly present and foraging in a wide area, and travel further for food and water than initially thought. While this information is unconfirmed, it demonstrates the need for far more detailed studies to be conducted of the Mount Fairy cave.

> ***Recommendation 65:*** *The Jupiter Wind Farm should be delayed for at least 24 months. The proponent must pay for detailed independent studies to be undertaken in agreement with the relevant NSW Government agencies on the Mount Fairy cave, and it’s environmental importance.*

**Cumulative Impacts**

While each wind farm project highlights the “relatively low abundance” of the Eastern Bentwing Bat in their project area, they all consistently detect the bat in their studies. The low detection levels and proximity to known staging and maternity caves are used as the basis for a low impact assessment on the bat. Table 17 contains a summary of each wind farm proposal, their distance from the caves known to be associated with the Eastern Bentwing Bat, and a summary of the assessed impact.

A question that should be raised is related to proximity to these caves: How close does a wind farm have to be to a cave known to support a vulnerable bat species before it is rejected (or modified extensively)? The Capital Wind Farm proponent removed the Kalbilli Group of turbines from their proposal (probably due to impact on bat species alone). The majority of proposals are more than 10 kilometers from any cave listed.

> ***Recommendation 66:*** *Wind turbines within 10kms of the known staging cave for the Eastern Bentwing Bat must be removed from this project.*

| Wind Farm | Wee Jasper Church Cave (roosting) | Bungonia (roosting) | Mount Fairy Cave (staging?) | Summary of Impact from EIS Submissions |
|---|---|---|---|---|
| Capital | - | - | 10km | (**The Kalbilli Group was removed from the project.** See other comments elsewhere in this chapter). |
| Capital (Kalbilli Gp) | - | - | 2-4km | |
| Bango | 67km | - | - | Due to the distance from the maternity site, and the fragmentation of suitable habitat in the Study Area, **it is not expected that significant numbers of individuals congregate in the Study Area at any stage.** Therefore the proportion of Eastern Bentwing-bat that would be at risk of rotor collision impacts in the Study Area is relatively low. |
| Crookwell 3 | 104km | - | 79km | **They were not detected in the Anabat surveys which were undertaken.** |
| Paling Yards | 140km | 85km | - | The Eastern Bent -wing Bat was recorded by SM8 and SM11, which were located at the boundary of woodland and pasture and in scattered trees over pasture, overlooking a wooded valley.<br><br>**They were not detected in the Anabat surveys which were undertaken.**<br><br>(Note: Different reports for the project contain different results). |
| Biala | 80km | 63km | - | it is c**onsidered unlikely that the PA would be within the migratory path of these bats**.<br><br>(Note: Data was still being collected at the time of the report, but no additional reports were available). |
| Rye Park * | 40km | - | 65km | It appears unlikely that the local population would be placed at risk of extinction from the wind farm proposal **given that the proposal is not near Wee Jasper or the Bungendore staging area** |
| Collector * | 60km | - | 35km | (Extensive comments are contained in Table 22 - **generally considered to be high impact on the species**). |
| Capital II * | 70km | - | 10km | The low level of Eastern Bentwing Bat activity at the adjacent operational Capital Wind Farm, especially in open habitats there, suggests that **this species is unlikely to regularly use the Capital Wind Farm II area.** |
| Jupiter | - | - | 6-10km | (Eastern Bentwing Bat is barely mentioned in the Executive Summary and is completely dismissed!) |

*Table 17: Wind farms and distances to known Eastern Bentwing Bat caves (* indicates omitted from Jupiter Wind Farm Biodiversity Assessment)*

In addition to the proximity to the cave compared to other projects, the question of cumulative impacts from these wind farms should be raised. Richards[18] uses a worst case assessment of bat deaths in his assessment for the proposed Capital II Wind Farm. If we extrapolate this technique to the other wind farms in the area, taking into account the relative size of the wind turbines, we find a worst case mortality rate each year of over 39,000 deaths (Table 18)! Even allowing for a very high error of 95% in the calculation, this is still almost 2,000 deaths a year.

> ***Rejection 61:*** *The Jupiter Wind Farm must be rejected. The Eastern Bentwing Bat population can not be sustained due to the high risk of collisions or barotrauma.*

The statistics for the Jupiter Wind Farm proposal are significantly higher than those for other studies in the area. The high number of bat calls (estimated from Table 5.11 as raw figures are not available) is highlighted in red, and clearly stands out from every other study conducted.

18 Richards, Dr G.C. (2010), An Assessment of the Bat Fauna at the Proposed Capital II Wind Farm, NSW

| Wind Farm | Turbines | Turbine Size (rotor length) Swept Area | Eastern Bentwing Bat Calls Detected | Number of Survey Nights | Average Calls per Night | Estimated Collisions at 0.5% of interactions with turbines | Multiplied by number of Turbines | Multiplication factor based on turbine swept area * | Multiplied by total nights from September to May (273) | Estimated number of fatal collisions per year |
|---|---|---|---|---|---|---|---|---|---|---|
| Capital (Kalbilli Gp) | 7 | (45) 6362 | 81 | 3 | 27.00000 | 1.35000 | 9.45000 | 0.62329 | 1607.99471 | 1607 |
| Bango | 122 | (72) 16286 | 2 | 26 | 0.07692 | 0.00388 | 0.46923 | 1.59557 | 204.39252 | 204 |
| Crookwell 3 | 30 | (52) 8495 | * unclear | * unclear | * unclear | * unclear | * unclear | 0.83227 | * unclear | * unclear |
| Paling Yards | 55 | (67) 14102 | 1-4 | * unclear | * unclear | * unclear | * unclear | 1.38160 | * unclear | * unclear |
| Biala | 31 | (75) 17671 | * not provided | 9 | * not provided | * not provided | * not provided | 1.73131 | * not provided | * not provided |
| Rye Park * | 126 | (57) 10207 | 36 | 22 | 1.63636 | 0.08181 | 10.30908 | 1.00000 | 2814.34 | 2814 |
| Collector * | 68 | (56) 9852 | 19 | 8 | 2.37500 | 0.11875 | 8.07500 | 0.96522 | 7.79415 | 8 |
| | | | 18240 | 30 | 608.00000 | 30.40000 | 2067.20000 | | 544717.66000 | 544718 |
| Capital II * | 53 | (57) 10207 | 3 | 38 | 0.07897 | 0.00039 | 0.02092 | 1.00000 | 5.71145 | 6 |
| Jupiter | 88 | (63) 12468 | 34 | 273 | 0.12454 | 0.00623 | 0.54798 | 1.22151 | 182.73789 | 183 |
| | | | 568 | 21 | 27.04761 | 1.35238 | 119.00948 | | 39686.37130 | 39686 |

*Table 18: Estimated cumulative mortality rates for Eastern Bentwing Bat*

Note: Due to the two different datasets used by ERM, two lines are contained in Table 18 - one for the monitoring conducted over a 12 month period, and one for the targeted monitoring conducted during March (or May?) 2015. Data for the March 2015 period is based on an estimate from Table 5.11 of the EIS as raw data was not presented in the report.

Even if we ignore these statistics, and use statistics from EPYC's and ERM's Jupiter Wind Farm report of between 1.6 and 90 bat deaths reported per year (sourced from the Australian Bat Society), Table 19 contains potential cumulative effects per year from turbines in the vicinity of these caves. Using an average of the death rate and taking into account the distance from the nearest cave, the cumulative mortality rate for the Eastern Bentwing Bat could be around 3178 per year. The Jupiter Wind Farm proposal would represent approximately 42% of these deaths (highlighted in red).

| Wind Farm | Turbines | Distance from Nearest Cave | Factor based on 2/distance (based on Kalbilli data) | Low death Rate (1.6/WTG) | High Death Rate (90.0/WTG) | Likely Death Rate (WTG*dist factor*((1.6+90)/2)) |
|---|---|---|---|---|---|---|
| Capital | 63 | 10 | 0.20000 | 100.8 | 5670 | 577.08 (18.16%) |
| Capital (Kalbilli Gp) | 7 | 2 | 1.00000 | 11.2 | 630 | 320.6 |
| Bango | 122 | 67 | 0.02985 | 195.2 | 10980 | 166.79 (05.25%) |
| Crookwell 3 | 30 | 79 | 0.02532 | 48.0 | 2700 | 34.79 (01.09%) |
| Paling Yards | 55 | 85 | 0.02353 | 88.0 | 4950 | 59.27 (01.86%) |
| Biala | 31 | 63 | 0.03175 | 49.6 | 2970 | 45.08 (01.42%) |
| Rye Park * | 126 | 40 | 0.05000 | 201.6 | 11340 | 288.54 (09.08%) |
| Collector * | 68 | 35 | 0.05714 | 108.8 | 6120 | 177.96 (05.60%) |
| Capital II * | 53 | 10 | 0.20000 | 84.8 | 4770 | 485.48 (15.27%) |
| Jupiter | 88 | 6 | 0.33333 | 140.8 | 7920 | 1343.45 (42.27%) |
| TOTALs (excluding Kalbilli Gp) | 636 | N/A | N/A | 1017.6 | 57420 | 3178.44 |

*Table 19: Cumulative effects per year based on statistics used by EPYC and ERM*

> ***Rejection 62:*** *The Jupiter Wind Farm must be rejected on the basis of cumulative impact on the Eastern Bentwing Bat and the close proximity to a known staging cave for the species.*
>
> ***Rejection 63:*** *EPYC's Jupiter Wind Farm must be rejected. The high level of Eastern Bentwing Bat detected during the March 2015 period clearly demonstrate a threat to the population.*

Regardless of how the results of the bat surveys are analysed, including taking into account distance from caves, the Jupiter Wind Farm proposal demonstrates a significant risk in cumulative terms to the Eastern Bentwing Bat population.

**Absence of Data in Selected Desktop Surveys**

The desktop survey using a selective approach of other wind farm proposals appears to be rigged. Of the five wind farms included in their analysis, all five were unclear or had very limited information in relation to detection rates of the Eastern Bentwing Bat. Yet at least three other wind farm reports contain detailed information on the detection of the Eastern Bentwing Bat.

> ***Rejection 64:*** *The Jupiter Wind Farm proposal must be rejected due to the selective exclusion of highly relevant data available in relation to other wind farms in the area.*

**Collector Wind Farm – Another Questionable Proposal**

During analysis of the Eastern Bentwing Bat, the Biodiversity Assessment for the Collector Wind Farm also stood out. While one set of numbers provided (for the period of March) showed low levels of activity, the report on the Collector Wind Farm also identified an **average** of 608 calls per night during November (Collector Wind Farm, Appendix G, Appendicies, Page C-XVII).

> ***Recommendation 67:*** *The Department must conduct a review of the Collector Wind Farm in light of the high number of Eastern Bentwing Bat calls made in the November period.*

While this is a not a concern of EPYC in their submission, it does draw into question the assessment process being used for vulnerable and endangered species in NSW. Given the focus on the March time period for "migratory" reasons, there is a complete underestimation of the impact on the species most active time periods in the wind farm areas. Both Collector Wind Farm and Jupiter Wind Farm reports show a very high level of activity in November. However both reports dismiss these activity levels.

> ***Recommendation 68:*** *All future Wind Farm proposals must undertake detailed bat data collection for a minimum of 24 months.*

**Migration, or Year Round Impact?**

EPYC's and ERM's report indicate there was no trend in the Eastern Bentwing Bat calls recorded during the March (or May) 2015 period – indicating a lack of migration activity. This would suggest the cave at Mount Fairy is used throughout the year by the bats. Given the mast mounted units detected low levels of activity in March 2015, and much higher levels in October 2014, it is possible there are even higher levels of activity at ground level at other times of the year. Thus there is a gap in the study data at ground level.

This could mean the numbers provided in Table 18 are likely to be lower than actual levels of activity throughout the year (ie the impact on the species is even higher than demonstrated in this submission). The selective nature of the testing periods and data analysis (usually to a few days in March) has clearly demonstrated to be inaccurate when larger periods are used.

> ***Rejection 65:*** *The Jupiter Wind Farm proposal must be rejected. Data from the Biodiversity Assessment suggests high levels of vulnerable bat species are present in the project area year round.*

**NSW Dept. of Planning and Environment – Conservation Projects – Eastern Bentwing Bat**

According to the NSW Department of Planning and Environment, the Eastern Bentwing Bat has been assigned to the Landscape species management stream under the "Saving our Species" program[19]. While key threats to the species are addressed in a variety of ways, the action toolbox for management includes the strategy in Figure 37.

19 http://www.environment.nsw.gov.au/savingourspeciesapp/project.aspx?ProfileID=10534

| |
|---|
| **Protect and maintain high quality foraging habitat in the vicinity of maternity caves.** Target high productivity habitats, primarily riparian areas, wetlands, and other areas of native vegetation associated with high moisture status and fertility. Where possible negotiate conservation agreements with landholders; agreements should preferably be funded and in perpetuity. |

*Figure 37: Action from toolbox listed for Eastern Bentwing Bat*

Although this action states maternity caves, it should be noted the flow on effects of affecting other caves used by these bats. It is clear from the studies reviewed so far, the migration, breeding and foraging patterns are general in nature.

> ***Rejection 66:*** *The Jupiter Wind Farm proposal should be rejected due to the close proximity to the Mount Fairy cave used by multiple microbats.*
>
> ***Recommendation 69:*** *Wind Farm proposals withing 5kms of caves known to be associated with the Eastern Bentwing Bat must ensure independent studies are taken for a period of no less than 24 months of sampling surrounding the caves. Studies are to be coordinated through the NSW Department of Planning and Environment.*

**Removal of Kalbilli WTG from Capital Wind Farm**

The Bat Survey for the Capital Wind Farm highlights a fourth group of WTGs (the Kalbilli Group) was removed from the project. These turbines were in very close proximity to the cave at Mount Fairy (Figure 39, from Appendix G2 Bat Survey Jun 2005 of the Capital Wind Farm proposal). No direct basis is provided for the removal of these wind turbines in the report, however the report does highlight concern for the conservation of the Eastern Bentwing Bat if the Kabilli Group had been included (Figure 38).

| |
|---|
| Nevertheless, the placement of turbines in primary bat habitat could initially lead to an increased risk to high flying bats that feed above the forest canopy, and would have been of concern for the conservation of the Eastern Bentwing Bat at the Kalbilli site. **The exclusion of the Kalbilli Group from the project area now avoids this risk.** |

*Figure 38: Extract from Capital Wind Farm Bat survey, Appendix G2, June 2005*

A significant aspect of this report is the results of data collected from sites 1, 2 and 3 (within the project area), and site 4 (at the Kalbilli Group site). Almost 2600 bat calls were detected at the Kalbilli Group site over a period of three (3) nights. Eighty-one of these calls were of the Eastern Bentwing Bat (Table 20).

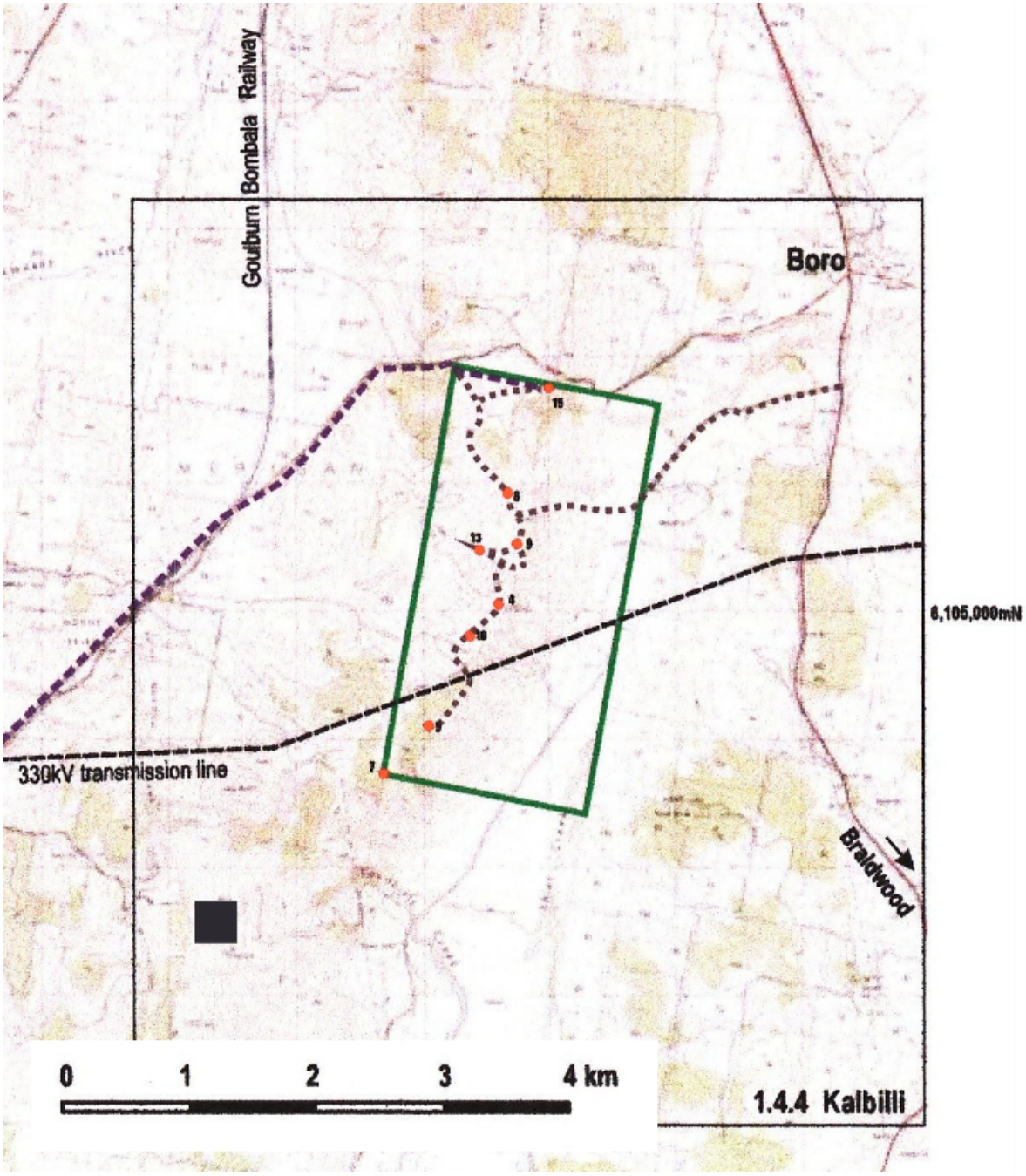


*Figure 39: Kalbilli Group of turbines (Square on bottom left represents cave)*

*Source: Appendix G2, Capital Wind Farm, Bat Survey, June 2005*

Table 2: The number of bat calls recorded at three sampling sites located at degraded woodland remnants within the project area, compared with a sampling site containing prime bat habitat located to the south of the project area in the Mt Fairy region. The total number of calls recorded throughout the night for three consecutive nights (21-23 February 2005) are shown. *Nyctophilus* species are impossible to separate by echolocation call, and hence the two potential species. *N. geoffroyi* and *N. gouldi* are grouped by default.

| Location: | | Within project area | | | Out of area |
|---|---|---|---|---|---|
| Site number: | | 1 | 2 | 3 | 4 |
| Easting: | | 732010 | 729454 | 729087 | 739078 |
| Northing: | | 6105972 | 6106066 | 6104257 | 6104412 |
| Scientific name | Common name | | | | |
| *Chalinolobus gouldii* | Gould's wattled bat | - | 1 | - | 66 |
| *Chalinolobus morio* | Chocolate wattled bat | 1 | - | - | 113 |
| *Miniopterus schreibersii* | Eastern Bentwing bat | - | - | - | 81 |
| *Mormopterus* sp.2 | Eastern Freetail | 22 | 11 | 41 | 922 |
| *Nyctophilus sp./spp.* | Longeared bats | 1 | 2 | 4 | 127 |
| *Saccolaimus flaviventris* | Yellow bellied Sheathtail | - | - | - | 14 |
| *Scotorepens orion* | Eastern Broadnosed bat | - | - | - | 34 |
| *Tadarida australis* | White striped freetail | 3 | 4 | 4 | 205 |
| *Vespadelus darlingtoni* | Large forest bat | 7 | 5 | 9 | 126 |
| *Vespadelus regulus* | Southern forest bat | 11 | 9 | 17 | 868 |
| *Vespadelus vulturnus* | Little forest bat | - | - | 1 | 40 |
| Totals | | 45 | 32 | 76 | 2596 |

*Table 20: Table extracted from Capital Wind Farm Bat Survey.*

The removal of the Kalbilli Group of turbines from the Capital Wind Farm appears to be directly related to the very high impact on bat species in the area. Given data collected for the Jupiter Wind Farm shows even higher levels of activity in November (compared to March), the impact of 75 turbines in the area immediately surrounding this cave should be considered extreme.

> ***Rejection 67:*** *The Jupiter Wind Farm must be rejected. 75 wind turbines in close proximity to the Mount Fairy cave represents a significant risk to a large number of bat species previously identified as using this cave.*

As a side note, the activity levels detected by EPYC for the Jupiter Wind Farm are entirely consistent with the levels detected for the Kalbilli Group of turbines for the Capital Wind Farm. At both sites, an average of 27 calls per night were detected (Table 18).

**Potential Movements of Eastern Bentwing Bat through Project Area**

Based on detection of the Eastern Bentwing Bat in the Project area, two scenarios are proposed. The first scenario is the bats use the project area for migration to / from the coast through lightly wooded areas near waterways for food sources. A second scenario is based on the bats using the project area for foraging purposes during the breeding season.

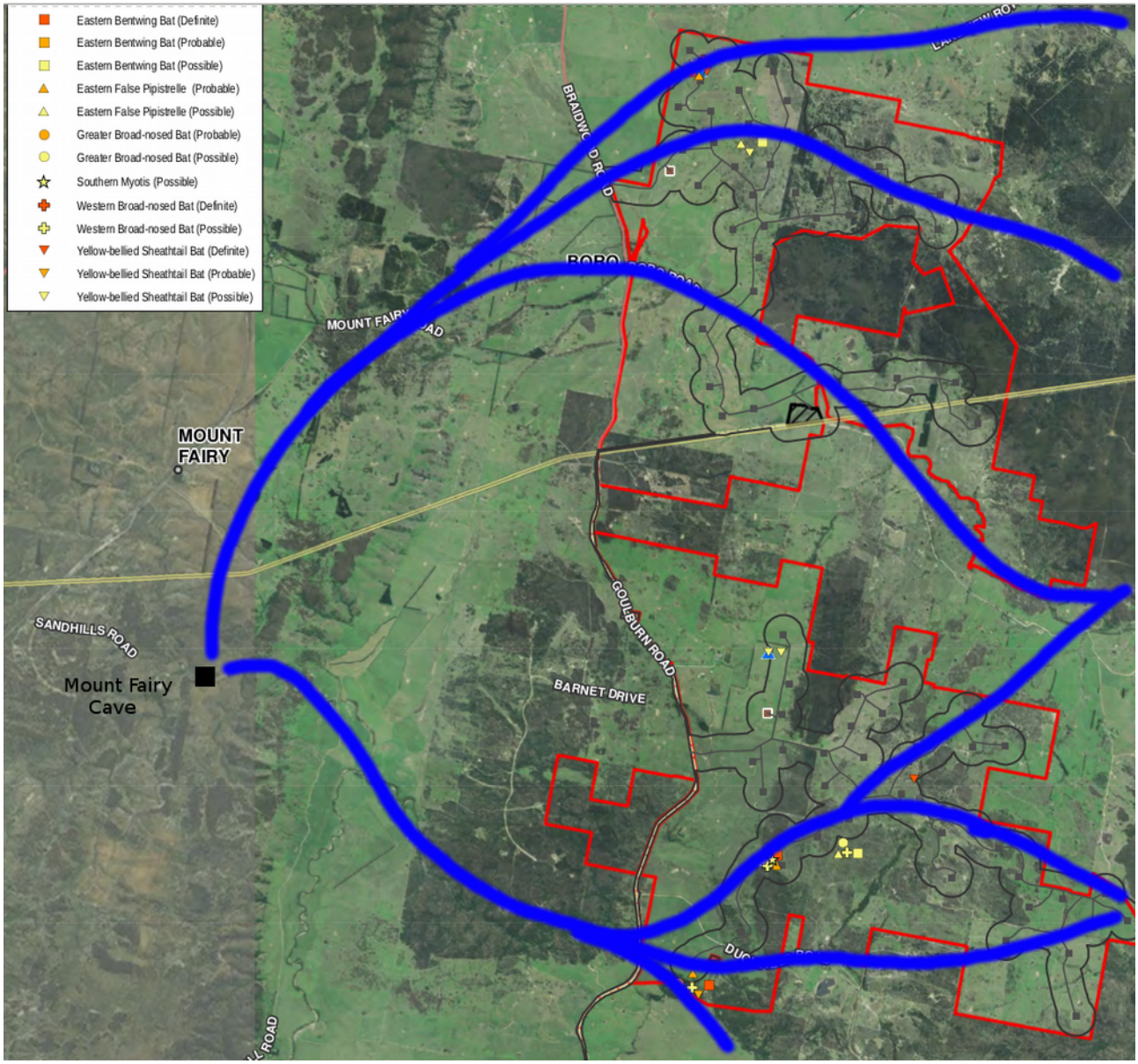


*Figure 40: Potential migration paths following waterways*

Figure 40 shows potential migration paths based on watercourses in the area and detection of the Eastern Bentwing Bat. Such a scenario shows the bats will likely be passing through large portions of the Jupiter Wind Farm northern precinct.

> ***Rejection 68:*** *The Jupiter Wind Farm should be rejected. Potential migratory paths to the coast following waterways pass through large portions of the norther precinct of the wind farm.*

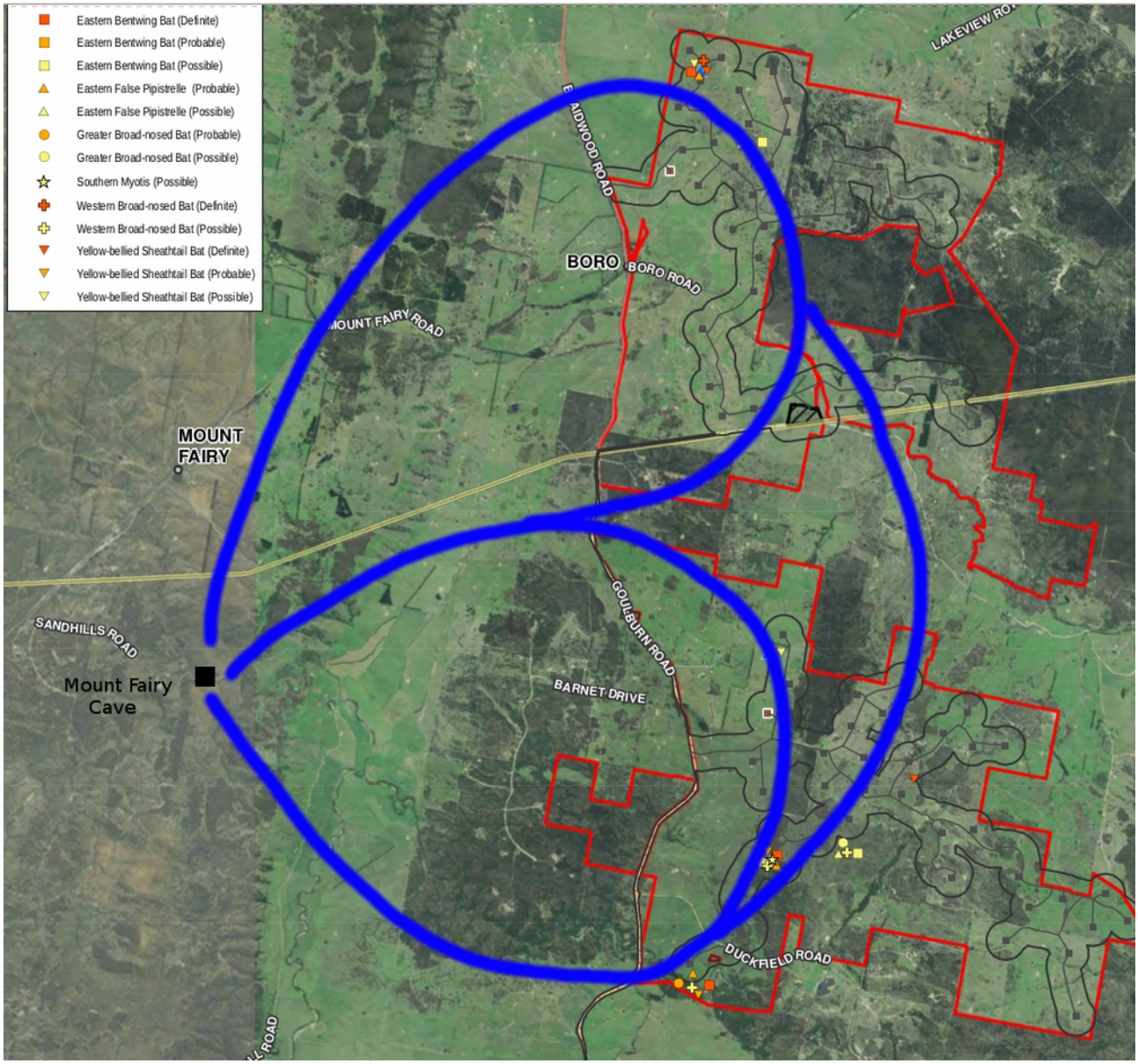


*Figure 41: Potential foraging paths through the Jupiter Wind Farm*

Figure 41 contains potential foraging paths around the Mount Fairy Cave. The shorter paths are approximately 18kms, and the longer path approximately 35kms. These paths are well within the range and capability of the Eastern Bentwing Bat. Under such a scenario, a large portion of the bat population will pass through the Jupiter Wind Farm.

> ***Rejection 69:*** *The Jupiter Wind Farm proposal should be rejected. Potential foraging paths of the Eastern Bentwing Bat pass through the middle of the northern precinct of the wind farm.*

**E Assessments of Significance – Eastern Bentwing Bat (Page E23 to E25)**

EPYC's and ERM's submission on the Assessments of Significance is incorrect. Table 21 contains a list of some statements in each section, and why this information is incorrect.

| Section | Statement | Comment |
|---|---|---|
| Summary | The staging cave is used during the migration of the bats to the coast, during late summer/early autumn after leaving the maternity roost. | EPYC's and ERM's data collection period was insufficient, and indications are the cave may be used as more than a 'staging' cave. |
| | Records of the species in October correspond with the period when the species gravitates towards maternity caves within the region, however, the number of records were low (19 calls from September 2014 to February 2015). | They fail to highlight the high level of activities from all sensors, particularly when compared to other wind farms. |
| | Potential impacts to the Eastern Bentwing Bat include loss of small areas of foraging habitat and mortality due to WTG collision and barotrauma. | Failure to identify the level of mortality, and the significant increase due to the proximity to the Mount Fairy cave. |
| (a) | The local population is not likely to be concentrated within the Study Area and it does not provide any unique values (such as a maternity roost), that are important to the life cycle of the species. | Analysis of their results show many assumptions are incorrect. The Mount Fairy cave may actually be used for breeding. Comparison of results from other wind farms show high levels of activity at the Jupiter Wind Farm area. |
| | Any adverse impacts are likely to affect a small proportion of the total population, and are not considered to put the local population at the risk of extinction. | Two statistical models demonstrate significant impacts on the Eastern Bentwing Bat population in the local (and broader regional) area. |
| | Infrastructure has been sited to avoid woodland areas where possible, restricting the amount of foraging habitat loss to 8.12 ha or 1.90% of woodland within the Study Area.. Roosting resources within the Study Area are very limited. | Although infrastructure has been located to avoid woodland areas, EPYC's and ERM's own sensors detected bats within the Project Area. In addition, if the bats traverse the Boro Creek area en-route to the coast, they will pass directly through the wind farm. |
| | There is potential for this species to fly at RSA height, presenting a risk of WTG collision. However, a much higher number of calls were detected at ground-level detectors compared to mast-level detectors, when adjusted for survey effort. This indicates that the species may be less active at RSA height, and therefore has a lower potential for WTG collision. | Understates the risk related to barotrauma and the change in air pressure as the blades of the turbine pass. |
| | It is expected that the species will not occur in dense aggregations as it will have dispersed in the distance between the maternity caves and the Study Area. | Makes the assumption the cave at Mount Fairy is not used for maternity purposes. Analysis compared to other wind farms demonstrates the species will occur in dense aggregations |
| (d) (ii) | Where possible, infrastructure has been located in cleared areas, and linear infrastructure has been located to follow existing roads and access tracks in order to reduce the effects of fragmentation. | The Jupiter Wind Farm fragments the habitat. 75 wind turbines encompass about 120 degrees along the east side of the Mount Fairy cave. Assuming coastal migration, they will pass through the turbines. The absence of monitoring on the most direct route along a watercourse should be noted (Boro Creek). |
| | Of the individuals moving through the PA, only a small portion would be expected to move through the RSA (as WTGs are spaced over 300 m apart), and therefore be at risk of WTG collision. Considering this, the effect of WTG collision on population fragmentation is considered negligible. | EPYC and ERM completely ignore the barotrauma aspect in this statement. |

*Table 21: Incorrect information provided by EPYC and ERM*

> ***Rejection 70:*** *The Jupiter Wind Farm must be rejected. EPYC and ERM completely under-rate the impact of the proposal on the Eastern Bentwing Bat.*

**Extrapolating Errors to the Broader Biodiversity Assessment**

Due to resource limitations and time constraints for submissions, we were unable to conduct a full analysis of the Biodiversity Assessment for other errors or reasons for the rejection of this proposal. The general errors and basis for rejection have been extrapolated from those related to the Eastern Bentwing Bat, and are suggested for completeness of this assessment.

> ***Rejection 71:*** *The Jupiter Wind Farm Biodiversity Assessment must undergo a rigorous review. There are likely to be significant flaws in the methods used, and the report has been shown to contain multiple errors.*

> ***Rejection 72:*** *The Jupiter Wind Farm Biodiversity Assessment is selective in nature and omits other reporting that can be shown as critical to their proposal.*

> ***Recommendation 70:*** *The Department should ban all WTGs within ten (10) kilometers of caves associated with breeding populations of vulnerable or endangered species.*

> ***Recommendation 71:*** *The Department should review its assessment methods of State Significant Development in relation to acoustic detection of bats.*

> ***Recommendation 72:*** *The Department should identify testing methods for acoustic detection of bats for future wind farm developments. Methods should identify the coverage area required, the time periods and type of monitoring to be used. Results from detection should include the averages of activity level per day, per month including the peak activity levels.*

**Implications of Collector Wind Farm Biodiversity Assessment**

One of the reports excluded by EPYC and ERM from the desktop study for the Jupiter Wind Farm, was the Biodiversity Assessment for the Collector Wind Farm. Some of the implications from Collector Wind Farm assessment are included in Table 22. The implications in relation to the Jupiter Wind Farm and the analysis in this submission are consistent.

| Collector Wind Farm statement | Implications for Jupiter Wind Farm | Outcome |
|---|---|---|
| The species also forage along flyways (along clear areas such as tracks or streams), and are known to utilise cleared paddocks during dispersal. | The Jupiter Wind Farm proposal makes no effort to identify this information, and stresses the use of wooded areas. | Reject |
| Female Eastern Bentwing-bats migrate to specific cave sites in approximately October-November each year to give birth in December and raise a single young (Churchill 1998) | This indicates migration will also occur during October-November and aligns with a peak level of activity detected on masts at the Jupiter Wind Farm. Migration sampling during March (or May?) only limited EPYC's study. | Reject |
| Staging caves are also used as stops enroute to the maternity cave, similarly by large numbers of individuals. One such staging cave is located just south of Mount Fairy about 35km north-west in Euclidean distance | The Jupiter Wind Farm report only indicates small numbers of bats in the area. How can "large numbers of individuals" use the caves in one report, and not in the Jupiter Wind Farm report? | Reject |
| Eastern Bentwing-bats are present at this cave between mid-February and mid-March each year when they are en route to and from the maternity cave at Wee Jasper, although timing is likely to be also be influenced by seasonal climatic conditions (Richards 2005, Richards personal communication via Nick Graham-Higgs, 2010). | Data for migration was collected in a higher than average temperature period for the Jupiter Wind Farm. The limited sampling hides potentially high numbers of migrating Eastern Bentwing Bats. | Reject |
| Collision impacts are likely during this period when the species is foraging or commuting. Very little information is available about the migration or the use of the Mount Fairy cave, however, Richards (2005) found that high rates of collisions could result near good quality foraging habitat. | High rates of collisions could occur at the Jupiter Wind Farm due to close proximity to the Mount Fairy cave – particularly given the good quality foraging habitat in the area. | Reject |
| There is a risk of collision (and barotraumas) impact from bats moving to and from the staging cave during their migration to the maternity cave. The Mt Fairy cave may be within nightly foraging range from the proposal area. | How can the Collect Wind Farm assessment conclude a high risk of collision (and barotrauma), yet the Jupiter Wind Farm concludes the risks are negligible. Particularly given the close proximity to the Mount Fairy cave. | Reject |
| Recent studies in North America have identified that migrating bats appear to concentrate along particular routes rather than disperse across the landscape (Baerwald and Barclay 2009). Where geographical landmarks are being used as navigational aid, migrating bats may concentrate near prominent landscape features, such as rivers and mountains (Baerwald and Barclay 2009). The escarpment running along the western edge of Lake George basin is a prominent landscape feature and a potential movement corridor. | There are particularly prominent ridgelines in the area, and creeks flowing towards the coast. These may act as navigational aids. Given the bats may be more likely to concentrate along these particular routes, and the high levels of detection at the Jupiter Wind Farm, it is difficult to argue there would be a low impact on the Eastern Bentwing Bat. | Reject |
| Relevant issues that may therefore entail a cumulative impact between the Capital, Cullerin and Collector sites are considered to be: Proximity to Mt. Fairy staging cave for the Eastern Bentwing Bat, approximately 35 kilometres south east of the Collector site. | 75 WTGs of the Jupiter Wind Farm proposal are located within 6-10kms of the Mount Fairy cave. A review of the cumulative issues related to the Jupiter Wind Farm highlights the significant impact Wind Farms in this area would have on the species. | Reject |
| Turbines have been removed from the south and east of the site, to reduce risks to species utilising the escarpment as a movement corridor from or to Lake George. | The Collector Wind Farm removed wind turbines to reduce their risks of impacting on species such as the Eastern Bentwing Bat. Yet the Jupiter Wind Farm proposal places 75 WTGs within 6-10kms. | Reject |

| | | |
|---|---|---|
| The most direct route between Mount Fairy and Church Cave is south of the site and it has been considered that by removing turbines from the near to the escarpment, a wooded corridor more likely to be used by bats, and the south of the site, the proposal has addressed the risk to migrating Eastern Bentwing Bats. | The Collector wind farm (35kms from the Mount Fairy cave) suggests the removal of wind turbines that may be on the migratory path. How do 75 WTGs within 6-10kms of this same cave not impact on the migratory path from the cave to the coast? | Reject |
| However, there is no evidence to suggest the site is important to local populations of this species; it is 35km from a nearby staging (Mt Fairy) and not in a direct line to between the staging cave and the Wee Jasper maternity cave, which would be south of the site. | The Jupiter Wind Farm project area is important to local populations of the Eastern Bentwing Bat. | Reject |

*Table 22: Collector Wind Farm Biodiversity Assessment implications for Jupiter Wind Farm*

**Observations of the Reports Used in the EIS**

It should be noted the reports used by EPYC in their environmental assessment are predominantly supportive of stating there is no Eastern Bentwing Bat activity. Four of the five reports were also sub-contracted to ERM. When compared to the three additional reports (two by NGH Environmental), there is a substantial difference in the quality of the analysis and the data contained in the report.

This demonstrates a clear bias in the Jupiter Wind Farm EIS towards reporting that ignores the impact on the Eastern Bentwing Bat. The fact is they exclude other reports from other wind farm proposals that are highly relevant. EPYC have demonstrated they are aware of these other projects in other parts of their EIS. As such the only conclusion is EPYC are deliberately attempting to mislead the Department, and hiding the true impact of this proposal from the Department of Environment as well.

> ***Rejection 73:*** *The Jupiter Wind Farm proposal must be rejected. EPYC have demonstrated a deliberate exclusion of relevant information that would have a negative impact on their proposal.*

# ANNEX E – NOISE ASSESSMENT

This chapter considers the Noise Assessment from the Jupiter Wind Farm proposal in relation to J234A and J234B.

### 4.1 Measurement locations

EPYC use a combination of J141 and J145 to assess the noise in relation to J234A and J234B. A comparison to the areas surrounding these locations is contained in Table 23. This comparison includes features identified in photos of the sensors at those locations.

| Location | Feature | Comparison to J234A | Implications |
|---|---|---|---|
| J141 | open area with some trees and vegetation | J234A is in a completely exposed area with no trees or vegetation | There is no vegetation to screen noise from the surrounding landscape. J234A will experience higher noise levels. |
| | Small WTG located nearby | No WTG installed nearby | Background noise levels at J141 will be affected by the small WTG. J234A will have lower levels of background noise. |
| | Proximity to Lower Boro Road (less than 40m) | J234A is approximately 400m from Lower Boro Road | Background noise levels due to vehicles will be much lower at J234A. |
| J145 | Semi-open area near some small trees and vegetation | As above for J141 | As above for J145. |
| | Generally flat terrain | See later in the chapter in relation to terrain | Terrain near J234A and J234B act as a funnel for noise. |

*Table 23: Comparison of features at J234A compared to sensor locations for noise monitoring*

As discussed later in this chapter, these two receptors also do not have the unique terrain features associated with J234A and J234B. Using a hybrid of J141 and J145 to model noise for J234A is inappropriate. The majority of receptor locations used in the modeling are on generally flat ground. While this may be representative of some of the properties in this area, it fails to account for terrain variation.

> ***Rejection 74:*** *The Jupiter Wind Farm proposal must be rejected. The receptor locations used for noise modeling is not representative of some properties in the area. The hybrid J141/J145 model used for J234A and J234B is completely inappropriate.*

> ***Recommendation 73:*** *EPYC must undertake more substantial noise modeling prior to approval of their EIS. Noise modeling must be undertaken at J234A and J234B during mid Winter and mid Summer for at least two years.*

### 4.2 Period of measurements

It should be noted that all noise testing was conducted in the late November / early December period. This includes when supplementary testing had to be conducted. When cross-referenced with EIS Table 8.4, 8.5 and 8.6, it is clear this period has completely different wind shear exponents compared to the middle of winter. As EPYC have highlighted, weather conditions in this location can vary considerably. Yet they choose to model the entire year on a small period in late November / early December. DNV GL highlight in their report that at colder times of the year, the temperature effect can result in increased WTG noise.

> ***Rejection 75:*** *The Jupiter Wind Farm proposal must be rejected. Noise monitoring was conducted solely during a warmer period of the year, and can not be demonstrated to scientifically represent the impact during cooler periods of the year.*
>
> ***Recommendation 74:*** *EPYC must undertake additional noise testing during two winter periods and provide appropriate analysis of noise levels.*

### 4.3 Measuring Equipment

DNV GL highlight the customer (EPYC) advised them all the measurements were conducted by trained personnel. As such there has been no holistic approach to the assessment undertaken. EPYC have taken a piecemeal approach to the monitoring approach – conducting analysis over a very limited time period and splitting the process of analysing the data from the placement of recording instruments.

### 4.5 Hub height wind speeds

DNV GL highlight there is an elevated level of uncertainty associated with extrapolation of noise data from the height of 82 to 110m used for masts M1 and M2. They describe the extrapolation from 82m to 110m as “quite large”.

> ***Rejection 76:*** *The Jupiter Wind Farm should be rejected. Doubt over the accuracy of modeling in relation to hub height wind speeds and other aspects of the report are highlighted by DNV GL.*

### 6.2 Wind turbine noise input data

The noise assessment highlights the WTG has not been selected for the project, and the noise impact was assessed based on several models. However they do not highlight if they used the “worst case scenario” to represent their results. They also highlight EPYC provided the WTG sound power level data used in the sound assessment. DNV GL highlight the “WTG noise emission profiles is indicative”.

How can EPYC claim there will be virtually no noise impact from this project when the authors of EPYC’s own Noise Assessment highlight doubt in the data used for the report?

> ***Rejection 77:*** *The Jupiter Wind Farm proposal should be rejected. The noise assessment was undertaken using constrained data and contains indicative emissions. This does not reflect the level of certainty required to pursue the proposal.*

***Rejection 78:*** *The Jupiter Wind Farm proposal must be rejected. The failure to identify the WTG to use within the project has prevented an accurate noise assessment being undertaken.*

### 6.5 Noise Modeling Assumptions

The report from DNV GL highlights a level of uncertainty when modeling noise. The standard used (ISO 9613-2) relies on approximately flat terrain. While some areas of the project are relatively flat, there are significant areas around the proposed Jupiter Wind Farm that are certainly not flat.

On the North West side of J234A and J234B is a valley through which Boro Creek passes through. This valley acts as a funnel for sound on the property. Throughout the year we are able to hear vehicles passing on the Goulburn – Braidwood road, including the summer periods. The terrain features here (Figure 42) include:

- At least two kilometers in length leading directly up to J234A and J234B;
- The valley aligns with the prevailing wind direction;
- Sides of the valley can exceed 30m in some locations; and
- A significant number of wind turbines will be located at the other end of this valley.

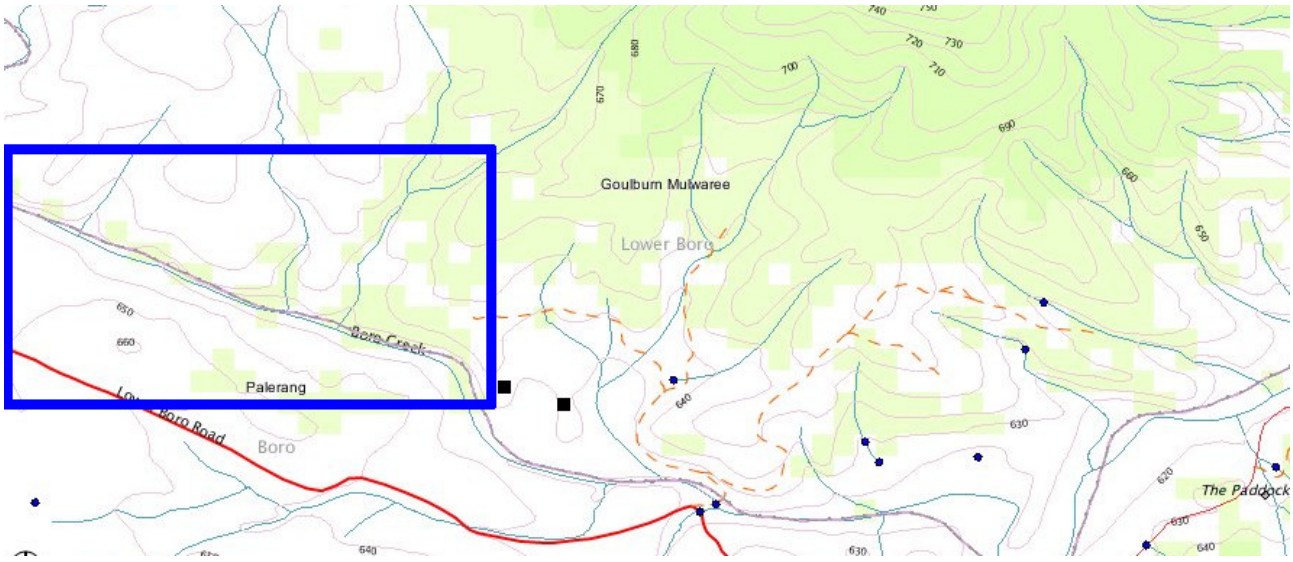


*Figure 42: Valley acting as funnel for noise for J234A and J234B*

Several studies have shown certain terrain shapes can focus sound. For example Tonin[20] states in "Sources of Wind Turbine Noise and Sound Propagation" that one of the factors "affecting sound propagation [is] … Shape of the land (certain land forms can focus sound)".

We requested EPYC undertake noise sampling and modeling from our new residence (J234A). This request was denied. DNV GL identify some parameters for the noise modeling are outside the limits for ISO 9613-2. Based on our experience, the noise modeling for J234A and J234B will be completely inaccurate based on terrain alone.

20 https://www.acoustics.asn.au/journal/2012/2012_40_1_Tonin.pdf

> ***Rejection 79:*** *The Jupiter Wind Farm proposal must be rejected. The modeling used is not representative of the terrain or the receptor height.*

**9.1 Tonality**

DNV GL understands EPYC will seek a manufacturer's guarantee against audible tonal characteristics. This sort of assumption in the context of not having selected a WTG, raises doubt as to what the point of undertaking a noise assessment was at this point in time? DNV GL continue to highlight there is a higher level of uncertainty in their report due to a lack of information to make informed assessments. A penalty of 5 dBA would significantly change the noise assessment. EPYC have not identified in their EIS they will ensure the model selected does not exhibit any tonal characteristics.

> ***Rejection 80:*** *The Jupiter Wind Farm proposal should be rejected. The Noise Assessment contains additional doubt over the possible tonality from turbines once a WTG model has been selected by the proponent.*

> ***Recommendation 75:*** *EPYC must identify the WTG model, and reassess all aspects of noise before any approvals are granted.*

**10.1 Noise management and mitigation strategies – Physical barriers at dwellings**

A stunning suggestion in the Noise Assessment is the suggestion of installation of physical barriers around dwellings. Rather than deal with the root cause of the problem, the suggestion is to install extra vegetation, screening or double glazing on windows. The suggestion is rather than enjoy the rural nature of this area, the local community should lock itself away with barriers around our houses like we live in a city.

> ***Rejection 81:*** *The Jupiter Wind Farm proposal should be rejected. The suggestion to mitigate noise issues using physical barriers is not compatible with the local environment or rural lifestyle nature of the area.*

**Overall Comments**

The report by DNV GL has been undertaken in difficult circumstances. They have not been provided with WTG types to model suitably. The location and time periods for the data selection appear to have been selected by EPYC, with sensors installed by someone else. DNV GL highlight multiple deficiencies in their report as a result of multiple factors (generally outside their control), including limitations associated with the modeling standard used.

> ***Rejection 82:*** *The Jupiter Wind Farm proposal must be rejected. DNV GL highlight limitations in their noise modeling due to multiple circumstances. Such limitations should not be acceptable, and as such EPYC should not be allowed to proceed with this proposal.*

EPYC claim in the EIS itself that DNV GL considered tonality (10.6.2). However this is incorrect – DNV GL highlight they cannot provide an answer on tonality as a WTG model has not been selected. Worst case modeling can hardly be conducted without knowing the WTG model. If worst case modeling had been used, then a 5dB penalty should have been applied based on a worst case scenario of a WTG being selected with tonal characteristics.

EPYC seem insistent within the EIS to push ahead into detailed design despite significant uncertainty in the modeling of the Noise Assessment. This bullish approach has previously lead the Department into situations where proponents have simply taken advantage (for example moving WTG locations with no real implications for the proponent).

# Annex F – Landscape and Visual Assessment

The report by Clouston Associates highlights the following points in relation to dwellings in the northern precinct:

- There is a moderate to high impact in rural development areas;
- The greatest visual impacts (day and night) will be experienced by dwellings on elevated terrain;
- Whole views are valued more than partial views (and vegetation screening will block those views);
- There will be a modification of the landscape pattern from undulating grassland to one of strong vertical forms;
- Residents located in this area are on large lot sizes and a “lack of surrounding development” are important features;
- “The closes turbines will appear prominent against the skyline and will be an obvious element within the landscape. Blade movement will be clearly visible”; and
- Nighttime lighting will “be highest where dwelling have panoramic views over multiple turbines”.

EPYC’s own consultants give a damning indication of the visual impact for J234A. The residence is in an elevated position and has panoramic views of the surrounding area. This section provides analysis of the Clouston Associates report, and provides real insight into the actual visual impact of the Jupiter Wind Farm on J234A – which is worse than EPYC and Clouston Associates make it to be.

**Annex F – Landscape and Visual – Part 1**

E4 – Landscape Character Impacts: Given the development of the area (being less than one hour drive from Canberra) and the Moderate/High impact on Rural Development and Undulating Grassland, this development is not suitable for this area. They highlight the “prominent height” of the turbines as the the most discernible element of the project. This prominent height will detract from the views of many properties in the area.

E6 Night Time Impacts: EPYC claim the use of radar activated lighting would likely diminish any night time visual impacts. This area is under the flight path to Canberra, and aircraft operate throughout the day and into the late evenings (while people are awake). As such the use of radar would likely only turn the lighting off while people are asleep.

E7 Cumulative Impact: The claim is the development will increase the perceived density of wind farm development. It will increase the actual density of wind farm development, not just perceived density.

E8 Mitigation: There is no consideration of the following factors:

- The time it takes for mitigation measures to take effect

**Section 1.2 Legislative and Policy Context**

EPYC's proposal discusses "recent" legal cases in relation to consideration of public vs. private domain views for acceptability of impact. Public views are only experienced for a short time period by visitors passing through the area. However the local community has to live with this view for the long term. EPYC has demonstrated they are dismissing the local community that lives in this area.

We specifically designed our new house to have an entertainment area from where the view of the dam and surrounding valley can be seen. This includes sunsets to the west of our J234A. Figure 43 shows the uninterrupted view from this entertainment area without wind turbines.

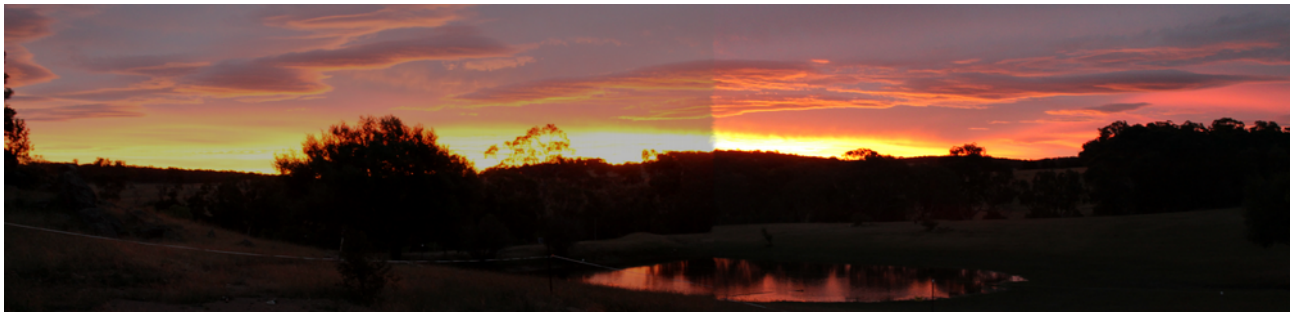

*Figure 43: Photo of sunset taken from J234A*

The sunset view was first integrated with the unmitigated photo montage from EPYC (note: Due to limitations of the camera in use, only a portion of this view has been integrated). Figure 44 contains the view of a sunset with the unmitigated wind turbines.

*Figure 44: Image of sunset integrated with unmitigated Jupiter Wind Farm*

EPYC were made aware during their site visit that the photos were taken from an entertainment area. The views above are also representative of the view from our master bedroom.

**1.7 Community Consultation**

The authors of Appendix F (Clouston Associates) have indicated they were unable to undertake community consultation, and they relied on "comprehensive community and stakeholder engagement program … managed by the Proponent". There is a clear disconnect between the authors and EPYC. As experienced professionals, Clouston Associates have been prevented by the proponent from ensuring a more holistic approach, and more targeted questions that could have informed their study.

### 3.1.1 Topography

The report highlights the Jupiter Wind Farm will be installed between a ridge to the east, a ridge to the west, and steep terrain to the south. Figure 3.1 in the report clearly shows the ridges surrounding the wind farm. Most wind farms are installed along ridges to take full advantage of the wind resources. Jupiter Wind Farm will be installed within a large valley area. This suggests EPYC are not taking full advantaged of the wind resources in this area. Also, EPYC have not demonstrated why this siting of the wind farm offers advantages over other locations along ridges in the region.

### 3.2.2 Assessment

The depiction of Landscape Character Zone 5 – Rural Development shows a dilapidated older farmhouse. This implies these zones on the maps are indicative of lower quality residential areas, and thus are not as important. There is no recognition in the report that there are a variety of rural residential / lifestyle developments ranging from older farm houses and sheds through to modern brick homes. Such a depiction would lead to a implicit bias in assessment of such zones.

The assessment of Rural Roads (Landscape Character Zone 1) and Main Roads (Landscape Character Zone 2) uses an arbitrary assessment of “lightly trafficked” and “moderately trafficked”. Data is collected on traffic volumes for these roads, and should have been used in this assessment. The report does not detail a definition of lightly or moderately trafficked roads.

### 3.3.1 Cumulative Landscape Impacts

Earlier in the report (Overall Rating for Landscape Character Zone 3 – Undulating Grassland), Clouston Associates highlight the Jupiter Wind Farm will become a prominent new element within the zone. Given the wind farm is located in predominantly undulating grassland (farming areas), the predominant impact will be the “prominent” wind farm. Yet Clouston Associates raise the issue that combined with Jupiter Wind Farm, other developments “it is important to determine whether the cumulative effect of wind farms and other major infrastructure … would combine to become the dominant landscape element”.

Given Clouston Associates have already determined Jupiter Wind Farm to be the prominent new element within the predominant zone of the wind farm, there is no need to determine the cumulative effect of wind farms. Clouston Associates have already highlighted Jupiter Wind Farm will in isolation be the dominant feature.

### Wire frame Images

The wire frame images used in the report by Clouston Associates mis-represent information. In some images, the wire frame turbine has been “rotated” such that the view is not perpendicular to the viewer. For example, Photo 4 (page 68, Appendix F, Part 1) actually shows two different rotations of the wire frame turbines (see Figure 45). Photo 8 in the visual impact analysis also shows the turbines rotated away from perpendicular.

*Figure 45: Wireframes from page 68, Appendix F, Part 1 - WTGs clearly not perpendicular to viewpoint*

**Private Receptors – Viewpoint 19 (Wireframe)**

Viewpoint 19 is associated with dwelling J234A and J234B. This viewpoint was used to assess the Expected Visual Impact Rating Pre and Post Mitigations. Table 24 compares the assessment given for this viewpoint to the actual ratings for the dwelling J234A. Using the viewpoint 19 clearly underestimates the magnitude associated with J234A. The methodology contained in section 4.7 was used to correct the assessment made by Clouston Associates for J234A.

| | | **Receptor 19 Assessment** | **Description** | **Comments** | **Corrected Assessment for J234A** | **Description** |
|---|---|---|---|---|---|---|
| Qualitative | Sensitivity | HIGH | Residential Property with Direct Views of Project | Agree – we will regularly use the entertainment area and the master bedroom. | HIGH | Residential Property with Direct Views of Project |
| Quantitative | Quantum of View | MOD | Project occupies a moderate proportion of the view frame | Incorrect – The wire frames can clearly be seen over the full width of the view frame. WTG4, 6 and 32 will also be visible. | HIGH | Project occupies the greater proportion of the view frame |
| | Distance of View | MOD | Viewing distance between 2km and 10km. | Incorrect – J234A has three turbines within 2kms. | HIGH | Viewing distance between 0 and 2km. |
| | Period of View | HIGH | Significant part of the day: usually residential property | Agree. WTG4, 6 and 32 will also be visible within the residence. | HIGH | Significant part of the day: usually residential property |
| | Magnitude of Change | MOD | Elements of the view would be at odds with existing features in the landscape. | Misleading. Clouston Associated clearly indicate the wind farm will clearly dominate the local landscape. | HIGH | Elements within the view would greatly dominate existing features in the landscape |

*Table 24: Receptor Identification 19 compared with J234A*

There is an obvious understatement of the Magnitude for the assessment of J234A (see Appendix A of Coulston Associates report). For example, they claim the residence J234A has a viewing distance between 2km and 10km (based on receptor viewpoint 19). This is factually incorrect. J234A has three turbines within 2kms.

Clouston Associates also highlight earlier in their report that these turbines dominate Zone 3 areas, yet they clearly under-rate the Magnitude of Change in their assessment of viewpoint 19, which was used to assess J234A in Appendix A of their report. While their report highlights viewing angles from viewpoint 19 will be less elevated and vegetation is more likely to partially filter views (section 4.8.2), they could hardly call the twenty (20+) or more wind turbine hubs visible from J234A as not dominating the view.

They also claim that landscape features to the north of J234A will block views of the turbines. However analysis (later in this chapter) identifies WTG 4, 6 and 32 will also be visible from our lounge room.

| | |
|---|---|
| HIGH | The Project becomes the dominant feature of the scene to which other elements become subordinate, significantly affecting and changing the visual character. |

*Table 25: Corrected overall impact assessment for J234A*

The report from Clouston Associates attempts to reduce the number of properties assessed as “HIGH” impact. It seems when they assessed properties along roads such as Roseview Road and Barnet Drive, they did not have a “VERY HIGH” option for the assessment. Thus, the description used in the assessment does not match assessments for properties with a MODERATE impact. Due to the limited timeframes for submissions, I am unable to review properties other than J234A/B.

However a cursory look at some other properties in the area identifies that a large portion of the assessment has been under rated. Their rating of the Magnitude of Change appears to be completely at odds with what is written in other parts of the document. Given they have incorrectly assessed the Distance of View for J234A, how many other properties have been incorrectly assessed in Annex A of their report? A more substantial assessment of Clouston Associates assessment is contained as a separate document in our submission to the Department.

> ***Recommendation 76:*** *Given the factual errors for Distance ratings in the visual assessment, under-rating of the Quantum of View and the Magnitude of Change, this project should be rejected.*

### 4.8.1 Representative Public Viewpoints

The report from Clouston Associates discusses the roads as being lightly trafficked and mostly used for accessing remote properties. Yet in their own report, they also highlight the large portion of this area that is within 60 minutes driving of central Canberra. The methods used to describe this region dismiss the local community as people living in a “remote area”. Less than 60 minutes driving from central Canberra can hardly be described as “remote”.

> ***Rejection 83:*** *This project should be rejected. The proponent (and associated report authors) has continually dismissed the local community as being remote when in actual fact the community is less than 60 minutes drive from the center of Canberra – the capital city of Australia.*

## 4.9 VISUAL IMPACT SUMMARY

Clouston Associates clearly identify a "worst case scenario" has been used in assessing a property that was not accessible for assessment. Despite a lack of access to J234A, they have still made mistakes that did not require access – there are 3 turbines within 2kms of J234A. Given such a basic mistake can be picked up within minutes of reading the report, the question of the accuracy of the visual assessment must be raised.

> ***Recommendation 77:*** *At the minimum, Clouston Associates should validate the data available for their report, and ensure updates are made before an assessment on the Jupiter Wind Farm proposal is made.*

## 4.12 NIGHTTIME LIGHTING

While this area is less than 60 minutes from Canberra, it has uninterrupted views of the stars. A small glow is visible on some nights from the Bungendore/Canberra direction, however this does not detract from the nighttime views. Additional lighting on the turbines during the night will add a small disruption to the nighttime views. Although radar activated lighting may seem like a good idea, this area is under a flight path in and out of Canberra. The radar would be activating the lighting continuously in the evenings while people are generally awake.

### Photomontage 32 (J234A)

Photomontage 32 was taken in March 2015. The tree in the center of this view is actually deciduous. This factor has not been taken into account by Clouston Associates in this photo montage. It raises the question as to how many other photo montages contain deciduous trees that are portions of the wind turbines within the montages. A quick review of the other photo montages identifies approximately 5-6 instances of photos likely to contain deciduous trees partially blocking the view.

In some cases, the deciduous trees are obvious from the foliage colour. These photos were clearly those taken in the June 2015 period. The fact the foliage colour is red in Photomontage 22 should have raised this aspect with Clouston Associates or EPYC. The fact the photos were not taken at a time when the full view was visible suggest the impact has been underrated on multiple photo montages.

*Figure 46: Deciduous tree clearly misrepresents true impact*

One noticeable aspect of Photomontage 32 is the lighter blue towards the horizon of these images. This gives the impression the wind farm is barely noticeable. When compared to photomontages such as those used on the first page of Appendix B to the Clouston Associates report (Appendix F of EPYC' submission), there is a very clear distinction. The first page shows the turbines clearly visible against a blue sky that is almost consistent down to the horizon. The photomontages presented by Clouston Associates are not representative of the real visual impact.

| **Image** | **Red-Top** | **Red-Hor** | **Green-Top** | **Green-Hor** | **Blue-Top** | **Blue-Hor** |
|---|---|---|---|---|---|---|
| Cover page, Appendix B to Appendix F of the EIS | 95 | 127 | 156 | 185 | 231 | 221 |
| Photomontage 32 | 77 | 142 | 143 | 206 | 236 | 254 |

*Table 26: Typical image colours used in the photomontages from EIS*

When the colours are adjusted to be a darker blue on the horizon, it is clear the turbines become a very clear and dominant feature of the landscape. Figure 47 contains an example of the adjusted image in which the turbines do not actually blend into a pale blue/white colour on the horizon.

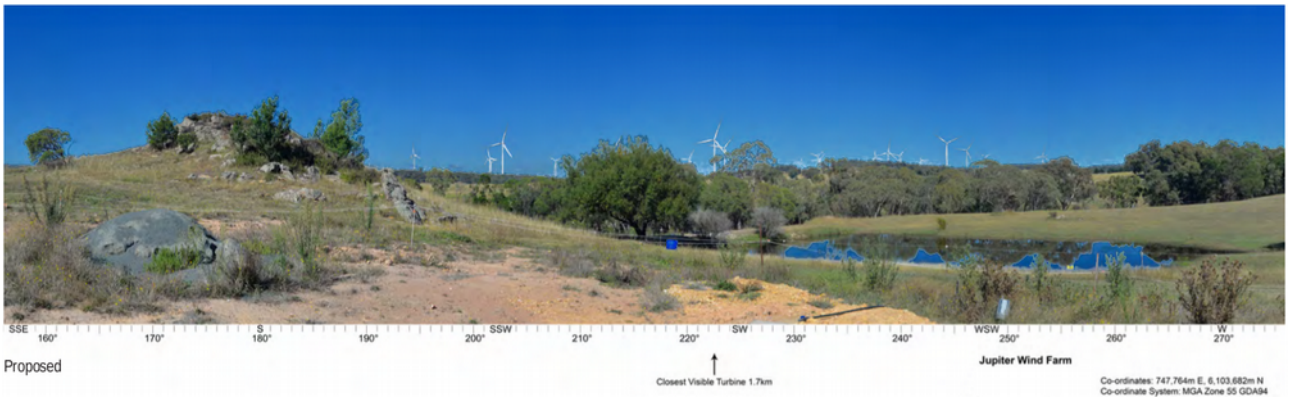


*Figure 47: Colour adjustment demonstrates deceptive nature of photomontages*

The proponent EPYC and Clouston Associates will likely argue this image is not representative of the view. Over a period of multiple days, photos were taken from Mount Fairy Road, approximately 1.7kms from existing wind turbines. Figure 48 contains a photo taken from approximately 5kms, and Figure 49 contains a photo taken from approximately 2kms away. Photos from an existing wind farm clearly show a distinction between the turbine itself and the sky.

*Figure 48: Photo taken approximately 5kms from Capital Wind Farm*

*Figure 49: Approximately 2kms from Capital Wind Farm – taken from Mount Fairy Road*

***Recommendation 78:*** *EPYC and Clouston Associates take photos in the middle of a winter's day from locations identified as having deciduous trees within the view.*

> ***Recommendation 79:*** *EPYC and Clouston Associates take photos at a time period which does not result in a deceptive image being produced and the wind turbines appearing to blend into the sky.*

It is also noticeable of the absence of wireframe representations in relation to J234A. Given the difference between the original photomontage and one with the colour adjusted, it suggests the impact of these turbines is being "under rated" by EPYC and Clouston Associates.

> ***Recommendation 80:*** *EPYC and Clouston Associates must provide wireframe representations from all private viewpoint locations and reassess the impact on all residences to accurately represent the actual visibility.*

**Image Resolution**

All of the photomontages in the submission are clearly marked to indicate they are best viewed when printed on A0/A1 paper at arms length. I do not know of any private individual who has a printer capable of this size of paper. Do EPYC expect us all to pay for professional printing of these images?

It should also be noted the images in the EIS do not actually scale up from the PDF provided by EPYC in their EIS submission (the existing EIS image resolution was 151x151 ppi). It was only after the release of the EIS that EPYC would provide photomontages at a higher resolution, however we had to request this specifically from EPYC. The availability of these higher resolution images was not advertised to the local community in any way.

*Figure 50: Deceptive nature of Low Resolution (right) vs. High Resolution (left) images provided by EPYC*

Figure 50 shows the deceptive nature of the images within the EIS available to the general public (on the right), and the high resolution image provided by EPYC (on the left). On the left you can clearly see three (3) wind turbines. On the right there appears to be only two (2) wind turbines.

> ***Recommendation 81:*** *EPYC must provide high resolution copies of each image relevant to each resident in electronic and paper based format. The paper based format must be size A0. Resolution of the images scaled to A0 must exceed 150 x 150 ppi.*

**Mitigation Photomontage 32**

The predominate mitigation measure appears to be screen planting. A review of the photomontage shows shrubs and trees being located around a dam, close to J234A. As highlighted to EPYC upon their site visit in March 2015, the height of the land drops rapidly from the viewpoint down to the dam, and drops significantly on the other side of the dam. Figure 51 shows the features of the suggested mitigation measures.

*Figure 51: Suggested mitigation measures for J234A*

We attempted to engage EPYC on multiple occasion to discuss alternatives to vegetation screening. It is obvious from this image that both EPYC and Clouston Associates do not understand the importance of farm dams to provide water supplies. By planting trees and shrubs so close to the dam and along the dam wall (left side of the image) the integrity of the dam will be reduced – that is the dam will fail to hold water[21].

| |
|---|
| **Do not let trees or shrubs grow on the embankment, spillway or spillway outlet slope.** Roots might disturb the compacted soil and provide a seepage path for water, while trees or shrubs in the spillway area will restrict the flow of flood water. |

*Figure 52: Recommendation from NSW Department of Primary Industries*

Figure 53 contains the only reasonable attempt EPYC made to discuss the issue of vegetation screening. Despite three emails, EPYC refused to discuss alternatives to vegetation screen. From the email response, they did not consider there were any impacts – despite the fact we highlighted some of the issues of vegetation screening.

| |
|---|
| **J234A/B:** We did briefly discuss the use of vegetation, however as highlighted the **land drops rapidly from the site** and as such the only suitable vegetation would need to be very large. This then **represents a fire hazard**, and **detracts from the scenic view** (a primary purpose for which the site was selected). **Could EPYC identify what alternatives there are to vegetation in relation to impact on visual amenity?** |
| **EPYC:** As for the visual impact, the consultants are in the process of preparing the photo montages. Once they are done we will review them to see if there are any impacts and if so we will contact you to discuss the best course of action forward. With respect to your new dwelling, we have asked the consultants to prepare the photo montages from your new dwelling. Similarly, we have the GPS coordinate of your new dwelling which is to be built and it will be considered for the noise assessments. **Should the results indicate an impact, we will contact you to discuss the best way forward.** |

*Figure 53: Extract of email to EPYC and response in relation to vegetation screening alternatives*

21 http://www.dpi.nsw.gov.au/__data/assets/pdf_file/0004/164038/leaking-dams.pdf

In addition, the trees are approximately 10m in height on the right of the image, ranging to over 20m on the left of the image (there is a significant drop-off behind the left ridge). Depending on the species of tree, and assuming suitable conditions, these trees would take at least 7-10 years to reach a height where mitigation might become viable. As an example, the trees in the creekline in the background of this image have taken approximate 20-30 years to reach their current height – and they do not cover any of the wind turbines.

Also, due to the high winds experienced on this property, trees selected need to have stronger trunks. Such a flimsy single line of trees would not last more than a couple of years in the Lower Boro area. This raises the obvious question as to if any of the trees would ever reach a height suitable to provide suitable mitigation.

If suitable screening was found, and if it did have time to grow to a sufficient height before high winds damage the trees, the screening would have to be thick enough to help withstand wind. This would then block the views associated with the entertainment area for J234A. One reason for the site selection for J234A construction was due to the natural views of the valley.

> ***Recommendation 82:*** *EPYC should identify alternative mitigation measures for J234A. Vegetation screening would damage farm dam integrity, leading to a loss of water. Vegetation screening is unlikely to ever reach a suitable height to achieve suitable mitigation.*
>
> ***Recommendation 83:*** *EPYC and Clouston must update the post mitigation impact assessment for J234A as vegetation screening is not suitable for this location.*
>
> ***Rejection 84:*** *EPYC has failed to take into account vegetation screening for J234A is not suitable despite being advised both in site visits and in emails by the owner.*
>
> ***Recommendation 84:*** *Vegetation screening will be maintained by EPYC. A minimum yearly review will be conducted on all vegetation screening.*
>
> ***Rejection 85:*** *EPYC clearly shows a misunderstanding of local wind conditions in relation to trees used for vegetation screening. Multiple layers of trees and bushes would be required.*
>
> ***Rejection 86:*** *EPYC does not have any ongoing plan for maintenance of vegetation screening including the replacement of trees that are damaged in high winds.*
>
> ***Rejection 87:*** *EPYC does not include any mention of compensation for the interim period between planting, and when vegetation screening will provide suitable coverage.*

**Protection of Vegetation Screening from Stock and Wildlife**

EPYC's submission clearly demonstrates a lack of knowledge about rural properties, and best practice in relation to things like wind breaks. Vegetation screening is effectively a wind break. Typically these should be protected from both stock and native wildlife (including rabbits, wombats and kangaroos). This means additional fencing around the vegetation screening. It also means a loss of grazing area.

A wind break is not simple an "install and forget" approach. In the first 3-5 years, wind breaks require regular maintenance, and more importantly a water supply to ensure the plants survive.

> ***Rejection 88:*** *EPYC does not include any plan for the fencing off of vegetation screening from livestock and wildlife.*
>
> ***Rejection 89:*** *EPYC does not include any basis for additional water supply and time for owners to provide water to the vegetation screening to ensure longer term survival.*

**Density of Vegetation Screening**

EPYC and Clouston Associates also state dense stands of trees / plantings would block the views (Figure 54). Yet every photomontage provided shows a single line of trees with a few bushes. This demonstrates the photomontages are not representative of the mitigated view. This is yet another example of the mismatch between what they claim, and what they show.

> **dense stands of tree planting**, windbreaks and garden plantings (associated with individual properties) block or filter many views towards the Project from habitable areas of dwellings

*Figure 54: EIS Annex F, Part 1, Page 7 - Clouston Associates definition for vegetation screening*

> ***Rejection 90:*** *EPYC and Clouston Associates have misrepresented vegetation screening as a single row of trees (in many cases), yet they claim the need for "dense stands of tree planting...".*
>
> ***Recommendation 85:*** *EPYC and Clouston Associated update all mitigation photomontages to show a "dense stand of tree planting, windbreaks or garden plantings".*

**Loss of Scenic View**

Approximately 25m south of J234A is a rocky knoll, which provides scenic views of the valley around our property. We quite often enjoy that view, including taking visitors there to see the view. The most noticeable aspect of visitors is the sigh they let out when they reach the top, and the relaxation they feel in that one moment. Figure 55 contains a panoramic photo taken from that location.

*Figure 55: Panoramic view taken approximately 25m from J234A*

When EPYC visited our site to take the photo from J234A and J234B, we requested a photomontage from the top of this rocky outcrop. No photo was taken, and thus we have no opportunity to see how this scenic view will now become overwhelmed by probably 60-70 wind turbine hubs that will be visible from this point (an estimate based on height of surrounding land).

Given EPYC would not even provide details of the photomontage for J234A before the release of the EIS, we have not attempted to engage them on this particular issue (there seems little point). However the loss of scenic view from this rocky knoll will impact on the ability to enjoy such an uninterrupted view, or for our visitors to relax and enjoy such a wonderful view.

***Recommendation 86:*** *EPYC to provide photomontage from the top of the rocky knoll approximately 25m to the south of J234A.*

**An Example of the Real Impact**

To examine the real impact on the scenic nature of this area, a basic photomontage of a sunset from J234A was prepared. Standard digital photographic equipment (Canon EOS 40D) and graphics editing software were used (we can not afford to pay consultants) to superimpose the wind turbines presented in EPYC's photomontages of J234A on a sunset from the same location.

Figure 56 and Figure 57 contain the original sunset view, and the superimposed wind farm image. The Jupiter Wind Farm clearly dominates the landscape and scenic view.

*Figure 56: Sunset view from J234A*

*Figure 57: Approximate sunset view with turbines from J234A*

The sunset view of J234A with turbines is representative of what our friends, neighbors and visitors will have to look at when we are entertaining at our new house. As highlighted, mitigation of this view is not reasonable due to the dam integrity and bushfire risk. And why would we block such a stunning view?

> ***Recommendation 87:*** *An offer to acquire the property related to J234A / J234B must be offered by EPYC.*

**Views of WTG4, WTG6 and WTG32**

According to the Landscape and Visual Impact Assessment for the proposed Jupiter Wind Farm, "Topography blocks views north" in relation to J234A. EPYC and Clouston Associates imply that WTGs to the north of the residence will not be visible. (Note: A large windbreak of pine trees will partially block this view, however due to the age of the trees, this windbreak will be replaced with smaller and native trees in the next 2-3 years).

Using Google Earth, WTG4, WTG6 and WTG32 were plotted on a map (Figure 58). Paths were then plotted from J234A to each of these WTGs, and a terrain profile was developed (Figure 59). From the terrain profile, peaks in the terrain were identified, and basic high school trigonometry was applied to check angles to see if the WTGs would be visible. An additional 7m was added to each terrain peak to account for trees that might obscure the view.


*Figure 58: Google Earth image showing J234A to WTGs 4, 6 and 32*

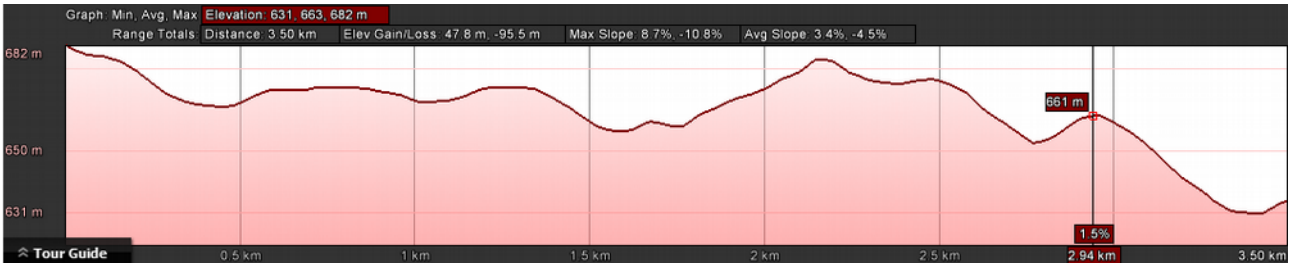


*Figure 59: Profile of path from J234A to WTG4 (Source: Google Earth)*

Table 27, Table 28 and Table 29 contain the results of the calculations. Basically if the angle of an obstruction exceeds the angle to the tip of the WTG, it will not be visible. Using these angles we can calculate how much of the WTG will be visible based on the maximum angle of obstructions.

| | Height | Distance | Height Above Orig | Angle | Visibility |
|---|---|---|---|---|---|
| **J234A** | 634 | 0 | | | |
| **Ob1** | 666 | 540 | 32 | 3.3913 | |
| **Ob2** | 677 | 1010 | 43 | 2.4379 | |
| **Ob3** | 683 | 1330 | 49 | 2.1099 | |
| **WTG4** | 680 | 3470 | 46 | 0.7595 | |
| **Narcel** | 790 | 3470 | 156 | 2.5741 | |
| **Tip** | 853 | 3470 | 219 | 3.6113 | |
| **Height Visible** | | 3470 | 205.63 | 3.3913 | 13.37037037 |

*Table 27: Visibility of WTG4 from J234A*

| | Height | Distance | Height Above Orig | Angle | Visibility |
|---|---|---|---|---|---|
| **J234A** | 634 | 0 | | | |
| **Ob1** | 667 | 454 | 33 | 4.1574 | |
| **Ob2** | 685 | 959 | 51 | 3.0441 | |
| **WTG6** | 690 | 3053 | 56 | 1.0508 | |
| **Narcel** | 800 | 3053 | 166 | 3.1123 | |
| **Tip** | 863 | 3053 | 229 | 4.2896 | |
| **Height Visible** | | 3053 | 221.914 | 4.1574 | 7.0859030837 |

*Table 28: Visibility of WTG6 from J234A*

| | Height | Distance | Height Above Orig | Angle | Visibility |
|---|---|---|---|---|---|
| **J234A** | 634 | 0 | | | |
| **Ob1** | 669 | 482 | 35 | 4.1532 | |
| **Ob2** | 688 | 1160 | 54 | 2.6653 | |
| **WTG32** | 680 | 2501 | 46 | 1.0537 | |
| **Narcel** | 790 | 2501 | 156 | 3.5692 | |
| **Tip** | 853 | 2501 | 219 | 5.0043 | |
| **Height Visible** | | 2501 | 181.608 | 4.1532 | 37.392116183 |

*Table 29: Visibility of WTG32 from J234A*

Based on these calculations, at the very least the blade movements for WTG4, WTG6 and WTG32 will be visible from J234A. In fact, if it were not for the additional 7m to account for trees added to these calculations, the narcel for WTG32 would also be visible from J234A.

> ***Rejection 91:*** *The Jupiter Wind Farm must be rejected. EPYC claim views to the north of J234A are obstructed and WTGs will not be visible from this location. However analysis demonstrates approximately 13m of WTG4, 7m of WTG6 and 37m of WTG32 will be visible from the property.*

J234A also has uninterrupted views of Mount Coghill (Figure 60), approximately 1.4km to the North East of the residence at a altitude of approximately 809m. Table 30 compares WTG4, WTG6 and WTG32 to Mount Coghill. All three of these turbines are within close proximity to Mount Coghill (2-3kms).

*Figure 60: View of Mount Coghill from verandah of J234A*

| | **Altitude (m)** | **Delta (m)** |
|---|---|---|
| Mount Coghil | 809m | |
| WTG4 Narcel | 790m | - 19m |
| WTG4 Tip | 853m | + 44m |
| WTG6 Narcel | 800m | - 9m |
| WTG6 Tip | 863m | + 54m |
| WTG32 Narcel | 790m | - 19m |
| WTG32 Tip | 853m | + 44m |

*Table 30: Comparison of WTG4, WTG6 and WTG32 in relation to Mount Coghill*

These WTGs are described as dominating the landscape by Clouston Associates. However Table 30 goes to show how much these turbines will dominate even the highest point in this area – Mount Coghill. The blades of all three turbines will reach at least 44 meters higher than Mount Coghill. The narcels of all three turbines will be almost level with Mount Coghill.

Given the turbine movement, these WTGs will completely dominate even the highest point in this landscape. The human eye is drawn to movement. Rather than views of relaxing landscapes, the views of surround properties (including J234A) will be drawn to WTGs that reach heights even higher than Mount Coghill.

***Rejection 92:*** *The Jupiter Wind Farm proposal must be rejected. Not only do the WTGs dominate the surrounding farmland, they dominate landscape features such as Mount Coghill with at least 44m of WTG4, WTG6 and WTG32 visible above the mountain. All three narcels will also be almost level with the top of the mountain.*

***Recommendation 88:*** *WTGs 4, 6 and 32 must be removed from the Jupiter Wind Farm proposal. Their close proximity and dominance over Mount Coghill will detract from the scenic nature of this landscape feature.*

**Analysis Based on NSW Draft Framework**

Further analysis was carried out using the NSW Draft Windfarm Framework. A more detailed analysis on all properties has been provided as a separate document with this submission. While the analysis is on the number of turbines as opposed to the number of visible turbines, it provides some indication of the impact this windfarm will have on J234A in particular.

Figure 61 contains a summary of the directions of 74 turbines within 8kms of J234A. Within 2kms, around 120 degrees of the view will be taken up. Within 4kms, 240 degrees will be taken up with a view of turbines. Although not all of these turbines will be visible from the same location on the property, as we move around the property the turbines will be a dominant feature of the surrounding landscape.

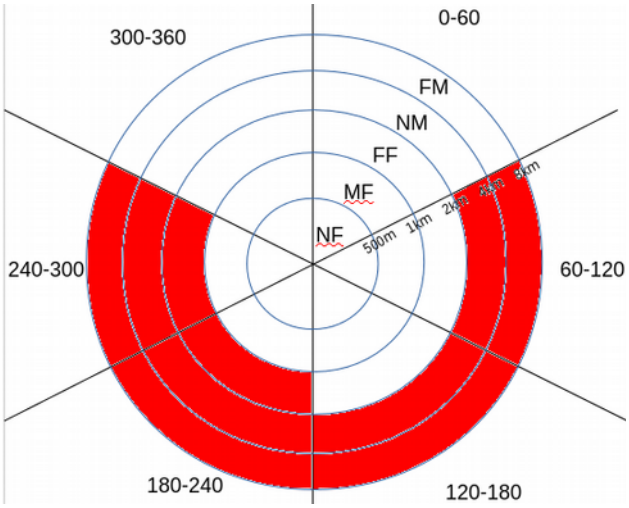


*Figure 61: Directions of turbines within 8kms from J234A*

Figure 62 is based on the draft Framework. Based on a Level 2 Sensitivity (Moderate) for Rural Residences, and a Moderate scenic quality, within 2300m of J234A we have 5 WTGs. Within 3450m of J234A we have 21 WTGs. These distances were selected based on Table 8 of the draft framework based on the green and black lines.

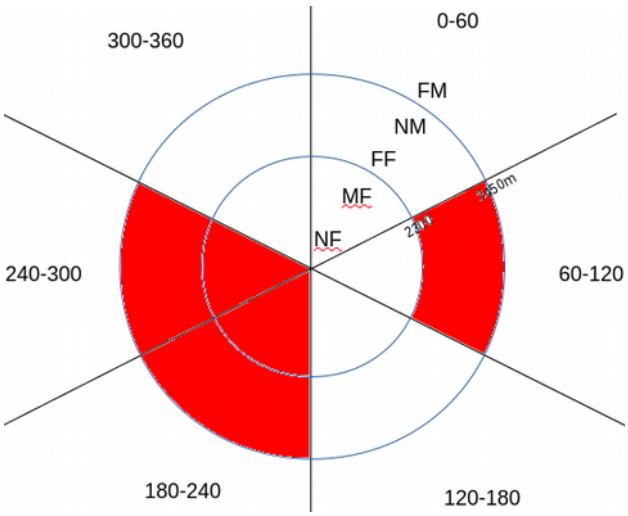


*Figure 62: Turbines based on distances of 2300m and 3450m from J234A*

Based on this assessment, the objectives identified for a VIZ2 result are listed in Table 31. A comparison against these objectives and the Jupiter Wind Farm proposal is also included, as well as recommendations for the proposal.

| FVIA Factor | Objective (VIZ2) | Comments | Implications |
|---|---|---|---|
| 1. Visual Magnitude | Apply impact mitigation and / or provide detailed justification of turbines below the black line. | Five WTGs are below the black line (within 2300m). No detailed justification provided. Impact mitigation completely unsuitable. | Remove WTGs: 20, 54, 72, 82 and 83. |
| | Consider screening between the green line and black line | Sixteen WTGs are between the green and black lines (2300m – 3450m). Impact mitigation completely unsuitable. | Reduce size, move or remove WTGs within 3450m of J234A so they are either no longer intrusive or no longer visible using existing landscape. |
| 2. Landscape Scenic Integrity | Wind turbines should not cause significant modification of the visual catchment and avoid isolated impacts. | Clouston Associates describe the WTGs as dominating the landscape. | Reject the project |
| | Turbines may be visually apparent and could become a major element in the landscape but should not dominate the existing visual catchment. | Three WTGs dominate Mount Coghill, a major element of the landscape. | Remove WTGs: 4, 6 and 32 |
| 3. Key Feature Disruption | Minimise placement of wind turbines or ancillary facilities that result in the removal or visual alteration/disruption of identified key landscape features. This includes any major or visually significant landform, waterform, vegetation or cultural features that have visual prominence or are focal points. | Three WTGs dominate Mount Coghill, a major element of the landscape. | Remove WTGs: 4, 6 and 32 |
| 4. Multiple Wind Turbine Effects | Avoid views to the proposed, existing and approved turbines within 8km from Level 1, Level 2 or Level 3 Viewpoints, exceeding the following threshold, or provide detailed justification: Level 2 (Moderate Sensitivity) – Wind turbines visible within the effective horizontal views in three or more 60 degree sectors. | Views from J234A will have turbines visible within at least three sectors, and depending on the viewpoint, may be visible in four sectors. | Reduce number of WTGs within 3450m of J234A and J234B. Removal for WTGs 4, 6, 32 and 20, 54, 72, 82 and 83, and some other WTGs may reduce this impact. |

*Table 31: Comparison of Jupiter Wind Farm against Objectives in NSW Draft Wind farm Framework*

***Rejection 93:*** *The Jupiter Wind Farm proposal must be rejected. There are a significant number of WTGs within close proximity to multiple residences that would exceed allowances within the draft NSW Wind Farm Framework.*

***Recommendation 89:*** *WTGs 20, 54, 72, 82 and 83 as well as 4, 6 and 32 must be removed from the Jupiter Wind Farm proposal. These turbines present a significant visual influence on J234A and Mount Coghill.*

**Alternative Options Not Identified**

The author of the Landscape and Visual Impact Assessment claims the remit of the report was to identify options in relation to impacted properties (CCC minutes, 13 December 2016). However there is absolutely no mention in any of the report about reducing the height of the turbines, or removing turbines in close proximity to some dwellings. These options are identified by the Department in the latest draft framework as preferable to vegetation screening.

> ***Rejection 94:*** *The Jupiter Wind Farm proposal must be rejected. The visual impact analysis completely ignores valid options such as the reduction in the height of turbines, or removal of turbines in high impact situations.*

# Annex G – Heritage Assessment

We have no comments on this Annex in relation to J234A and J234B.

# ANNEX H – TRANSPORT ASSESSMENT

This section considers the Transport Assessment for the proposed Jupiter Wind Farm conducted by GTA Consultants (Appendix H of the EPYC EIS submission). There are two significant issues. The first is a complete disregard for the impact and risks related to the control building and traffic on Lower Boro Road. The second is the complete disregard for the safety of children and the omission of well know school bus routes.

### 2.2.1 Adjoining Roads

The assessment of Lower Boro Road is (like many things in the EIS submission) somewhat different from the actual state of the road. The report by GTA Consultants considers Lower Boro Road as a "two-way unsealed carriageway". This gives the impression of a road with suitable width for two vehicles to pass without difficulty. Previous descriptions of other roads in the same report discuss the width of the road, yet they omit the fact that Lower Boro Road is for the most part barely wide enough for one and a half vehicles to pass comfortably.

When viewing the images provided by GTA Consultants (EIS Figure 2.7 and 2.8), it is clear there there are two predominant wheel tracks in each image – showing the limited width even on one of the better parts of the road. This sort of assessment, or "glossing over the facts" demonstrates the local community is not considered important by the proponent or GTA Consultants.

> ***Rejection 95:*** *The Jupiter Wind Farm should be rejected due to the lack of community consultation and consideration of actual local impacts.*

### 2.2.4 Traffic Volumes

The traffic volumes provided by GTA Consultants is two years out of date. There are significant changes in the area, including the use of the Braidwood / Goulburn Road for logging trucks transporting logs to Goulburn. In addition, the sample size used for data collection is far too small to provide accurate information. Roads and Maritime Services as well as local councils regularly collect traffic volume data from all roads in the region. This data is collected over a much larger time period, and over a period of time can show growth patterns in traffic.

GTA Consultants and EPYC have chosen to ignore access to accurate data. If they had used such data, they could also have provided growth patterns for the region in their report. Vehicle traffic volumes are definitely collected at the top of Lower Boro Road. There is no excuse not to have this data available in their analysis.

> ***Recommendation 90:*** *EPYC and GTA Consultants must update their report with accurate data for all reports based on data collected over a period of more than one week.*
>
> ***Recommendation 91:*** *EPYC and GTA Consultants must provide forward predictions in traffic volumes over the five year period from 2017 onwards.*
>
> ***Recommendation 92:*** *EPYC and GTA Consultants must update their five year predictive analysis every year and report to the local community until all turbines are operational.*

**2.4 School Bus Routes**

The report by GTA Consultants is highly inaccurate in relation to school buses operating in the vicinity of the project area. They claim a single school bus service operates between Goulburn and Lake Bathurst. While this school bus service may operate, they have not identified the following other bus services operating in the immediate area:

- Culmone's Buslines (located in Braidwood);
- Braidwood Busses;
- DM & RE Howarth (Tarago); and
- Stevens Charter Service.

This information was obtained by talking (i.e. consulting) to other local community members – all within 5kms of the proposed Jupiter Wind Farm. The Culmone's service also allows paying (non-school) customers and has five pickup/setdown locations on the Goulburn-Braidwood Road. All of these bus stops are on the route planned to be used for transporting heavy equipment and WTG components.

EPYC and their consultants have completely dismissed the local community. If they had spent any significant time in this area (such as a whole day in Tarago from 7am to 7pm), they would have noticed the school buses arriving and departing from Tarago Primary School and the bus stop just to the south of the service station. They would have noticed the children at the bus stop in Tarago waiting for the busses to take them to the high schools Goulburn. At the very least, EPYC or GTA Consultants should have asked the following simple two questions:

- Where are the nearest high schools and how do the students get there?
- How do students get to Tarago Primary School?

On most weekday mornings I drive through the Lower Boro Road / Mount Fairy Road and Goulburn / Braidwood Road intersection. On many occasions I will pass parents parked at this intersection, waiting for the school bus. Did EPYC and GTA Consultants not spend enough time in the area to notice this? Anecdotal evidence suggests EPYC were informed of these bus services by affected residents, and that EPYC never responded to the issue.

> ***Recommendation 93:*** *EPYC and GTA Consultants to conduct detailed analysis and identification of all bus routes in the project area. The Transport assessment must be updated to reflect the significant risk to local school children.*
>
> ***Rejection 96:*** *The Jupiter Wind Farm proposal should be rejected due to the lack of community consultation and factual errors in relation to school bus routes.*

**Lower Boro Road**

The focus of the Transport report is on the construction of the wind farm. The Operational Phase rates as a two small paragraphs (4.2.2 and 4.4.2) simply stating 32 full-time equivalent positions. They claim the additional traffic generated during the operational phase "could not be expected to compromise the safety or function of the surrounding road network".

EPYC and GTA Consultants dismiss the fact that the additional 64 vehicles per day (32 FTE x 2) will be against the normal flow of traffic, particularly on Lower Boro Road. While these operational staff will be driving down Lower Boro Road during the peak periods, a large number of local residents will be commuting to work (including Canberra). As highlighted, Lower Boro Road is barely wide enough for one and a half vehicles in many places, and has some blind corners prior to the proposed control facilities. Peak traffic for the control facility during operations will also align with periods when school children are waiting at the top of Lower Boro Road.

Once more the local community is dismissed as not important enough to rate a mention in the report. The safety of our children is not even considered. The safety of their parents going to work does not even rate a mention.

> ***Rejection 97:*** *The Jupiter Wind Farm is rejected due to lack of consideration of the local community and the increased risk to the local community including children going to school, and parents going to work.*

**Intersection of Lower Boro Road and Goulburn / Braidwood Road**

Every resident of Lower Boro Road is aware of the dangers associated with the intersection with the Goulburn Braidwood Road. It is a 100km/h zone. On the northern side the road dips and vehicles are not visible for a short period of time prior to passing the intersection. There are no turning lanes onto Lower Boro Road. Turning onto Boro Road is a risk regardless of direction (North, South, or from Mount Fairy Road). An increase of 32 full time employees, many of whom will turn at this intersection, will significantly increase the risk to all drivers.

The transport report completely ignores this increased risk as a result of operational traffic. This is a risk to both operators and the local community. EPYC appear only concerned with being able to get the project constructed.

> ***Recommendation 94:*** *EPYC must ensure the intersection of Lower Boro Road, Mount Fairy Road and the Goulburn / Braidwood Road is upgraded to include suitable turning lanes and slip lanes due to the increased number of vehicles expected daily at this intersection.*

> ***Rejection 98:*** *The Jupiter Wind Farm proposal should be rejected. It does not adequately address the safety of the local community and operational vehicles turning onto Lower Boro Road.*

**Maintenance of Lower Boro Road**

Another obvious omission from the GTA Consultants report is in relation to the increased traffic on Lower Boro Road for approximate 3.5kms from the Goulburn / Braidwood Road to the control center. They estimate an additional 32 full-time equivalent staff, which will equate to at least 64 additional vehicles per day on the first 3.5kms of Lower Boro Road. As a dirt road, this will degrade the road much faster, particularly in wet conditions. Lower Boro Road can have dangerous sections in wet conditions, and the additional traffic will increase the damage to these sections. This will result in an increased danger to not just operators, but also the local community.

On 12 June 2014, we suggested to EPYC that Lower Boro Road should be upgraded to tarmac (Figure 63). EPYC never responded to this suggestion – another indicator the local community was not considered in this submission. The suggestion was originally made in the context of land values, and we also took into account the cost of undertaking such work in what we proposed.

> This would be done through payments made to Palerang council. It would be unrealistic to seal the entire road in one year, and as such the following is suggested:
>
> Year 1 - **seal Boro Road from Braidwood road for 4 kms. Given the possible facilities that may be installed approximately 3kms down Boro Road, this would also improve the safety of Boro Road residents due to increased traffic.**
>
> Year 2 - re-alignment work for 4km-8kms. This may already be required when installing turbines.
>
> Year 3 - sealing of Boro Road from 4kms-8kms.
>
> Year 4 - re-alignment work for 8kms to the end of the road.
>
> Year 5 - sealing of Boro Road from 8kms to the end of the road.

*Figure 63: Suggestion sent to EPYC to seal Lower Boro Road*

In addition to this omission, there is no mention of funding for ongoing maintenance of Lower Boro Road for the life of the project. Do EPYC expect local council to pay for the on-going maintenance of the road with an additional 64 vehicles per day? The local community pays rates on a yearly basis, part of which is to ensure ongoing maintenance of the local road infrastructure.

> ***Recommendation 95:*** *EPYC must ensure Lower Boro Road is upgraded to a dual lane sealed road for the safety of the local community and operators of the Jupiter Wind Farm.*
>
> ***Recommendation 96:*** *EPYC must provide QPRC with additional funding every year to pay for suitable quarterly maintenance to be conducted on Lower Boro Road and the intersection of Lower Boro Road with the Goulburn / Braidwood Road.*
>
> ***Recommendation 97:*** *EPYC must explain why a legitimate suggestion by the local community (the upgrade of the first 4kms of Lower Boro Road) was not identified in their report. EPYC must explain why this suggestion was dismissed in their submission.*
>
> ***Rejection 99:*** *The Jupiter Wind Farm should be rejected on the basis they failed to take into consideration the operational impact of the wind farm on Lower Boro Road.*

**Tarago Intersection with Goulburn / Braidwood Road**

Since the GTA Consultants report was written (two years ago), there has been a significant increase in traffic between Bungendore through Tarago and down to the coast (Nowra). This is due to the completed road works over the Shoalhaven River including an upgraded bridge. The increase in traffic has been noticeable in Tarago due to the number of “near misses” at the main intersection in Tarago. In many cases these near misses are due to drivers “ducking across” the Goulburn / Braidwood Road.

EPYC and GTA Consultants have not identified this risk in their report, or how it will be mitigated during the construction phase in particular. It shows a lack of interest in the local community. The Tarago Times is available online, and if EPYC had taken any interest in the local community, they would have made an effort to read the information in this valuable part of the community.

> ***Recommendation 98:*** *EPYC and GTA Consultants to update their report to indicate they have taken into account the increased risks at the main intersection in Tarago.*

**Risk Assessment, or Report on How They Will Construct the Jupiter Wind Farm?**

The report by GTA Consultants claims to assess the impact of the proposed Jupiter Wind Farm. A proper risk analysis has not been conducted in this report. There has been no consideration of the risks (Lower Boro Road will be degraded due to the increase in operational traffic), the likelihood of such a risk and the consequence (impact as referred to by GTA Consultants). A proper risk assessment undertaken by EPYC and GTA Consultants, including workshops with the local community would have identified many of the deficiencies in the GTA Consultants report, and other possible deficiencies.

EPYC and GTA Consultants appear more concerned about how they will safely transport the wind turbines to the proposed site. The local community is little more than something to bypass and ignore. The safety of their own operators is also ignored. This also raises the question of if EPYC understand workplace health and safety.

> ***Rejection 100:*** *The Jupiter Wind Farm proposal be rejected. The Transport Assessment contains outdated data, does not undertake a risk assessment, and omits any consideration of the local community including the safety of their children and parents.*

# Annex I – Water and Hydrology Assessment

We have no significant issues in relation to the Water and Hydrology Assessment.

## Annex J – Aeronautical Assessment

We have no comments in relation to the Aeronautical Assessment. However relevant comments can be found in our submission in relation to aerial fire fighting in Annex N – Bushfire Risk and Hazard AssessmentAnnex N – Bushfire Risk and Hazard Assessment and Annex N – Bushfires in the Real World (Part 1).

# Annex K – EMI and EMF Assessment

This chapter reviews the EMI and EMF Assessment in relation to J234A and J234B.

**Background – Internet**

I am employed in the ICT industry, and am sometimes required to work from home and thus require an Internet connection. Working from home through virtual desktops requires reasonable bandwidth with low latency. High latency connections result in a “lag” - you might type a letter, and rather than appear there is a pause before it appears on the screen. Additionally, I have my own online business, which also requires low latency. The business also requires high bandwidth.

We have used satellite Internet connections in the past, and the latency (even the newer NBN Satellite services) is too slow to either work from home, or conduct business related activities. Approximately three years ago we switch to using a 3G Internet connection with an external antenna pointed at the North Manar tower. Approximately one year ago (after our service provider upgraded their tower) we switched to a 4G connection using the same tower and an external antenna (Figure 64).

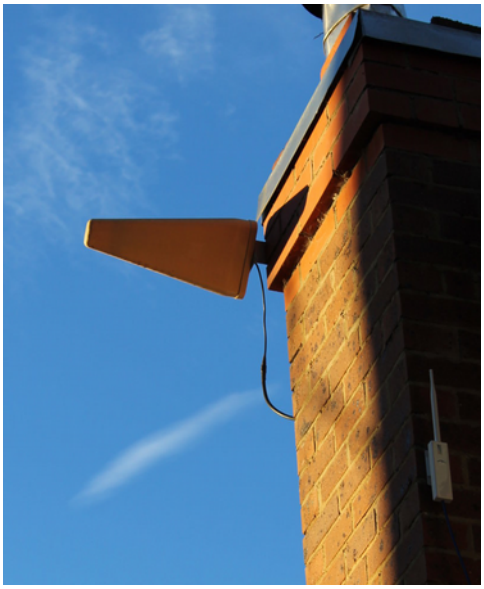

*Figure 64: External antenna used for 4G Internet connection from J234A/B*

Reception can be marginal – typically in very wet conditions, however 99% of the time reception is more than adequate to support both working from home, and my business. We utilise the North Manar tower as it has proved to provide the best reception. We have trialed Braidwood and found the signal to frequently drop out. It is not possible for us to use Tarago due to being in the shadow of the large ridgeline to the north of our property.

**Background – Mobile Phones**

Having lived in this area for almost ten years, I have gone from CDMA to 2G/3G and eventually to 4G mobile phone technology. Under CDMA we had reception over our entire property without any difficulty. Despite promises the “newer” technologies would not leave us worse off, we were left worse off (despite lodging a complaint).

Today, mobile phone coverage remains marginal on our property. There are approximately three locations where we can sometimes make phone calls. Our mobile phones can only be left in two locations in the house where reception comes and goes such that we might receive text messages. Most of our coverage originates from the North Manar tower.

We live in a marginal area for mobile phone reception.

**4.11 Mobile Phones**

We have found the coverage maps provided by Telstra, Optus and Vodaphone are generally optimistic (for 2G, 3G and 4G). In the last three years we have had a substantial number of contractors involved in constructing our new house. Many of those contractors were unable to receive mobile signals at J234A. Several also had external antenna’s on their vehicles, and were still unable to receive mobile phone signals.

Our experience is the North Mannar tower provides the best reception, however even with an external antenna, this coverage can be marginal during wet conditions. Figure 65 shows the 4G communications path from J234A and J234B to the North Manar tower. Given areas of marginal reception may be affected, we are likely to be affected.

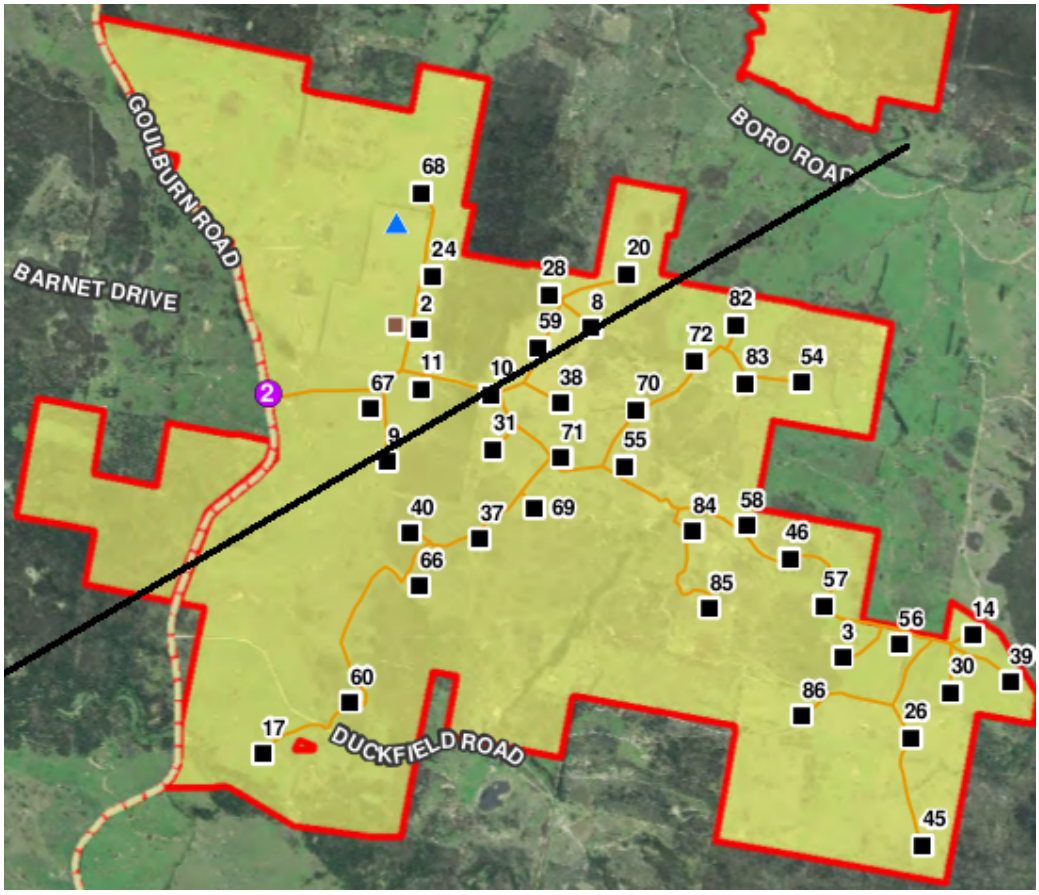


*Figure 65: Black line shows 4G communications link we rely on for Internet access*

We recently tried to engage EPYC to discuss vegetation screening, however they have refused to negotiate anything. As such we have made no attempt to discuss this problem with them – they can not even negotiate on something as simple as vegetation screening.

The suggested mitigation measures are unsuitable. We are already using an external antenna. Moving a fixed external antenna to a new location every time the signal is affected is simply not feasible. Despite their own EIS, EPYC highlight in their 7th Newsletter that mobile phone reception is a significant issue in the area (from their own experience). J234A and J234B are within that marginal reception area. EPYC will not even engage on something simple like vegetation screening, photomontages or benefit sharing. What is their likely response when we highlight the impact on my ability to earn a living?

> ***Recommendation 99:*** *EPYC must ensure a third party provider can supply low latency Internet connections at the same or lower cost that that currently being provided for J234A / J234B.*
> ***Recommendation 100:*** *EPYC must ensure any users of mobile Internet based connections are not adversely affected due to marginal reception issues in the region. This includes additional out of pocket costs to upgrade antenna's, or on-going costs of Internet connections as a result of selecting a provider that costs more than existing connections available.*

### 4.15 Terrestrial television broadcasting

EPYC claim that digital signals are more robust. However we used to be able to receive analog signals, and although they would have some artifacts, they did not drop out. At the changeover to Digital television, the weak signal from Canberra continually interrupted viewing. This included with a new antenna more suitable for DTV, and correct installation of that antenna. At the range we are from Canberra, the signal is often interrupted and stutters.

While we are affected from Canberra and Braidwood, EPYC seem to think we would have no problem received DTV signal from Wollongong – Did they not see Mount Coghill to our north? J234A/J234B are unable to receive a suitable signal from Wollongong due to being in the shadow of Mount Coghill, as such this does not provide a suitable alternative should we wish to try digital terrestrial television broadcasting.

### 4.15.5 Mitigation options

The supposed simple mitigation suggested by DNV GL and EPYC are inappropriate for our location. If we have to upgrade the external antenna, who pays for the new antenna? The original antenna selection required detailed analysis by professionals to identify the optimum selection. Who will pay for that service? If the wrong antenna is selected, who pays for the next antenna until a suitable solution is found?

> ***Recommendation 101:*** *EPYC must pay for professional upgrades to communications equipment including television antennas and Internet antennas.*

### Alternative Solution Already Suggested

We have already suggested to EPYC alternative solutions to this problem. When EPYC first visited our site, we raised the issue of mobile phone coverage, and they agreed that coverage along Lower Boro Road was intermittent at best. We highlighted this in several emails since March 2015. I also highlighted a submission by the residents of Lower Boro Road to the Federal Department of Communications and the Arts Mobile Blackspot program.

On 8 February 2016, EPYC indicated in an email they wanted assistance to talk about the Blackspot program (Figure 66) which we had previously provided them details. I provided EPYC with relevant details on the program which EPYC could have pursued (Figure 67), including the possible need to submit and FOI request with the Department of Communications. However our Internet communications had been sorted out with an external antenna, and we no longer were interested in pursuing the matter in relation to Internet connections.

> Just briefly, the matter we wanted to discuss previously was related to the potential for optimization of communication services in the area. Knowing that you were involved / interested in putting an application to the state for funding, we wanted to see if we could assist or perhaps collaborate as part of the community enhancement program that we could assist with should the project goes ahead.

*Figure 66: Email received from EPYC on 8 February 2016 requesting assistance*

> In terms of local communications issues, this is no longer a concern for me, as we (and many of our neighbours) have found an alternative solution that works. However should EPYC remain interested in pursuing the installation of a telecommunications repeater station in the area, the information on the submission from the local residents is available from the Federal Department of Communications - conduct a search of their website for the "Mobile Black Spot" program. You will likely need to submit a FOI request to obtain the submission.

*Figure 67: Extract of email sent to EPYC on 9 February 2016*

EPYC's EIS submission only eludes to the issue in a CCC meeting from March 2016. They do not highlight what steps they took to communicate with the Department of Communications and the Arts. They do not identify why this suggestion was dismissed. EPYC has no interest in supporting the modern communication needs of the local community.

> ***Recommendation 102:*** *EPYC must provide funding to Telstra and Optus to establish a 4G mobile communications tower (with a high speed / low latency link in the telecommunications backbone) within six (6) months of the project approval. This tower must be operational within twelve (12) months of the project approval.*

At the time of writing this report, EPYC released Newsletter 7. In this newsletter they suddenly claim they are in communications with a telecommunications provider in relation to mobile phone reception in the area. And that they have been undertaking this activity since the March 2016 CCC. Yet EPYC's EIS and analysis of EMF/EMI makes no mention of this possibility. EPYC's sudden "interest" in this issue raises a question of why they ignored it for so long?

> ***Rejection 101:*** *The Jupiter Wind Farm should be rejected. EPYC only take an interest in the local community when it suits their needs. There is no genuine consultation.*

**Another Alternative Solution**

EPYC could have done a significant amount of work to provide modern, high speed broadband wireless communications to the local affected community. Deploying a fibre-optic communications network over the project area provides an opportunity to roll out high speed wireless Internet for hundreds of rural residential / lifestyle people (and likely over a much broader area than just within 5kms of the proposed Jupiter Wind Farm).

The approach by EPYC seems to be to spend the least amount of money on the project possible and avoid costs where possible. As such it shows EPYC have no community spirit for the local community – and they show no intent to support the local community other than minor token gestures.

> ***Recommendation 103:*** *EPYC must engage with NBN Co to enable a third party provider to roll out high speed wireless Internet to the local community. This network must utilise the fibre optic network being rolled out over the project area.*

This sort of approach is a proactive way EPYC could have engaged with the community. But never did.

> ***Rejection 102:*** *The Jupiter Wind Farm should be rejected. EPYC show a complete lack of interest in engaging the local community and being an active member of the local community – helping and assisting them in their needs.*

**Discrepancies in EPYC's Claims on Mobile Phone Reception**

EPYC's newsletter number 7 claims one of the main issues raised by the community was the lack of mobile phone communications, particularly as a safety issue. They identify the potential for improvement options discussed at the 6th CCC on 2 March 2016.

> One of the main issues that was discussed with EPYC during our consultations with the community has been the lack of mobile reception in the area. **Something that we have experienced first hand during our frequent visits.**

*Figure 68: Extract from page 2 of EPYC's 7th Newsletter, December 2016*

However EPYC's own EIS makes no reference to this issue in relation to telecommunications. In fact they highlight mobile phone signals are not susceptible to interference from WTGs and large scale interference is unlikely due to the nearest tower being 5kms from the project area.

> In general, mobile phone signals are not susceptible to interference from WTGs. A review of mobile phone towers in the vicinity of the Project indicated that the nearest tower is located approximately 5 km from the PA and **therefore large scale interference to mobile phone signals is unlikely.**

*Figure 69: Assessment from EPYC and ERM in relation to Mobile Phones*

Is mobile phone reception an issue or not according to EPYC? Their EIS implies it is not an issue. Their newsletter states they have experienced the issues with coverage first hand.

> ***Rejection 103:*** *The Jupiter Wind Farm proposal must be rejected. EPYC have communicated two opposite positions on the same issue (mobile phone reception), and cannot be relied upon to present accurate information in their EIS.*

## Annex L – Shadow Flicker and Blade Strike Assessment

We have no comments on this Annex in relation to J234A / J234B.

# Annex M – Blade Throw Assessment

We have no comments on this Annex in relation to J234A and J234B.

# ANNEX N – BUSHFIRE RISK AND HAZARD ASSESSMENT

Although this chapter was initially limited to a few issues, it was significantly expanded due to a recent bushfire in the exact vicinity of the proposed Jupiter Wind Farm.

### 1.2 Location

As with many other parts of the Jupiter Wind Farm EIS, EPYC and ERM have been very careful to represent the "Project Area" as being "within undulating farmland". While this is strictly correct for the Project Area (their definition), it completely mis-represents the general area as "farmland". While the Project Area may be farmland, the surrounding area is rural residential / lifestyle in nature. EPYC and ERM are dismissive of the nature of the region, and consider the rural residential / lifestyle nature inconsequential.

> ***Recommendation 104:*** *EPYC and ERM must update the EIS to ensure the nature of the area being rural lifestyle is correctly reflected in the submission.*

> ***Rejection 104:*** *The Jupiter Wind Farm should be rejected due to the dismissive approach EPYC has taken to the local community.*

### 1.4 Objective of Bushfire Hazard and Risk Assessment

The second objective of the report is claimed to be "infrastructure and property offsite is not significantly damaged from bushfire arising from … operation … of the project". Table 6.5 does refer to "Damage to Surrounding properties", however this risk is downplayed due to the "relatively low density of residential communities". Hundreds of rural residential / lifestyle properties within 5kms of the proposed Jupiter Wind Farm should not be dismissed so lightly!

> ***Rejection 105:*** *The Jupiter Wind Farm should be rejected. EPYC dismiss the almost 300 properties in close proximity of the turbines as inconsequential in relation to bushfire risks to those residences.*

### 4.1.1 Wind Turbine Generators

EPYC and ERM highlight the WTGs are subject to round-the-clock remote monitoring, and the importance of such monitoring. Thus while operations staff for the Jupiter Wind Farm can be safe operating in an alternative location, the large number of residents could be in danger. This demonstrates a complete lack of consideration of the local community.

### 4.2.4 Utilities – Electricity, Gas, Water

EPYC and ERM completely fail to mention some of the properties are connected to the electricity grid. While EPYC claim they visited the local community, did they even notice something as simple as the local electricity grid? They also seem to have completely ignored the copper telephone network. The local community is critically dependent on this network during bushfires, as the mobile phone reception is limited in many places in this region.

***Recommendation 105:*** *EPYC must update the submission to identify and map the local copper telephone network as a part of their bushfire assessment. EPYC must also acknowledge the local electricity grid and identify and map the location of rural residential / lifestyle properties within 5kms of the project.*

### 5.1 Regional Fire History

There is a clear lack of research on local bushfires. A search on the Internet for "bungendore bushfire history" returns a result on page one related to a 2013 emergency warning for a bushfire near the Kings Highway 13kms east of Bungendore. Within less than five minutes with basic Internet searches, the fire can be identified as the "Sand Hills" bushfire.

Upon request, the NSW RFS provided a map of this bushfire (Figure 70). No doubt additional information on the fire would also be on record if EPYC had requested it. In addition, EPYC and ERM do not appear to approached local fire brigades to ask about local fire history. This local knowledge is critical to understanding the actual bushfire risks in the area.

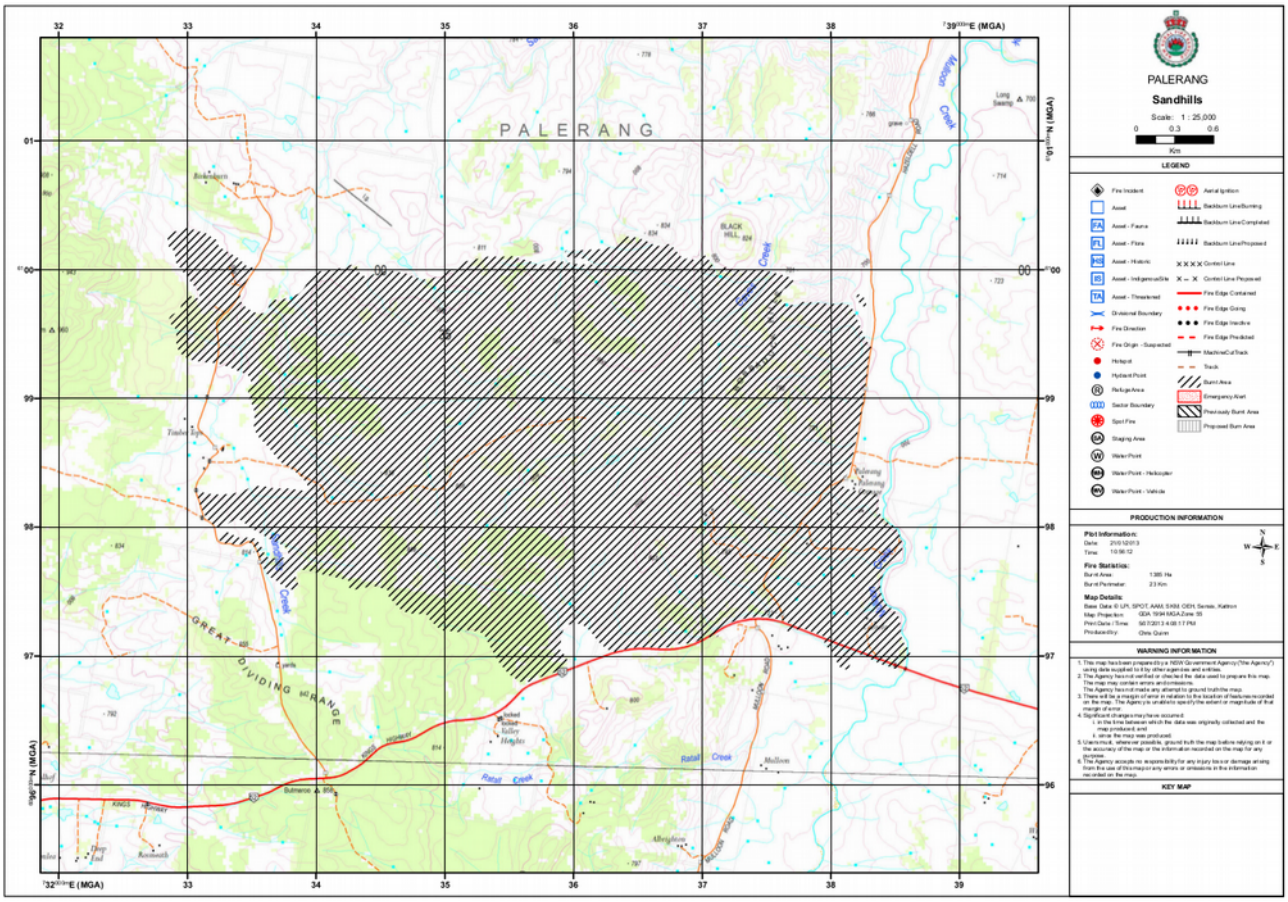


*Figure 70: Map of Sand Hills bushfire, January 2013*

***Recommendation 106:*** *EPYC and ERM must engage with local bushfire brigades to gain a better understanding of local bushfire conditions and reassess the bushfire risks.*

***Rejection 106:*** *EPYC and ERM have failed to appropriately demonstrate an understanding of local bushfire history. The Jupiter Wind Farm must be rejected.*

### 5.2 Regional Fire Weather

Earlier characterisation of the area as predominately grazing area has resulted in the mis-representation of the risk as "resulting in substantial curing of pastoral and grazing land which covers a large proportion of the Zone". Rather than represent the large number of rural residential / lifestyle lots in close proximity to the proposed wind farm, they represent the Zone as a farming area.

In addition, the while EPYC espouse the wind farm to aid in combating climate change, they do not highlight that one aspect of climate change is an increase in average temperatures. Current averages in Australia are approximately 1.2°C above the longer term norm. While this may seem negligible, a minor increase in the averages actually means a greater increase in maximum temperatures (more than the average). EPYC highlight the temperatures in summer can range from 35-37°C, however they do not highlight that with climate change an average increase of about 2°C will result in far more temperatures in the high 30's and low 40s.

***Recommendation 107:*** *EPYC and ERM need to reassess the fire risk based on scenarios of 2°C and 4°C above average temperatures, and the impact this will have on bushfire risk to the Jupiter Wind Farm.*

### 5.3 Slope

The third paragraph focuses on the slope to the WTGs. EPYC and ERM have focused on the wind farm, and completely dismissed the rural residential / lifestyle nature of the areas surrounding the wind farm.

***Recommendation 108:*** *EPYC must include a discussion on the assets within 5kms of WTGs, and identify the slope and vegetation associated with these assets.*

### 5.6 Bushfire Hazard Class

EPYC and ERM make a pertinent point in section 5.6 (see Figure 71), although they consider farm assets as the primary concern. They do not make any mention of the hundreds of rural residential / lifestyle properties in the area. This report continually downplays the risk to the local community.

> the greatest hazard is a combination of undesirable fire weather (ie hot and dry westerly winds during summer) and the potential for a fire to spread towards farm assets in the surrounding area. **A fire under the influence of wind may travel fast in an easterly or south easterly direction, reaching assets before fire fighters can attend the scene.**

*Figure 71: Important point made by EPYC and ERM!*

***Rejection 107:*** *The Jupiter Wind Farm must be rejected. The bushfire risk assessment downplays and ignores the risk to the local community.*

### 5.8.2 Location of WTGs

The report by EPYC and ERM claims “Fire suppression aircraft only operate in areas where there is no smoke and during daylight hours”. This is incorrect. Photos provided in the next chapter (Annex N – Bushfires in the Real World (Part 1)) clearly demonstrate fire suppression aircraft operating within smoke.

The Bushfire Risk Assessment highlights the national position on wind turbines in relation to bushfires. They highlight wind monitoring tower positions should be noted during firefighting operations. There is no mention of the need to avoid these obstacles during operations. This complicates aerial flight – not only do pilots need to avoid wind turbines, they also need to avoid the “up to four” monitoring masts. If aerial firefighting was not dangerous enough.

In addition the WTGs proposed in the Jupiter Wind Farm will be up to 173m AGL – this is about 63m above the height of the wind monitoring masts. It is difficult to see why fire fighting operations would not take into account the location of 110m masts and ignore 88 WTGs that are 63m higher.

The carefully worded conclusion is the “Aircraft would therefore not fly within close proximity to the wind farm in smoky conditions and the turbines are not considered to pose any increased risk to aerial firefighting capabilities”. However, absolutely no consideration is given to the lack of aerial firefighting support and it’s importance in supporting ground units. This is discussed later in detail with a real example in Annex N – Bushfires in the Real World (Part 1).

AFAC’s statement talks about risk to pilots, and does not take into account impact on operations. EPYC and ERM have highlighted considerable portions of the the AFAC position on Wind Tubrines, however they have excluded other aspects (Figure 72). The reference to “unacceptable risks” are to the pilots, not to the rural residential / lifestyle properties around the WTGs. The AFAC statement is often quoted in the context of presenting no additional risks. However the full context identifies there are risks due to wake turbulance (if the blades are moving), and highlights the WTGs would be treated like other obstacles – ie. they will be avoided. This means WTGs prevent access to some areas of a bush fire.

> Aerial fire fighting operations will treat the turbine towers similar to other tall obstacles. Pilots and Air Operations Managers will assess these risks as part of routine procedures. **Risks due to wake turbulence and the moving blades should also be considered.** Wind turbines are not expected to pose unacceptable risks.

*Figure 72: Extract from AFAC statement that EPYC excluded from their EIS*

### 5.8.5 Improved Access

The Jupiter Wind Farm proposal is quick to highlight the improved access to the area. It should be noted the access roads are aligned in an west to east direction, or north west to north east direction for the northern precinct. This alignment will be discussed later in the context of prevailing wind direction during hot weather. As noted in the Bushfire Hazard Class section (Figure 71 in particular), this alignment results in ground based firefighting units approaching fires from the rear.

While the project would provide greater access, this access is still restricted to a rear approach of a typical fire in this area. As such the improved access is still limited by the fundamental design constraint of the area.

> ***Recommendation 109:*** *EPYC must revise the Bushfire Risk Assessment in order to take into account the limits related to the claim of improved access to the site, taking into consideration their earlier statements related to the Bushfire Hazard Class.*

**Table 6.4 Bushfire Risk Factors**

Many of the risk factors identified in this report are focused around the risk to the wind farm infrastructure itself, or the risk of the wind farm starting a fire. There is a dismissal of the hundreds of residential properties in the area as a "relatively low density of residential (farm house) and communities within and adjacent to the PA" and the risk to those properties. About 300 rural residential families is hardly a small number to dismiss – do the lives of 600-800 people and their houses living around this proposed wind farm not matter?

> ***Rejection 108:*** *Due to the continual dismissal of the local community (including within the Bushfire Risk Assessment), the Jupiter Wind Farm must be rejected.*

The final risk related to aerial firefighting of bushfires is discussed in detail in the next chapter Annex N – Bushfires in the Real World (Part 1). EPYC's risk assessment assumes large numbers of ground units will be able to fight a bushfire in prevailing north-westerly winds from the rear. In times of high fire risk, large numbers of ground based units are not likely to be available, or could be many hours before they arrive.

**Table 6.5 Detailed Bushfire Risk Assessment**

Detailed comments on Table 6.5 within the Assessment have been provided in Table 32.

| Risk Factor | Description of Risk | EPYC's statement | Comment | P/F |
|---|---|---|---|---|
| Loss of life | Populated Area | Residential assets in proximity to the Project are generally not vulnerable to bushfire due to their location in low hazard areas although the risk to life cannot be discounted. | Incorrect – many of the rural lifestyle houses within 5kms of the project are in medium to high hazard areas. Many of the houses were also built prior to newer bushfire standards, and as such are not built to modern standards. | Fail |
| | Aerial Firefighters | Fire suppression aircraft only operate in areas where there is no smoke and during daylight hours. | Incorrect – discussed in the next chapter Annex N – Bushfires in the Real World (Part 1) | Fail |
| Damage to project infrastructure | Localised damage to infrastructure | In the unlikely event of a localised fire no external assistance would be required to recover in the short-term and any damage would be rectified during routine maintenance. | Highly unlikely – staff would definitely require assistance. Given the prevailing high wind conditions during hot weather, it is almost certain external assistance would be required. | Fail |
| Damage to surrounding properties | Extensive and widespread loss of infrastructure and or property | There is a relatively low density of residential (farm house) and communities within and adjacent to the PA and some external assistance may be required to recover in the short term. | There are hundreds of rural lifestyle properties within 5kms of the proposed project. While this is relatively low compared to a city such as Sydney, it is very high compared to all other proposed wind farms in NSW. | Fail |
| | | numerous roads (which act as fire breaks) would reduce the likelihood of a widespread fire. | A cleared dirt road of 5-10m in width does not stop a bushfire in high wind conditions experienced in this region. | Fail |
| | | *Likelihood: Unlikely;* | This demonstrates the complete disregard EPYC has for the local community's safety. | Fail |
| (Last two risk entries are similar to previous entry and exhibit the same failures of assessment) | | | | Fail |

*Table 32: Comments on Table 6.5 from the Bushfire Risk Assessment from EPYC*

> ***Rejection 109:*** *The Jupiter Wind Farm proposal must be rejected. The Bushfire Risk Assessment completely underestimates the likelihood of damage to surrounding properties. It deliberately downplays the impact on the local community.*

### 6.3 Bushfire Risk Evaluation

Given the complete disregard for anything that affects the local rural lifestyle nature of the areas surrounding the Jupiter Wind Farm proposal, the evaluation provided by EPYC and ERM is flawed. The focus of the assessment is the risk to their WTGs and their assets. The evaluation dismisses the impact on "residential dwellings on rural properties scattered throughout the landscape".

> ***Rejection 110:*** *EPYC dismisses the importance of hundreds of rural lifestyle dwellings in their Bushfire Risk Assessment for the Jupiter Wind Farm. The proposal should be rejected.*

**Increased Bushfire Risk Due to Vegetation Screening (Not Considered)**

EPYC suggested the use of vegetation screening in relation to J234A as a visual mitigation measure (and multiple other properties). The site selected for construction of J234A underwent a bushfire assessment. The assessment determined the BAL for the construction as BAL-LOW: "Minimal attack from radiant heat and flame due to the distance of the site from vegetation, although some attack by burning debris is possible". On 30 June 2015, we even highlighted this issue to EPYC in an email (Figure 73). EPYC has never provided any response on this matter.

> We did briefly discuss the use of vegetation, however as highlighted the land drops rapidly from the site and as such the only suitable vegetation would need to be very large. **This then represents a fire hazard**, and detracts from the scenic view (a primary purpose for which the site was selected). Could EPYC identify what alternatives there are to vegetation in relation to impact on visual amenity?

*Figure 73: Email sent to EPYC on 30 June 2015*

> ***Recommendation 110:*** *The proponent to pay for a re-assessment of the BAL rating for all properties where vegetation screening is undertaken. Based on that rate, the proponent is to pay for the upgrade of the residence to ensure suitable compliance with relevant standards in relation to bush fire protection.*
>
> ***Recommendation 111:*** *The proponent to identify alternatives to vegetation screening for J234A, including compensation.*
>
> ***Recommendation 112:*** *The proponent must inform the insurance agents of all owners where vegetation screening is undertaken. Any increases in insurance costs as a result of the increased risk related to bushfires and encroaching on the Asset Protection Zone of the insured infrastructure must be paid for by the proponent each year.*

In addition to the additional risk caused by the vegetation screening itself in close proximity to J234A, there has been no consideration on the impact the vegetation screening presents in relation to usage of the dam for aerial fire fighting activities. In the event of a bushfire in close proximity to J234A, the dam can be used to provide rapid response to support aerial fire fighting activities. EPYC's suggestion to install large 10-20m trees around the dam will prevent aerial firefighting activities.

> ***Recommendation 113:*** *In the event vegetation screening is established near J234A, EPYC must provide additional firefighting resources including at least: an additional 100kL of water storage tanks, an additional 150m2 of suitable catchment in the form of a shed agreed with the property owner, professional installation of a fire sprinkler system on all buildings on the property, a suitable pump, four fire hoses, and infrastructure. This is to offset the restrictions on aerial firefighting as a result of restricted access to the dam as a result of the vegetation screening.*

Finally, the owners of J234A / J234B are responsible for notifying their insurance agent of any changes that reflect an increase in risk for insurance purposes. This will likely lead to higher insurance premiums, for which EPYC have not identified how this will be addressed. Additionally, the wind turbines will lead to obstructions to aerial firefighting activities, and thus represents an increase in the risk for insurance purposes.

> ***Recommendation 114:*** *EPYC must identify the increase in risk due to vegetation screening, and obsticals during aerial firefighting activities, and the impact this will have on insurance premiums for properties within 5kms of the Jupiter Wind Farm proposal. EPYC must also identify how the increase in premiums will be paid to the respective landholders.*

**NSW Rural Fire Service Submission to Senate Select Committee**

On 6 March 2015, the NSW RFS placed a submission with the Senate Select Committee on Wind Turbines[22]. EPYC were very quick to point out the arguments that demonstrate the Jupiter Wind Farm would have no impact. However, they excluded several key phrases from the submission.

Table 33 contains a comparison of the statements by the NSW RFS compared to EPYC's paraphrasing. For example, NSW RFS claim the **most effective** way of fighting fires includes aircraft when required. They highlight **aerial firefighting would be limited in close proximity to wind turbines**. And aircraft play an **integral role** in current fire fighting strategies.

By simple logical deduction, if a wind farm were present, fire fighting as a whole would be less effective, and aerial firefighting would be limited. EPYC's selective paraphrasing of content shows an intent to obscure the truth. EPYC's 7th newsletter claims we should do our own research and make up our own mind. EPYC's so called "factual and scientific information" is poorly written and deliberately biased.

| NSW RFS Statement | EPYC's paraphrasing | Comment |
|---|---|---|
| The use of aircraft plays an **integral role** in current firefighting strategies, particularly in the initial attack phase. | N/A | EPYC completely omit this statement in their newsletter. |
| Aerial firefighting suppression **in close proximity to wind turbines may be inhibited** at times given the aircraft operate under the Civil Aviation Safety Authority's Visual Flight Rules for navigation by visual reference. | N/A | EPYC completely fail to highlight this point. |
| The most effective way of managing fire incidents is the use of ground-based resources, including fire fighting personnel, tankers and heavy plant, **closely integrated with aircraft when required**. | The most effective way of managing fire incidents is to use ground based resources such as fire fighting personnel and tankers. These can be integrated with the use of aircrafts for fire fighting when required. | By breaking the sentence and removing "closely integrated", EPYC imply that aircraft play a far less important role. They imply aircraft are just a casual afterthought when fighting fires. |

*Table 33: Comparison of the NSW RFS Statement to Senate Select Committee to EPYC's statements*

22 http://www.aph.gov.au/DocumentStore.ashx?id=074d1c1b-938a-4e28-837a-f237f0440768&subId=304688

> ***Rejection 111:*** *The Jupiter Wind Farm proposal should be rejected. EPYC's "factual" statements obscure the truth. EPYC selectively extracts information from reports supporting their cause, then ignores other information against their cause. EPYC can not be relied upon to provide a balanced argument or highlight the true risks and impact of the project.*

**South Australia's CFS Statement[23]**

South Australia is well known as a leader in wind farm development in Australia. As such, their experiences in terms of wind farms and Aerial Firefighting Limitations should demonstrate a better understanding of the impact.

**Obstructions**

Vertical obstructions such as power lines, weather masts, radio and television transmission towers, tall trees and **wind turbines close to a fire area may limit aerial firefighting operations**. Where obstructions do exist, a dynamic risk assessment is undertaken by the pilot in command prior to aircraft being committed. **In some circumstances aircraft will not be utilised because risks caused by vertical obstructions exceed safe operating conditions.**

*Figure 74: Source: South Australian Country Fire Service, Aerial Firefighting Limitations*

It is difficult to argue that 88 WTGs up to 173m in height (larger than the Sydney Harbour Bridge and larger than wind monitoring masts) will NOT affect firefighting operations around the proposed Jupiter Wind Farm.

> ***Rejection 112:*** *The Jupiter Wind Farm should be rejected – the location of 88 WTGs will affect aerial firefighting operations in the area. Combined with the rural lifestyle nature of the surrounding properties, EPYC's proposal represents a risk to property and life.*

**EPYC's Aeronautical Assessment for the Jupiter Wind Farm**

Section 7.2 of EPYC's Aeronautical Assessment discusses the implications of the Jupiter Wind Farm on aerial fire fighting. In particular, they noted the NSW RFS officers identified that "high voltage and other transmission wires can be a problem to aircraft particularly when low flying and in low visibility".

The Aeronautical Assessment goes on to state: "Any fire fighting activities in the vicinity of the proposed wind farm by either fixed or rotary wing aircraft would need to be conducted in consideration of the location of wind turbines and monitoring towers". This submission considers the issue in detail in Annex N – Bushfires in the Real World (Part 1).

23 http://www.cfs.sa.gov.au/site/about/aerial_firefighting/aerial_firefighting_limitations.jsp

# Annex N – Bushfires in the Real World (Part 1)

In December 2016 (during the EIS exhibition), a significant grass fire occurred in the exact vicinity of the northern precinct of the proposed Jupiter Wind Farm. This chapter considers in detail the implications the wind farm would have had if the WTGs had been in place at the time.

**Background: Sequence of Events**

On Sunday afternoon (11 December 2016), a small grassfire broke out approximately six (6) kilometers down Lower Boro Road on the southern side of the road. Bungendore Rural Fire Service (RFS) attended the scene and put the fire out.

The following day (Monday 12 December 2016), higher winds and temperatures reignited the same grassfire in the afternoon. A large number of resources were called in including:

- A very large number of ground units and volunteers;
- One helicopter used as a spotter aircraft (RFS Squirrel Firebird 238 VH-UVA);
- One helicopter used for water bombing (RFS Helitack 202 VH-VRQ);
- Tanker to refuel helicopters at Bungendore showgrounds (SkyFuel); and
- Two fixed wing aircraft (including the VLAT Southern Belle DC10).

In the late afternoon / evening on Monday, wind conditions calmed and RFS crews were able to contain the grass fire to a large extent. Crews worked into the night to eliminate more of the threat.

On Tuesday (13 December 2016), very high winds picked up in the early morning and water bombing continued throughout the day, mainly on the southern front of the grass fire. Spotter aircraft were also in use, and heavy machinery was brought in to improve containment lines of the fire. Large numbers of ground crews continued to work through the night in continued efforts to contain the fire.

Windy conditions persisted through Wednesday morning (14 December 2016) with aerial firefighting appliances supporting ground units. On Wednesday afternoon, a cool change came through with some rain overnight. Containment lines were strengthened.

Almost 500ha of grassland was damaged during the grass fire. The majority of this area burned on Monday 12 December. The fire was contained due to a combined use of ground crews and aerial support.

**Background: Weather Conditions**

Table 34 contains the weather conditions experienced during the grass fire. During bushfires, a 30-30-30 rule can be applied to give a sense as to how dangerous things can be. Above 30 degree Celsius temperatures, above 30 kph wind speeds and below 30 percent relative humidity are generally considered to be dangerous bushfire conditions.

| Day | Date | Daytime Temps | Wind Direction | Wind Speed (gusts) | Relative Humidity |
|---|---|---|---|---|---|
| Sunday | 11 Dec 16 | 27.8 | unavailable | unavailable | High 30's |
| Monday | 12 Dec 16 | 31.8 | W through N/NW | unavailable | High 20's |
| Tuesday | 13 Dec 16 | 34.0 | W through NW | 15 to 46 (65) | 17-38 |
| Wednesday | 14 Dec 16 | 29.0 | W through N/NW | 22 to 50 (67) | 26-70 |

*Table 34: Goulburn weather conditions during the fire (source: weatherzone.com.au)*

The weather conditions during the majority of this period were considerably dangerous. While average daytime maximums for December are normally 25.8, during December 2016 the daytime maximums were 28.2 (or 2.4 degrees above average). In fact there were only six days below average that month.

**Background: Fuel conditions and Grazing**

Large portions of the area contained longer grass. Reasonable rainfall had resulted in substantial grass growth, and limited grazing had taken place in the fire area (despite the supposed rural farming nature of the area). Small numbers of cattle and sheep were grazing in some areas, however these numbers were insufficient to reduce the fuel load for a bushfire.

Large portions of this land have not burned in many years. A large fire passed through the ridgeline to the north of Lower Boro Road (prior to our purchase of the property – as such I was unable to identify an exact date). Most areas of the region have not been burned in at least a decade, and it is highly likely the area has not been subject to a bushfire in the last 20 years.

**Background: NSW RFS Very Large Air Tanker**

During the 2015/16 fire season the NSW RFS undertook a trial of Large Air Tankers (LAT) and Very Large Air Tankers (VLAT) fixed wing aircraft[24]. The Southern Belle DC10 is capable of dropping 44,000 litres of water or suppressant and can reach cruising speeds of 650kph. It can reach any location in NSW within an hour. The drop speed (where water is released) is 280kph. The load can be dropped in a single or multiple drops – all of which is computer controlled to ensure precise delivery over the area required. Southern Belle and other LAT/VLAT are continuing trials during the 2016/17 fire season.

**Background: Response Time and Access**

Multiple RFS units are within the vicinity of Lower Boro Road. These include Mount Fairy (typically unmanned) and Tarago (typically unmanned). Response times for local RFS units varies based on the distance and availability of volunteers to reach the location of trucks, and then for those trucks to travel to the site of the fires. Assuming best case scenarios (volunteers are already at the trucks), travel times to fires along Lower Boro Road are approximately 15mins for Mount Fairy, 15-20mins for Tarago, and approximately 30mins for Bungendore.

**Analysis: Response Times of Ground Crews**

Assuming Tarago and Mount Fairy are not manned at the time a fire starts along Lower Boro Road, at least 30 minutes would pass before the first appliance has arrived. Assuming 20kph speed for a grass fire, the fire could spread almost ten (10) kilometers in that time period. Even assuming 10kph, a grass fire could travel five (5) kilometers by the time the first ground crew arrives.

24 http://www.rfs.nsw.gov.au/__data/assets/pdf_file/0004/39496/Bulletin-VLATS-spread-CYMK-LIFTOUT.pdf

The Jupiter Wind Farm would not affect the Ground Response Times in the event of a bushfire in this area. The distance traveled and availability of crews would not change as a result of the proposal.

**Analysis: Use of Helicopters for Surveillance**

Surveillance helicopters are often used to support ground crews to provide a more strategic picture of the fire. They typically operate at higher altitudes to provide improved visual coverage of the fire. However in some cases they will operate at lower altitudes to confirm potential sightings of spot fires. While the impact of the wind turbines would be limited, there would still be up to 75 WTGs and up to four weather monitoring masts that would need to be navigated. The higher height of the proposed Jupiter Wind Farm turbines increases the safe operating level for these aircraft – thus reducing their capacity to fly lower to confirm possible outbreaks.

The use of surveillance aircraft during bushfires would be affected to a limited degree due to the proposed Jupiter Wind Farm. Surveillance aircraft would have to maintain a higher altitude, and would be less likely to drop below the WTG height in order to obtain an improved view of a particular hot-spot.

*Figure 75: Surveillance helicopter landed near Lower Boro Road*

**Analysis: Use of Helicopters for Water Bombing**

Use of water bombing helicopters during fire fighting operations requires access to water sources such as dams. The only way to resupply water to these aircraft rapidly is for them to suck the water while hovering above the dams (well below the 152m limit). They need clear paths between the water sources and the targeted area.

Figure 76 contains a sequence of photos taken shown the operation of a water bombing aircraft during the Lower Boro Road bushfire. The photos clearly show the helicopter passing through smoke (blue boarder used to show location of helicopter). This could only be done with confidence in an area known to be free from obstacles. High resolution images of this sequence and several similar sequences are available upon request.

*Figure 76: Unrestricted water bombing at low level with no wind turbines*

*Figure 77: Helitack 202 BK 117B-2 flying at very low altitude through thick smoke at Lower Boro Road*

In addition, dropping the payload requires accuracy. The closer to the target area, the more accurate the drop. As can be seen in Figure 77, the helicopter is operating at very low levels. Conducting such fire fighting operations at higher altitudes would result in a wider spread and (depending on circumstances) a lower impact. There are also no obstacles above the treeline to impede operations.

**Analysis: Use of VLAT**

The use of the DC10 Southern Belle VLAT can clearly be seen in Figure 78 (sourced from the Bungendore RFS facebook page). The altitude of the Southern Belle can clearly be seen to be operating well below the 173m proposed wind turbine height in the Jupiter Wind Farm. The aircraft was used on the Monday only (to the best of our knowledge), and played a significant role in reducing the impact of this grass fire.

The low altitude flight of fixed wing aircraft is essential to ensuring accurate delivery of payloads. Even assuming at least 200m altitude with high winds around a wind farm, the delivery of 44,000 liters of water or fire retardants / gels could significantly miss the area.

*Figure 78: VLAT Southern Belle DC10 clearly operating at very low altitudes at the Lower Boro Road fire*

**Analysis: Proposed Wind Turbine Locations**

Figure 79 contains the map of the Lower Boro Road fire outline (in black), and an overlay of approximate locations of the WTGs proposed by EPYC. Five of the turbines are within the fire zone itself, with an additional 20-30 WTGs within the immediate vicinity of the fire.

According to unofficial sources, the VLAT Southern Belle DC10 dropped a load of approximately 45kL in three segments. These segments are shown in blue in Figure 79. If the Jupiter Wind Farm had been established at the time, the VLAT would not have been utilised.


*Figure 79: Approximate location of turbines in relation to Lower Boro Road grass fire (source image from NSW RFS "Fires Near Me")*

**Impact Wind Turbines on Aerial Firefighting Operations**

Substantial water bombing operations were conducted using helicopters in close proximity to what would be WTG 54, 82, 83, 72, 72 and several other WTGs on the southern side of the area affected. Even with WTGs that have been locked to prevent movement, these WTGs would still have resulted in additional obstacles for aircraft to avoid. In addition, the VLAT flight path would have been through the middle of around 20 WTGs. The use of the VLAT would not have been possible if the Jupiter Wind Farm have been constructed.

A reduction in operational effectiveness of water bombing aircraft would require additional ground resources to contain the fire or defend properties. During a typical fire season, fire resources can be difficult to allocate and access. EPYC have implicitly assumed that more ground units will be available to "take up the slack" from the additional restrictions imposed on aerial firefighting operations. Such resources are not typically available.

**Lower Boro Road Orientation**

Of particular note in relation to the proposed Jupiter Wind Farm is the prevailing wind direction in relation to Lower Boro Road (in particular). Hotter and drier conditions typically persist with westerly and north-westerly winds, bringing hot air from central Australia. The most likely scenario for bushfires will be from a north west to south east direction.

This presents a particular problem for Lower Boro Road – access to fight the fires will always be from the rear of the fire. Even with additional tracks from the proposed Jupiter Wind Farm, access remains from the rear. This presents a problem to ground based resources. Thus it is important to have aerial firefighting appliances available for this area. These resources can assist in delaying (or stopping the fire in its tracks) until sufficient ground based resources can get in front of the fire.


*Figure 80: Prevailing wind direction follows Lower Boro Road*

***Rejection 113:*** *The Jupiter Wind Farm proposal must be rejected. The 75 wind turbines in the northern precinct represent a significant risk when considered in relation to the prevailing winds and the orientation of Lower Boro Road along the north west to south east direction.*

## Conclusions

The use of aerial firefighting played a critical role in dealing with this bushfire. Table 35 contains a summary of the impact the Jupiter Wind Farm would have on bushfire fighting activities based on a real world example. Aircraft play a very important role in the Lower Boro Road area.

| Issue | Before | After | Comments | Impact |
|---|---|---|---|---|
| Fuel Load | n/a | No impact | Grass and trees will continue to grow dependent on weather conditions. | None |
| Response Times – Ground Crews | n/a | Minor improvement | Additional access tracks may reduce response times by 1-2mins (negligible). | Negligible |
| Response Times – Aerial Crews | Unrestricted | Restricted | Depending on flight paths, some aerial crews may need to pass around or over the wind turbines before being able to engage in firefighting operations. | Negative |
| Access from Ground | Restricted | Improved | Ground crews will have additional tracks to use during firefighting operations | Positive |

| | | | | |
|---|---|---|---|---|
| Access for Surveillance Aircraft | Unrestricted | Restricted | Aircraft will be more likely to maintain an increased height above the WTGs and less likely to drop down lower for closer visual inspections. | Negative |
| Access to dams from Air | Unrestricted | Restricted | WTGs near dams will restrict access to water sources. Additional vegetation screening around dams will restrict access. | Negative |
| Access for helicopters to water bomb | Unrestricted | Restricted | WTGs will add additional obstacles to avoid – constraining access and direction of water bombing activities. | Negative |
| Access for fixed wing aerial craft | Unrestricted | Highly Restricted | Fixed wing aircraft are unable to turn quickly. WTGs represent a significant obstacle, and thus a need to avoid a larger portion of an area. | Negative |
| Accuracy of water bombing activities | Unrestricted | Restricted | Water bombing operations are more likely to be conducted from a higher altitude, and thus be less effective with a lower accuracy. | Negative |
| Ability of aircraft to change location as conditions change | Unrestricted | Restricted | While water bombing could occur in one location unrestricted, changes in conditions frequently experienced would likely lead to those aircraft no longer being useful. | Negative |
| Number of ground crews required with chopper support | Smaller numbers | Much larger numbers required | Without the use of rapid response water bombing, far more crews would need access. Ground crews are in limited supply during bushfire season and need to be brought in from much further afield. | Negative |

*Table 35: Comparison of impact of Jupiter Wind Farm on fire fighting activities*

This time we were lucky. Changes in conditions or a slightly different starting location could have lead to large loss of residential properties or lives. The addition of 88 WTGs proposed in the Jupiter Wind Farm by EPYC would lead to a significant negative impact on bushfire fighting operations. This puts at risk not just hundreds of rural lifestyle houses and other associated buildings, but it also could lead to the loss of life (600-800 people live in those houses).

Figure 81 contains a quote from the Bungendore RFS Facebook page, posted during the firefighting operations. Particular attention should be made to the importance of the VLAT “Southern Belle” being used to “halt the fire’s progress”. As can be seen in Figure 78 (above), the VLAT was clearly operating at a level well below the height of the proposed wind turbines.

> NSWRFS crews are making the most of easing conditions tonight to contain the Lower Boro fire and black out the edge ahead of forecast hot, windy conditions tomorrow. Over 50 fire fighters responded to reports of a grass fire in the area this afternoon and earlier this evening **the Very Large Air Tanker, Southern Belle, dropped a 45,000 litre load of retardant to halt the fire's progress.**

*Figure 81: Quote from Bungendore RFS Facebook page on 12 December 2016 (Monday)*

> ***Rejection 114:*** *The Jupiter Wind Farm proposal must be rejected. Local conditions and a large rural lifestyle population surrounding the proposed wind farm are a critical consideration. 88 wind turbines proposed would definitely restrict aerial firefighting activities of fixed wing aircraft, and would limit the operation of helicopters. This could only be mitigated with large numbers of additional ground crews which are in short supply.*

**Comment: VLAT Trial by NSW RFS**

A special note should be made concerning the trial of the DC10 Southern Belle VLAT used by the NSW RFS during the Lower Boro Road grass fire. Although this aircraft was a trial, the NSW RFS should be given credit for this trial. The local community recognises and appreciates the allocation of such a significant resource. We feel the use of this aircraft was a significant factor in the prevention of a wider impact from this bush fire.

A separate communication will be submitted to the NSW RFS in relation to operation of such aircraft in relation to wind turbines. As this may affect their consideration of operations of such aircraft in or around current and planned wind farms.

**Implications**

In the event the Jupiter Wind Farm is approved, there is clear evidence to demonstrate the bushfire risk assessment conducted by EPYC and ERM is inaccurate in relation to aerial firefighting operations. Additional analysis for the local area demonstrates there are significant risks to the hundreds of rural lifestyle properties and their owners in the event of bushfires.

# Annex N – Bushfires in the Real World (Part 2)

Again during the EIS exhibition, a second larger grass and bushfire broke out very close to the proposed Jupiter Wind Farm. This second fire highlights other important factors related to bushfire fighting in the vicinity of the proposed Jupiter Wind Farm.

**Sequence of Events**

On Tuesday morning, a fire broke out near Taylors Creek Road between Bungendore and Tarago NSW. Initial fire maps show a rapid spread of the fire due to high winds and high temperatures (Figure 82).

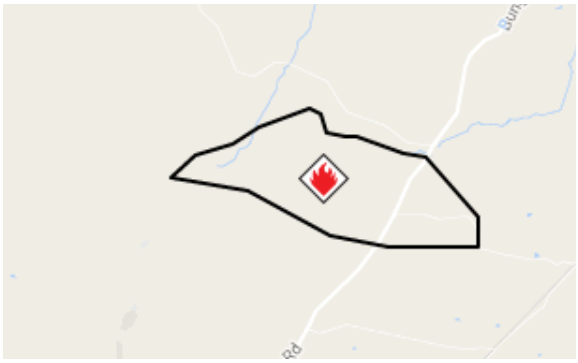

*Figure 82: Initial fire outline from NSW RFS "Fires Near Me" website*

Known as the Currandooley fire, the fire spread rapidly throughout Tuesday burning almost 3000ha in the first 24 hours (far more than the earlier 500ha Lower Boro Road bushfire). Figure 83 shows the final outline of the fire, with almost 3500ha having been burned.

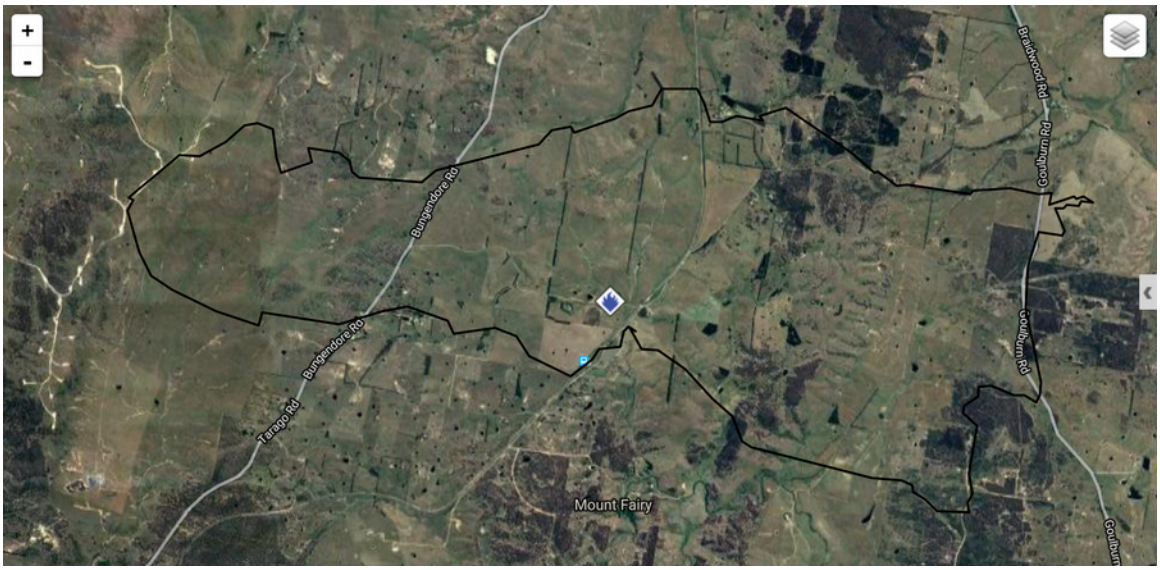


*Figure 83: Outline of the Currandooley fire in January 2017*

A total of 13 aircraft were brought in, including the VLAT “Southern Belle” (previously used in the Lower Boro fire) and the LAT “Thor” - a Lockheed L-100-30 Hercules.

According to news media, telephone alerts were sent out to homes along Lower Boro Road, however we never received any alert. The telephone lines on Lower Boro Road have previously failed during the Sandhills bushfire, and it is not uncommon to find the copper land-lines not functional.

The fire was reasonably contained to the west side of the Goulburn-Braidwood road on Wednesday evening, however there were concerns the fire would jump the road and proceed in an easterly direction. A brief storm helped contain the fire on Tuesday night, however conditions were set to worsen considerably on Wednesday with temperatures in the high 30’s and strong winds.

For the most part the fire was contained, however there were a significant number of days in which close monitoring of conditions were required.

**Capital Wind Farm Staff Sent Home**

According to ABC News reporting on late Tuesday afternoon, staff from the Capital Wind Farm were sent home. Richie Farrell from the Capital Wind Farm (located up wind of the wire) was reported as saying the fire front was less than 15kms from their turbines and “We have taken our personnel off-site and directed them to go home”.

While locals have to live here and protect their properties, the operators of the Capital Wind Farm can operate from home, safely ensconced in their houses many kilometers away. Thus while a company can come and build turbines that reduce the effectiveness of aerial firefighting, they do not show any concern for the local community.

> ***Rejection 115:*** *The Jupiter Wind Farm must be rejected. The proponent shows a complete lack of care for the local community in their EIS and interaction with the community. The local community will bare the brunt of the losses from bushfires in the area due to reduced operational effectiveness of aerial firefighting support.*

**Cause of the Currandooley Fire**

Initial reports the NSW RFS Lake George Zone Facebook page indicated the fire was started by a bird igniting as it passed powerlines (Figure 84). The Currandooley Fire has been referred to the NSW Coroner for further investigations.


*Figure 84: Initial Facebook post claiming fire was started by bird passing high voltage lines*

**Essential Role of Aerial Firefighting**

Significant aerial firefighting resources were allocated to this fire, including two large air tankers (Southern Belle and Thor), one Erricson Aircrane, and multiple smaller helicopters such as the Helitak 475 piloted by Nathan Payne[25]. The following quotes are from an ABC news article in relation to the role these aircraft played.

> "This week was the first time that we have used the very large air tankers and the large air tankers together in tandem, and it has proved very effective," RFS incident manager Tim Carroll said.
>
> "It turned into a very big fire, very quick," he said.

*Figure 85: Quote from RFS incident manager Tim Carrol (source ABC News)*

> "There were a few different types of fires in the same one, **so aircraft were really needed** on that one and **definitely stopped it from making more damage** than what it's actually done."

*Figure 86: Quote from Pilot Nathan Payne (source ABC News)*

The ability to conduct aerial firefighting operations in this region is critical to reducing the impact of fires. The rapid rate at which the fire spread meant aerial fire support provided the rapid response required. Pilots of these aircraft recognise the importance of aerial firefighting. Increase temperatures as a result of climate change will result in more fires such as the Currandooley – high intensity, rapid moving fires.

25 http://www.abc.net.au/news/2017-01-20/aerial-crews-instrumental-in-controlling-tarago,-sutton-fires/8198718?pfmredir=sm

***Rejection 116:*** *The Jupiter Wind Farm proposal must be rejected. The ability to undertake aerial firefighting operations on high intensity bushfires in this region would be reduced. Aerial firefighting appliances have been demonstrated to be critical in both the Lower Boro Road bushfire, and the Currandooley bushfire.*

> There are plenty of hazards to dodge, with another pilot working on the Sutton fire clipping powerlines this week.
>
> "It is a numbers game really," My Payne said.
>
> "It is surprising it doesn't happen more often with the amount of wire that is out there, and that's why we have to slow down and take our time."

*Figure 87: ABC news article quoting Nathan Payne on impact of powerlines on aerial operations*

While WTGs are much larger and more obvious obstacles for pilots, they will result in much slower operations for aerial firefighting operations. At least one pilot from the Currandooley bushfire has highlighted the dangers for aerial firefighters.

***Rejection 117:*** *The Jupiter Wind Farm proposal should be rejected. Pilots of aerial firefighting appliances identify they need to slow down for obstacles (such as powerlines). This reduces the effectiveness of aerial firefighting. Aerial firefighting operations were critical to controlling the Currandooley bushfire due to its high speed and variability.*

**Impact of the Jupiter Wind Farm**

This bushfire was not in immediate the vicinity of any proposed wind turbines (although it started right next to some WTGs). However the main fire front rapidly approached the area of the proposed Jupiter Wind Farm. Extensive aerial support and ground based appliances managed to keep the bushfire mostly to the western side of the Goulburn – Braidwood Road.

As the owners of J234A and J234B, we were in the direct line of this bushfire. Over a period of about 48 hours we were on high alert, watching and waiting in case we needed to protect our property. On a couple of occasions the fire jumped the Goulburn / Braidwood Road, however due to hard work of the RFS (including aerial support), the fire was brought under control and mostly kept to the western side of the Goulburn / Braidwood Road.

As previously discussed earlier in this submission, the unique direction of Boro Road means that in the scenario such as the Currandooley bushfire, the top part of Boro Road would be cut-off. The primary entry/exit method for Lower Boro Road would likely be impassable – trapping residents along the road). In such a case, aerial firefighting is likely to play a significant role in protecting property.

***Rejection 118:*** *The Jupiter Wind Farm must be rejected. Aerial firefighting plays a critical role during firefighting operations in this area, and the proposed wind farm would inhibit these operations.*

The Jupiter Wind Farm would have reduced the effectiveness of aerial firefighting appliances in the event this bushfire breached containment lines. At the speed of the fire, it would have taken less than four hours for it to reach J234A / J234B. Such a fire would have also reached many of our neighbors in less than 60 minutes. In such a case aerial firefighting would have been able to provide the rapid and direct response to reduce the impact on people and their homes – at least until ground based appliances could provide protection.

> ***Rejection 119:*** *The Jupiter Wind Farm must be rejected. The Currandooley clearly demonstrates the Jupiter Wind Farm is unsuitable for an area that is largely rural lifestyle in nature. Given the Jupiter Wind Farm WTGs would have hindered critical aerial firefighting operations in this instance, such a fire would result in significantly more damage and property loss had it jumped containment lines on the Goulburn / Braidwood Road.*

*There is one significant question that would need to be asked after a bushfire event that results in fatalities or loss of buildings and infrastructure on properties surrounding the proposed Jupiter Wind Farm: Who do the local residents and their insurers hold responsible and accountable? The NSW Government? EPYC? ERM?*

# ANNEX O – PRELIMINARY DECOMMISSIONING AND REHABILITATION PLAN

### 1.3 Project Operation Lifespan

According to EPYC, there is no incentive for the wind farm owners at the time to not complete decommissioning (Figure 81). However they have not considered the case where the cost of decommissioning far exceeds the payment of licensing fees. For example, lets assume the owner at the time has made a profit of $200 millions of dollars over 25 years. If decommissioning costs are say $50 million, and yet licensing fees are costing them $1 million a year, there is no incentive to rush ahead and decommission the site.

> Until decommissioning is complete, licence fees are also payable to the involved landholders. Therefore, there is no incentive for the wind farm owner at the time of decommissioning to leave wind farm components in-situ and not complete decommissioning, as they would continue to be committed to payment of licence fees to the involved landholders without receiving income generated from the wind farm.

*Figure 88: EPYC's claim that can not be backed up*

EPYC also “anticipates” a fund “will be established prior” to construction. Either a fund is established or not. Anticipating a fund to be established does not necessarily mean it will be established.

> ***Recommendation 115:*** *EPYC must establish a decommissioning fund is prior to any construction activities. The decommissioning fund must cater for the highest cost scenario rather than the estimated cost.*

In addition, the plan does not consider instances where EPYC or the owners of the Jupiter Wind Farm at the time are declared bankrupt at any time during the project lifespan. In such instances, money that has been put aside for decommissioning may be utilised to pay off creditors for the project. This raises the question of who then is to pay for the decommissioning?

> ***Rejection 120:*** *The Jupiter Wind Farm proposal should be rejected. EPYC has been unable to demonstrate sufficient planning for instances such as bankruptcy in relation to the decommissioning and rehabilitation plan.*

### 3.1.4 Early Decommissioning – Individual WTG

The term “ceases operating” has a very loose definition. A turbine that turns one full turn once a year could be considered “operating”.

> ***Recommendation 116:*** *EPYC must include the definition of “ceases to operate”: A WTG that fails to generate more than twenty percent (20%) of the expected output capacity in any consecutive 12 month period (example, a 4.5MW WTG at 30% capacity factor is expected to generate 11,826MWh per year. If any one turbine fails to generate 20% of that, or 2365.2MWh, it must be decommissioned).*

**2 Community and Stakeholder Consultation**

In this section, EPYC claim they (or the owner at the time) will undertake consultation with the hosts, community and other stakeholders. Given the current approach undertaken in consultation (see Main Report: 7 - Community and Stakeholder Engagement) this is a “throw-away” line from EPYC.

> ***Rejection 121:*** *The Jupiter Wind Farm proposal should be rejected. EPYC are claiming they (or the owner at the time) will undertake community consultation prior to decommissioning. EPYC have been unable to demonstrate consultation prior to approval and there is no evidence to suggest they are capable of undertaking reasonable community consultation.*

**5.3 Funding Arrangements**

In section 1.3, EPYC claim a decommissioning fund will be established prior to construction of the Jupiter Wind Farm. Yet section 5.3 claims the fund “will be established during operation and prior to decommissioning of the wind farm”. This is not acceptable – EPYC do not even seem to know when the fund will be established.

> ***Rejection 122:*** *The Jupiter Wind Farm proposal must be rejected. EPYC are unclear as to when the decommissioning fund will be established.*

EPYC also consider a review of the fund every five years to be sufficient. In a five year period significant changes can occur in any industry. An evaluation every five years is a good idea, however there is no mention of who is responsible for “topping up” the fund in the event a shortfall is identified. There is no identification of who is responsible for the review of the fund. And finally there is no identification of what happens if a shortfall in the funding can not be rectified.

> ***Recommendation 117:*** *An independent review of the decommissioning and rehabilitation fund must be conducted every three years. Any shortfall in funding must be rectified by EPYC or the owners at the time within six months of the review.*

> ***Rejection 123:*** *The Jupiter Wind Farm proposal must be rejected. EPYC have failed to identify who is responsible for any shortfalls identified in the decommissioning fund. EPYC have also failed to identify what happens in the event shortfalls of the fund can not be rectified.*

**6 Indicative Schedule**

Although EPYC claim there is no incentive not to decommission the Jupiter Wind Farm due to the leases, in section 6 they claim “Within six months of the termination of leases all above ground infrastructure will be removed”. However once the leases are terminated, there is no further incentive to complete the decommissioning.

***Recommendation 118:*** *All lease agreements (and payments to non-involved landholders) must continue until an independent review of the decommissioning and rehabilitation of the Jupiter Wind Farm has confirmed the process is complete. This ensures EPYC (or the owner at the time) has a continued incentive to complete the decommissioning and rehabilitation.*

**7. Review of this plan**

The review suggested by EPYC of the plan is to be conducted by EPYC or the owner at the time. Such a review would clearly be biased, and the process to dispute changes to the plan is somewhat loose (they will display the updated version on the Project website).

***Recommendation 119:*** *An independent review (to be payed for by EPYC or the owner at the time) of the Jupiter Wind Farm Decommissioning and Rehabilitation Plan is to be carried out. Proposed changes are to be on public display by the Department of Planning and Environment for no less than 30 days. All stakeholders are to be notified by EPYC or the owner at the time) in writing of the exhibition of the changes. Stakeholders will be able to submit comments, acceptance or rejections of the proposed changes within the exhibition period. The DPE will review the submissions and either reject or accept the proposed changes.*

***Rejection 124:*** *The Jupiter Wind Farm proposal should be rejected. EPYC's proposed review process is biased towards the proponent or owner of the wind farm at the time.*

# CONCLUSION

The EIS submission by EPYC for the Jupiter Wind Farm is a substantial body of work at 2483 pages. However when more detailed analysis is conducted of most sections, defects in the report appear as themes running throughout the report. Analysis of the themes in the recommendations and basis for rejections can be found in Table 36 and Table 37.

| **Recommendation Theme** | **Count** |
|---|---|
| Insufficient information provided | 20 |
| General and minor defects | 8 |
| Clarification over benefits to local community and non-involved landholders | 4 |
| Strategic justification, supposed benefits and project alternatives / site selection | 7 |
| Lack of WTG model identified, lack of design information | 4 |
| Lack of consideration of local impacts | 6 |
| Future expansion and compatibility issues | 4 |
| Community consultation and engagement, disregard for local community | 14 |
| EPYC's submission as an example on how not to do an EIS | 1 |
| Compatibility and Biodiversity | 18 |
| Insufficient noise modeling / noise assessment issues | 6 |
| Flaws in the visual assessment | 14 |
| Traffic assessment errors | 11 |
| Telecommunications issues not addressed | 6 |
| Bushfire assessment issues | 12 |
| Problems with decommissioning | 5 |
| Impact on Electricity Grid | 2 |

*Table 36: Recommendation themes and number of times found in the EIS*

| Rejection Theme | Count |
|---|---|
| Strategic issues (integration to grid, geographic location, project alternatives) | 7 |
| General issues | 6 |
| Insufficient information (particularly in a timely manner) | 7 |
| Consultation and Community Engagement | 31 |
| Inappropriate and insensitive communications | 2 |
| Approach using bullying and threats to community members | 4 |
| Failure to accurately describe the local community | 9 |
| False and misleading claims and factual errors in the report | 10 |
| Failures to correctly asses information (risk assessments etc) | 8 |
| Significant flaws in the biodiversity assessment | 20 |
| Selective nature of reporting and assessment | 4 |
| Significant limitations in the noise assessment | 9 |
| Issues with visual impact assessment | 10 |
| Failure to identify children's safety and local community transport issues | 5 |
| Bushfire assessment failures | 15 |
| Decommissioning | 5 |

*Table 37: Rejection themes and number of times found in the EIS*

Although wind farms on balance provide a good alternative to renewable energy, this submission not only identifies flaws in EPYC's proposal, but also identifies an alternative rooftop solar scheme that would provide more stimulus to the economy and spread the wealth more than a large scale wind farm would. In addition, a large number of properties in the area are sustainable lifestyle properties, and a balance in this area of large scale industrial wind farms along with sustainable lifestyle properties must be maintained.

There are several key issues that EPYC have failed on. Community Consultation has been abysmal to say the least. The visual impact assessment significantly under-rates the impact. The transport assessment ignores the safety of our children. And the impact on fauna such as the Eastern Bentwing Bat should not be "bought out" through the BioBanking scheme.

There is one inescapable fact in relation to the Jupiter Wind Farm proposal: There are at least 273 non-involved residences within 5kms of WTGs. Regardless of the formal definition of "rural residential", this proposal is within the highest population density of any wind farm in NSW (according to the NSW DPE).

**The EIS submission by EPYC should be used as an example on how <u>not</u> to undertake community consultation.**

**The Jupiter Wind Farm proposal must be rejected.**

# APPENDIX A: RECOMMENDATIONS

## Recommendations

# Appendix B: Basis For Rejection

## Rejections