147.

DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Neoen Australia Pty Ltd
Development Number:	354/V003/18
Nature of Development:	Crystal Brook Energy Park - Hybrid renewable energy project comprising a wind farm (26 turbines with a capacity up to 125MW), a solar farm (400,000-500,000 solar panels with a capacity up to 150MW), an energy storage facility (Lithium-ion battery with a capacity up to 130MW / 400MWh) and associated infrastructure for connection to the electricity grid (including a 33kV/275kV substation and a 300m long 275kV transmission line between the substation and the 275kV Para-Bungama transmission line).
Zone / Policy Area:	Primary Industry Zone - Port Pirie Regional Council
Subject Land:	32 allotments, approximately 3.5km north of Crystal Brook and 23km south-east of Port Pirie.
Contact Officer:	Lee Webb
Phone Number:	7109 7066
Close Date:	**Friday 29 June 2018**
During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders Street, Adelaide during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).	

My name: Sue Scarman

My phone number: 0418844935

PRIMARY METHOD(s) OF CONTACT: Email address: SUZ.scarman@gmail.com

Postal address: PO Box 754

Pt Pirie SA Postcode 5540

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [X] owner of local property
- [X] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [X] a private citizen

The address of the property affected is 479 BEETALOO VALLEY RD Postcode 5523

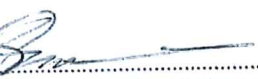
The specific aspects of the application to which I make comment on are: See attached.

I
- [X] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [X] appearing personally
- [ ] being represented by the following person : .....

(Cross out whichever does not apply)

Date: 26-6-18 Signature: 

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

The specific aspects of the application to which I make comment on are:

Having been heavily involved in tourism in the Flinders Ranges for a decade through being a member of Flinders Ranges SA Tourism board, a member of Southern Flinders Tourism & Taste, a tourism business operator and an elected member of Northern Areas Council I have a passion and an obligation towards protecting the integrity of the Flinders Ranges.

Throughout the application Neoen refer to the visual amenity of the wind proponent of the project below I have listed some of their quotes and responded to the claims made in them.

"Neoen considered feedback from members of the community and advice from expert consultants and responded by presenting a revised layout in April 2017. Neoen removed all turbines located in land zoned 'Landscape Protection Zone' under the Northern Areas Council Development Plan, and all turbines located north of Collaby Hill Road. In doing so, Neoen strove to respond to community concerns regarding the suitability of the Landscape Protection Zone for the development of renewable energy projects, reduced the visual impact on residents in the Beetaloo Valley, and avoided areas identified by our ecologists as having high conservation value." Pg2 V1

"The aim of the plan is to minimise the localised visual impacts of the proposal" Pg28 V1

"....location is at the very southern end of the lower Flinders Ranges. **The Flinders Ranges are highly valued for their aesthetic beauty and natural habitat and are a key tourism feature in the State." Pg31 V1**

- Neoen were keen to reduce visual impact for Beetaloo Valley, avoid areas of high conservation value; **do the same for all of the Flinders Ranges as they are a high conservation area in their entirety.** The Flinders Ranges & Outback are the **third highest earning tourism region** in the state following closely behind Adelaide City and Fleurieu. They are the world renown Flinders Ranges from the Southern Tip to the Far North; they are **The Flinders Ranges. $425m was spent in this tourist region in the 12months to December 2017, 1 in 12 jobs in the region are supported by tourism, there are 516 tourism businesses**, over 300 of which are in the Southern

Flinders Ranges. The anticipated **value of Tourism in the Flinders Ranges by 2020 is $425m.** Ref SATC Regional Visitor Strategy 2020

"Potential benefits to tourism (see, for example, the Hornsdale Power Reserve or 'Tesla big battery', which have become significant attractions to Jamestown)" Pg4 V1

"The region's economic base comprises agriculture, forestry and tourism." Pg7 V1

- The potential tourism to this region is already at a high due to the world renown **Flinders Ranges.** The Wind component of the Energy Park will not enhance the tourism value it will degrade its value. The Flinders Ranges' appeal to tourists is its natural aspects not industrialisation via wind farms.

"This final layout has been developed to achieve a balanced profile of solar and wind energy production on the site, whilst avoiding and minimising environmental, visual and noise impacts identified through consultation and specialist studies." Pg5 V1

repeated on Pg7 V1

"Avoiding development in areas where there will be an adverse impact on scenic landscapes" Pg31 V1

"However, the Mid North Region Plan also places high value on the landscapes of the Southern Flinders Ranges and tourism is anticipated to expand in this area due to its scenic value. Therefore, any renewable energy development would have to give careful regard to visual impact." Pg31 V1

"However, there will be a need to balance the opportunity that the project could deliver with its potential impact on an identified scenic landscape" Pg35 V1

- By making these towers the **largest** to be built in Australia **how does this avoid or minimise the visual impact on the Flinders Ranges?**

"However, there will be a need to balance the opportunity that the project could deliver with its potential impact on an identified scenic landscape" Pg37 V1

"However, there will be a need to balance the opportunity that the project could deliver with its potential impact on an identified scenic landscape" Pg37 V1

"Due to the dense, mature vegetation surrounding Bowman Park and its location in a valley, it is not expected that the turbines (the closest being 1.4km away) will have a large visual or noise impact." Pg41 V1

- 6 turbines are within a 2km radius from Bowmans Park campground and all 26 turbines are within 5km of Bowmans Park. No amount of tree coverage is going to alleviate the impact both visually and aurally of the 26 towers on what is currently a peaceful natural environment open to and well utilised by locals and tourists alike.

"The LVIA has made recommendations for mitigating the impact of the proposed development by way of refinements through the detailed design phase including microsite where possible to assist with height and scale of the proposed infrastructure and refine material and colour selections to ensure the development does not impose itself on the landscape more than is reasonably necessary." Pg47 V1

"It is acknowledged that this development will introduce a significant change to the visual appearance of the land involved and will have a visual impact in the context of the immediate locality. The potential impacts are considered to be generally confined to the site and its immediate Surrounds" Pg49 V1

- It is mentioned several times throughout Neoen's application that care has been taken to reduce the visual impact on the Flinders Ranges, but I fail to see how erecting 26 X 240m structures on the Flinders Ranges is in any way being even slightly mindful of the visual effect this project will have on the Australian icon and (hopefully soon to be) World Heritage Listed region which is the Flinders Ranges.

Cr Sue Scarman

479 Beetaloo Valley Rd

Beetaloo Valley SA 5523

0418 844 935

93/

DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Neoen Australia Pty Ltd
Development Number:	354/V003/18
Nature of Development:	Crystal Brook Energy Park - Hybrid renewable energy project comprising a wind farm (26 turbines with a capacity up to 125MW), a solar farm (400,000-500,000 solar panels with a capacity up to 150MW), an energy storage facility (Lithium-ion battery with a capacity up to 130MW / 400MWh) and associated infrastructure for connection to the electricity grid (including a 33kV/275kV substation and a 300m long 275kV transmission line between the substation and the 275kV Para-Bungama transmission line).
Zone / Policy Area:	Primary Industry Zone - Port Pirie Regional Council
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My name: James Spry

My phone number: 0419 443 245 or (08) 8636 2939

PRIMARY METHOD(s) OF CONTACT: Email address: james.spry@gmail.com

Postal address: 270A Beetaloo Valley Rd

Beetaloo Valley SA Postcode 5523

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [✓] owner of local property
- [✓] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [ ] a private citizen

The address of the property affected is 270A Beetaloo Valley Rd Postcode 5523

The specific aspects of the application to which I make comment on are:

I am opposed to the wind turbines (windfarm) aspect.

Please refer to the attachment for details

I
- [✓] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [✓] appearing personally
- [ ] being represented by the following person :

(Cross out whichever does not apply)

Date: 29/8/2018 Signature:

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

James Spry

270A Beetaloo Valley Rd
Beetaloo Valley, SA, 5523
Phone: 8636 2939

State Commission Assessment Panel

Development Division
Department of Planning, Transport and Infrastructure
Level 5, 50 Flinders St, Adelaide

To whom it may concern,

I strongly object to the planned construction of a Windfarm, as part of the Crystal Brook Energy Park (refer Development Number 354/V003/18). My objections are outlined as follows.

Social disruption and negative community impact:

My most significant objection is due to the division and disruption that this will cause to the local community. Many local residents will be affected by the construction and operation of the proposed wind turbines. However, only a very few people will benefit from them. Most of the local community (myself included) is being asked to accept the consequences of significant visual changes to the historic and iconic Southern Flinders Ranges, but without any thought given to the ongoing long term negative consequences of this permanent change to the natural beauty of the area. We are being asked to accept the detrimental effect that turbine noise will have on the local community, without any recourse should it prove to be unacceptable. We are being asked to sacrifice the beauty and serenity that we now take as a natural part of our lifestyle, so that other people can benefit – at our expense and with seemingly lip service paid to our concerns.

Since the recent community consultation, these issues are now becoming apparent to the local residents and the wider community. And they are starting to strongly divide the community, who are not unanimously in favour of this development. Once the construction is completed the rift will become much wider and have the potential to cause serious social disruption and dislocation to a small and close knit rural community.

A holistic approach to reviewing this development would consider this as a significant detriment to the local community, and therefore a significant negative outcome of the development. Therefore it would seek to find a more appropriate solution, where all parties can be accommodated, and where the whole of the local community benefits without disadvantage to any.

Poor community consultation and communication:

As mentioned above, the community consultation has been very late and quite limited. Also the level of detail in the community consultation has been poor, and seems to have been more aligned to a public relations campaign rather than for the purposes of information dissemination. The response when questioned about noise levels was not to provide any modelling results or other hard data, but a simple response of "it falls within the EPA guidelines". When asked what the EPA guidelines actually are, the response was non-committal and vague, giving the impression that no one actually knew what they were, or didn't want to give any factual data because they were worried about the results. Not only that, the locations of the wind turbines where not entirely accurate, and no distances were given to local residences (including my own) and other significant areas in the district (like the caravan park, school, CBD and other public areas and local attractions.)

So, far from being an open and honest information sharing consultative process, this appears to have been one

based on achieving the minimum level that might be considered acceptable. In other words, the "minimum that we can get away with", and "make sure you don't let the locals know about anything that they might get upset about". Which hardly seems appropriate for a multi-million dollar development that will affect many hundreds of local people.

In my opinion, this could hardly be considered a community consultation. It should be considered a community "white-wash" (or possibly a community "green-wash"). I ask the question, how can the local community properly consider and accept this development, if they don't actually understand it?

Local economic benefits are widely overstated and overly generalized:

The benefits of this development have been portrayed as being excellent for local employment, especially during the construction phase. However, there are only a handful of permanent jobs planned after construction is complete. Also, experience on other large construction projects, as well as the typical scenario on other windfarms, leads me to believe that almost all (if not all) of the construction jobs will be for non-local workers. This will leave the local workforce "sitting on the sidelines" as it were, or serving pies, pasties and iced coffees to construction crews. In which case the economic benefit to the local community will not be significantly large and will not be for any significant duration. The majority of the economic benefit will, in fact, flow to non-local construction companies and workers, where the majority of the capital will flow. Temporary accommodation, meals, some local travel and inconsequential construction work is the *best* economic benefit that we can realistically expect from this project. Thus giving a small temporary benefit to a few local businesses.

Considering the loss of visual amenity, increase in noise pollution, and potential for a decrease in tourism revenue (see next section) this seems very high price to pay for a very small very short term boost to the local economy. A holistic approach to this development would ensure a significant and sustainable economic improvement to the local community.

Significant potential for ongoing loss of local economic activity:

Many of the local businesses, and local industries (excluding broad-acre farming) rely on the natural beauty of the local landscape. There are many local businesses that rely on tourism which enjoys this beauty and tranquility. Many of the local residents enjoy the peace and quiet and relaxed country lifestyle of the local region. Other industries in the town require a quiet and tranquil environment to operate in an effective manner (such as the school, hospital, retirement home etc.) With the very close location of a significant number of turbines, this tranquil local environment is likely to be threatened. In which case there is a serious risk this will drive people away from the town, and the local economy will suffer from a downturn due to the impact of the turbines.

Although there will be some small increase in employment, which could possibly bring a family or two into the town, it is also possible that more families will decide to move away from the town due to the noise or visual impact. Thus it is quite likely that there will be a *net loss* of population from the small local community, with a subsequent loss of economic activity. If a decline in the local population does occur, it is likely to have a flow-on effect to local house prices, which impacts the asset base of the whole community. This then leads to a cascade of negative financial and social impacts. If this is of a significant enough size, then it could have a very detrimental effect on the town's population, with the possibility of a terminal decline for the town. This hardly seems to be a justifiable risk, for the sake of a few extra jobs.

To view the economic effects of this development in a holistic manner, one can see the potential for negative consequences in parallel with the positive ones. And the potential for a net negative effect cannot be ignored, neither should it be trivialised. Unless a significant risk mitigation strategy is implemented, to avoid this effect, then the risk is too great for the supposed reward.

Proximity to the local town and dwellings, and businesses:

As already mentioned in the above sections, there are more than twenty (currently 26) wind turbines proposed in various locations surrounding the township of Crystal Brook, and the wider local community. These will be the largest turbines ever installed in Australia and some of the closest to any township/residential area. Thus they will impact more people than any previous wind turbine development. Therefore there is essentially no precedent with which to compare this development. There is no historical data for how a development such as this will impact the local community, and what *all* of the impacts will be.

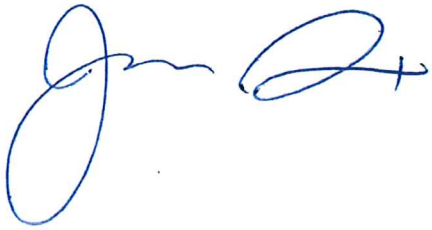
It is already known that some people suffer negatively from wind turbines (whether this is psychological or not is a matter of some debate, but it is irrelevant as the side-effects are known and well documented.) Should that be only ten percent of the population, then it is likely that over one hundred people will suffer as a consequence of these proposed wind turbines. That is a very significant number of people. That is one hundred people who may want to leave the local community, who may not be able to work or go to school effectively. That is ten percent of the tourists coming to the area that could be effected enough to leave, and recommend to others to not even visit. That is possibly ten percent of the local businesses that could close. That is ten percent of people in the local hospital and nursing home, who are badly effected enough to leave. And there could be more effects than this, especially if more than ten percent of people are negatively affected.

Looking at this development holistically, I can see no reason why these wind turbines need to be placed so close to residences and the local township. There are plenty of other more appropriate areas to locate these turbines, and the further away they are from any residences, but specifically the local town, the better. (As a suggestion, 11km South of Crystal Brook along the Cattle Track road there are hills which would be eminently suitable for these turbines.)

And in conclusion, let me just end with a warning about the potential for social activism in our modern online world:

In a world of social media and instant global news, it is a brave person who neglects or ignores their responsibility to protect people and communities, and puts the profits of corporations first.

Thank you for your time and kind consideration



James Spry
6/29/2018

92/

DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Neoen Australia Pty Ltd
Development Number:	354/V003/18
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My name: Mrs Karen Spry

My phone number: 0412298949 (08) 86362939

PRIMARY METHOD(s) OF CONTACT: Email address: karenspry52@gmail.com

Postal address: 270A Beetaloo Valley Rd

Beetaloo Valley SA Postcode 5523

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [M] owner of local property
- [M] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [ ] a private citizen

The address of the property affected is 270A Beetaloo Valley Rd Postcode 5523

The specific aspects of the application to which I make comment on are: Heads Rd access for duration of construction & operation - very narrow. Exclusion zone for eagles. Noise. See attachment for more details

I
- [M] wish to be heard in support of my submission locally
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [M] appearing personally
- [ ] being represented by the following person : .....

(Cross out whichever does not apply)

Date: 28/6/18 Signature: Karen J. Spry

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

Karen SPRY 270A Beetaloo Valley Road, Beetaloo Valley SA 5523 Ph: 0412 298 949 or 8636 2939

Concerns regarding the proposed wind generation facility at Crystal Brook.

Our farm is located 2.7 km from Wilkins Highway at 270A Beetaloo Valley Road, Beetaloo Valley, 5523, with Crystal Brook creek running through it.

We farm in a holistic manner using ruminant animals. This means that in order to make decisions we must take into account how that decision will affect every part of our farm from:

- soil microbes,
- flora,
- fauna,
- insects and
- birdlife,
- our livestock,
- through to how it will affect us,
- our neighbours and
- our local community.

Key indicators for us to determine if we are doing a good job in increasing biodiversity are the predatory species for example:

- spiders,
- lizards,
- monitor lizards,
- goannas,
- corvid bird species,
- parrots,
- other small native birds,
- hawks,
- falcons, and
- eagles.

The increase of these species shows we are increasing biodiversity on all levels. This leads to a more resilient landscape that can support more life, thus increasing fertility naturally. **When we lose predatory species, ecosystems collapse.**

The presence of a wind farm will undoubtedly affect many of the aforementioned species. The **eagles** are most notable as they have a very wide range to hunt for food. **The 500m exclusion zone is not enough to protect these birds.**

The destruction of whole areas of native scrub will also affect the monitor lizards and goannas as they routinely travel up and down Crystal Brook Creek looking for food. **The destruction of scrub also affects the smaller native birds that rely on this habitat, some of which are becoming rare.**

Heads Road is a narrow track. I have seen how wide those trucks are that transport wind farm parts and they will not fit along most of Heads Road. This means **remant scrub will be**

bulldozed to make way. Neoen said they will fence off sections of land and replant with native plant species, but it will take about 30 years for it to be properly habitable by local wildlife, assuming it's been properly cared for during establishment. **I also do not believe Neoen will keep their word on this as their track record so far has been dodgy with regards to their dealings with me.** Just locking up an area isn't conservation either. This method leads to degradation of landscapes.

We encourage people to visit our farm to learn about what we do, how we regenerate our little patch of landscape and biodiversity through our management practices so they can know that when they buy from us, **they are helping to sequester carbon, save native species, and also save the planet.** The sight and noise of **240m turbines will be a major turn off** for these people who come to get away from the noise of the city. **This will hurt our business as this is a fundamental marketing method for us.**

As for wind turbine noise, we will be in close proximity to the proposed turbines, with nothing between us and them to dampen the noise. I already suffer from **sleep apnoeia,** so any extra disturbance to my sleep will be detrimental to my health. I am quite happy with the sound of wind in the leaves and birds singing as there is no rhythm to those. But the **rhythmic beating of turbine blades will be a problem for me,** especially when the **prevailing winds are from the south and south west.** This will funnel the noise up to my house. I also love having my whole house open on a hot summer's night to cool it down. **I really don't want to have to use the airconditioner because I can't open the windows because of the noise of the wind turbines.**

I am also concerned with the change to the value of my property. If we should decide to sell, potential buyers don't actively seek properties located right next to or near to wind farms. This means we stand to lose a lot of money should that ever happen.

Also, I have already given my feedback to Neoen on several occasions only to have them either respond in an argumentative manner or completely ignore what I've had to say. Lots of people, like me, have vehemently opposed this proposal, only to be largely ignored.

I see this development as not being helpful to the local community I am concerned **most of the jobs will be located elsewhere** (ie: control rooms don't need to be located on site, they can be anywhere in the world), **most of the construction labour will be 457 VISA workers** (which they have done for other developments) and when it's operating (God forbid) many of the **workers will already be employed at Hornsdale** and will be swapping one wind farm for another. I don't see any nett benefit for the local community.

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DPTI:scapreps

From: Frome EO <Frome@parliament.sa.gov.au>
Sent: Friday, 29 June 2018 10:56 AM
To: DPTI:scapreps
Subject: FW: Submission re. Neoen DA for Crystal Brook Energy Park
Attachments: Submission KJ.pdf

Good Morning

Please find attached submission on behalf of Kirstie Jamieson.

Regards

Yvonne Begg
Office Manager
Hon Geoff Brock MP
Member for Frome

T: (08) 8633 1210 F: (08) 8633 1758
Shop C, Ellen Centre
PO Box 519 Port Pirie SA 5540

From: Kirstie Jamieson [mailto:kirstie.jamieson@clearmail.com.au]
Sent: Monday, 25 June 2018 11:51 AM
To: Frome EO <Frome@parliament.sa.gov.au>
Subject: Submission re. Neoen DA for Crystal Brook Energy Park

Dear Geoff,

Please find attached my submission to the State Commission Assessment Panel regarding Neoen's application to develop Crystal Brook Energy Park.

My main objections and concerns regarding this project are -

- that the ***visual amenity*** of the area will be destroyed
- ongoing ***noise*** from the wind turbines
- destruction of ***habitat and wildlife*** corridors
- that the guidelines regarding wind farm development ***urgently*** need to be updated

Neoen has ***dramatically understated the community opposition*** to the wind farm component of the project.

I am concerned that there is ***transparency in the application assessment process***.

Many residents of both Crystal Brook and Beetaloo Valley have invested life savings and effort into their lifestyle properties, have revegetated and cared for their environment, installed renewable energy on their homes, and live where the dominant sound around them is the sound of birds.

We are understandably devastated by the prospect of losing so much of what we love about where we live.

I don't believe there are currently any onshore wind farms with 240 metre tall turbines anywhere in the world. Most of the turbines in the Mid North are 140 to 180 metres tall and are nowhere near as close to townships as the Crystal Brook Energy Park.

Submission to the State Commission Assessment Panel regarding the application by Neoen Australia Pty Ltd for the development of Crystal Brook Energy Park - Development Number 354/ V003/18

I wish to express my objections to and concerns regarding the above development with the hope that they will be taken into consideration by the panel when making their recommendations to the Minister for Planning.

My objections and concerns are -

- that the ***visual amenity*** of the area will be destroyed
- ongoing ***noise*** from the wind turbines
- destruction of ***habitat and wildlife*** corridors
- that the guidelines regarding wind farm development ***urgently*** need to be updated

VISUAL AMENITY

On page 31 Part 1 of the Neoen Development Application reference is made to the Mid North Region Plan where there is mention of the high value placed on the landscapes of the Southern Flinders Ranges and the anticipated expansion of tourism. The Plan states that planners should ensure **"development is appropriately located, and not in areas that may adversely affect scenic landscapes"**

It is the responsibility of wind farm developers and those making decisions about wind farm developments to consider the visual impact.

Without any doubt, twenty-six 240 metre tall wind turbines placed within a footprint of approximately 14 square kilometres on the gentle slopes close to main roads, 3 km from Crystal Brook township and obscuring the view of the southern end of the Flinders Ranges **will adversely affect the scenic landscape.**

The wind towers will be highly visible from many kilometres away, interrupting the profile of the Southern Flinders Ranges especially from the south and east.

The Landscape and Visual Impact report in Part 2 is an impenetrable document which comes to conclusions about the landscape that are not only misleading (through use of wide angle lens which flatten out the landscape and aerial photography which doesn't give an actual representation as we would see it on the ground) but also has included a photo to demonstrate visual impact from a distance of a different wind farm (page128) with only 2 towers visible and the towers only 150 metres tall. The report acknowledges that large objects in the landscape can look smaller in photo montages than in real life (page 158). **The photo montages still manage to show how overbearing the towers will be in the landscape.**

Here in the Mid North region we already live with many wind farms lining the ridge tops - there are some places that should be protected from wind farms so that there are still some scenic views that are wind farm free. The Southern Flinders Ranges is one of those places and **the Southern Flinders Ranges start at Crystal Brook.**

This is the southern view from our place (about 7 kms from the proposed wind farm) - almost the entire wind farm will fill that view, with the towers appearing nearly as tall as the trees.

NOISE

Garth Heron, from Neoen, told us all to expect noise - as if that's something that is unimportant, or that we will get used to. Neoen claims that the proposed project site has a strong wind resource but in fact it doesn't fall into the area that the State Government indicates has good wind resource in their Wind Energy Atlas (Renewables SA website). This is why Neoen are proposing such huge wind turbines - to attempt to make the project viable.

I have lived at Beetaloo Valley for the past 13 years and it is not a windy place. It is an extremely quiet place with the predominant sound being that of birds. I am concerned that the sound from the wind farm will become a distressing nuisance with potential to harm my wellbeing and that of my neighbours.

As someone who grew up and spent most of my life in Adelaide, I know what it's like to live with the constant hum of the city which generally has little or no impact on your enjoyment of day to day living. Now that I have **experienced and value the silence of bush life, the potential for the introduction of a highly annoying, repetitive noise into the landscape fills me with sadness.** I have listened to the stories of many people throughout the region who have been negatively affected by the noise from a nearby wind farm. This includes involved landholders who say it was the worst decision they ever made.

Independent researchers at Flinders University are currently undertaking a wind farm noise study to determine whether or not wind farm noise causes sleep disturbance. Their results will not be known for several years but if the study shows that wind farms do cause negative health impacts because of sleep disturbance, how will this be remediated for all of those who currently live near wind farms? **Surely the precautionary principle should apply**, especially in light of the wind turbine size increasing and inadequate EPA guidelines in place for planners to make reasonable and informed decisions regarding setbacks from townships and non-involved houses.

IMPACT ON VEGETATION AND WILDLIFE

One of the reasons many of us love living in the Southern Flinders Ranges is that we are surrounded by a wonderful landscape rich in biodiversity. The ranges provide a precious habitat and wild life corridor that those of us lucky enough to live here can observe.

The ***Summary of EPBC Protected Matters database search*** on page 15 of the Flora and Fauna Survey, shows 20 nationally threatened species, one nationally threatened ecological community and 9 migratory species that will be potentially impacted by the proposed development, listing as the contributing factors -

- removal of habitat/fauna disturbance
- collision associated with turbine operation
- construction activity
- removal of communities within access tracks

Removal of habitat/fauna disturbance

The project area is described as 'predominantly gently sloping land to the west, rising to the elevated undulating terrain of the ranges and valleys to the east. The land is primarily used for cropping and grazing along with areas of remnant woodland and grassland vegetation and contains numerous rocky outcrops." (Neoen DA, page 7)

What is not well described anywhere in the application is that right in the middle of the proposed project area there is valley through which the Crystal Brook (also called Mercowie) runs through to Bowman Park and then into Crystal Brook township and on into the Broughton River catchment. The creek originates further north in the ranges (Beetaloo Reservoir) but is spring fed in many locations along its path. As such **it is an important corridor for wild life that runs unbroken for many kilometres.**

The creek along this patch is lined with large eucalypts, and there is an escarpment with rocky outcrops along a significant stretch of the creek. I have seen a wedge-tailed eagle's nest in a tree on the ridge line there. The large trees provide refuge, nesting hollows, roosting and hunting grounds.

The area is rich in wild life, especially birds. In table 7 on page 18 of the Fauna and Flora Survey, Painted Button Quail is listed as likely to occur in the area; Bush Stone Curlew and Lace Monitor as unlikely; and Echidna as possible. Only a few weeks ago I saw Painted Button Quail very near the proposed project area. Bush Stone Curlew have been heard (by me) and seen (by other residents of the valley). I have seen echidnas - alive in Beetaloo Valley and dead on Wilkins Highway. Lace Monitors *(Varanus varius)* most definitely roam the riparian zone and have been seen by many residents from Beetaloo Valley and others who live along the ranges towards Crystal Brook township.

With noise levels expected to be 45db(A) or higher within the project area, noise alone has the potential to keep wild life away. Like humans, animals have ears.

Most significantly, with the riparian zone being surrounded by turbines on all sides, the passage along the system will be interrupted. There is potential for that to have a catastrophic impact on the wild life.

On page 48 of the Flora and Fauna Survey, it states that the *"mallee vegetation on the eastern side of the Mercowie Creek was intact and in moderate condition with substantial understory species diversity despite evidence of ongoing grazing.* ***While this area was not surveyed extensively, the area is considered to be of high conservation value due to the likelihood of annual and ephemeral threatened species being present as well as being a substantially intact patch to which any fragmentation would reduce local biodiversity values through increased edge effects, disruption of animal movement pathways and potential changes in hydrology"***

With *'knowledge so poorly captured in the BDBSA (Biodiversity Database of SA).....there is uncertainty in relation to the status of species, and additional species are likely to occur that are not reflected in the database records'* (page 13, Flora and Fauna Survey).

There is a great danger that significant damage will be done, and we won't even know what we've lost!

Collision associated with turbine operation

As mentioned in the Flora and Fauna Survey, Wedge-tailed Eagles live in the area and I regularly see them patrolling along the ranges. Known nests exist in the middle of the proposed project area and although a 500 metre buffer zone is recommended, I believe this will not provide protection for these and other raptors.

The proposed 240 metre height of the towers with a blade sweep of 19,600 m2 placed so closely together will provide little opportunity for birds to avoid harm.

Other large raptors such as the Spotted Harrier and Brown Falcon live along the ranges, as do many species of bat.

Construction activity

The construction activity required to transport such large wind turbine components to site would inevitably cause major disturbance to the environment and the animals that live in it. Constructing access roads, hardstands, laydown areas and excavation for underground cabling would negatively impact most of the site including areas of high conservation value.

Activity in the Crystal Brook (Mercowie) and along the escarpment would cause catastrophic harm. **Local knowledge tells us that construction teams pay little regard to sensitive areas once construction commences.**

Removal of communities within access tracks

With such large turbines in a relatively small footprint, the number of access tracks needed to construct and service the site would severely degrade and fragment the existing vegetation. The impact on plant and animal communities would be devastating.

NEED TO UPDATE GUIDELINES

The current EPA Guidelines were written in 2009 and are in urgent need of review and upgrading.

In light of the unprecedented height and increased capacity of the proposed wind turbines, set backs from townships and non involved houses should surely be greater.

Until that review has been undertaken, the precautionary principle should apply.

Wind farm planning policy has not been reviewed since 2011.

It is shameful that development continues to go ahead **at any cost** when the genuine concerns of regional people go ignored. Surely there are solutions to be found that will **not cause harm to those who choose to live in regional areas.**

Personal note: Our community at Beetaloo Valley has been battling to protect the Southern Flinders Ranges from development for many years now. ***It shouldn't be expected that our rights to a peaceful rural lifestyle must be fought for, year after year.***

SOME COMMENTS ON COMMUNITY CONSULTATION

Neoen's assertions about community support and community consultation are misleading. While representatives of Neoen did meet with Beetaloo Valley residents on quite a few occasions, they were often unable to answer our questions (many have remained unanswered) or they gave patronising answers to questions. Neoen would have been aware of the local opposition to the Origin wind farm proposal prior to meeting with residents. They offered us our own community fund to try to get us onside. We unanimously refused their offer.

Not including involved landholders (one in Beetaloo Valley) nearly every resident of Beetaloo Valley is opposed to the wind farm component of the project. Residents of Beetaloo Valley, Crystal Brook and Laura had fence signage on their properties all of which was stolen in the middle of the night before Easter 2017. The police have not found who did it.

The Fairfax Media poll mentioned on page 3 Part 1 does not reflect the views of the those living closest to the proposed development. Although the poll was in the local media, it was available online to the entire Fairfax Media network.

The final community consultation in Crystal Brook took place within a week of the due date for Neoen to submit their DA. Not really a consultation - more of a display of the project. The methods used to consult with Crystal Brook residents about the project have been poor, and many residents who will be directly impacted by the development didn't find out about it from Neoen but from others who alerted them.

Neoen fail to mention the petition that was tabled in the SA Parliament by Minister Geoff Brock in July 2017 calling for increased set backs from wind farm developments, nor have they mentioned the media coverage and other delegations to local and state government representatives to voice local concerns and opposition. The petition was initiated by a 17 year old resident of Crystal Brook whose family has just completed building their family home on the hills of the Southern Flinders Ranges, to find that they are potentially the closest non-involved residence to the wind farm. They are devastated.

TRANSPARENCY

It has been noted that the Presiding Member of the SCAP, Simone Fogarty, works for GHD, the consultants who put together the Neoen Development Application. Simone Fogarty signed off on some of the documents for Neoen's Hornsdale Stage 3 DA and declared a conflict of interest during the SCAP assessment process. Therefore it is important for the sake of transparency that all GHD documents are correctly signed off - this is not the case for this application. Cover sheets on pages 281 and 406 of Part 2 are not signed. It is important that we know who signed off on these documents.

SUMMARY AND CONCLUSION

My objections and concerns are -

- that the ***visual amenity*** of the area will be destroyed
- ongoing ***noise*** from the wind turbines
- destruction of ***habitat and wildlife*** corridors
- that the guidelines regarding wind farm development ***urgently*** need to be updated

Neoen has ***dramatically understated the community opposition*** to the wind farm component of the project.

I am concerned that there is ***transparency in the application assessment process***.

Many residents of both Crystal Brook and Beetaloo Valley have invested life savings and effort into their lifestyle properties, have revegetated and cared for their environment, installed renewable energy on their homes, and live where the dominant sound around them is the sound of birds.

We are understandably devastated by the prospect of losing so much of what we love about where we live.

I don't believe there are currently any onshore wind farms with 240 metre tall turbines in the world. Most of the turbines in the Mid North are 140 to 180 metres tall and are nowhere near as close to townships as the Crystal Brook Energy Park.

The proposed wind farm component of the Crystal Brook Energy Park is too tall with turbines too close to each other, too close to Crystal Brook and other non-involved residences, and too likely to have a harmful environmental impact.

Furthermore it is imperative that the panel consider their **duty of care** in relation to the assessment of this project in the light of inadequate guidelines, and proximity to and impact on the important scenic landscape of the Southern Flinders Ranges.

I sincerely hope that the panel will hear my objections and concerns.

Kirstie Jamieson
696 Beetaloo Valley Road
Beetaloo Valley SA 5523
kirstie.jamieson@clearmail.com.au

All photographs were taken by me

DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Neoen Australia Pty Ltd
Development Number:	354/V003/18
Nature of Development:	Crystal Brook Energy Park - Hybrid renewable energy project comprising a wind farm (26 turbines with a capacity up to 125MW), a solar farm (400,000-500,000 solar panels with a capacity up to 150MW), an energy storage facility (Lithium-ion battery with a capacity up to 130MW / 400MWh) and associated infrastructure for connection to the electricity grid (including a 33kV/275kV substation and a 300m long 275kV transmission line between the substation and the 275kV Para-Bungama transmission line).
Zone / Policy Area:	Primary Industry Zone - Port Pirie Regional Council
Subject Land:	32 allotments, approximately 3.5km north of Crystal Brook and 23km south-east of Port Pirie.
Contact Officer:	Lee Webb
Phone Number:	7109 7066
Close Date:	**Friday 29 June 2018**
During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders Street, Adelaide during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).	

My name: Tabitha Runkel

My phone number: 0410 891 289

PRIMARY METHOD(s) OF CONTACT: Email address: tabitha.runkel@live.com

Postal address: PO Box 396, Crystal Brook, SA Postcode 5523

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [✓] owner of local property
- [ ] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [ ] a private citizen

The address of the property affected is 278 Goyder Hwy., Crystal Brook Postcode 5523

The specific aspects of the application to which I make comment on are: The proposed windfarm, if approved, will set a precedent for future development in the Flinders Ranges, an area which should remain untouched for huge developments like this. The proposed wind farm is situated too close to town and homes, and will cause a number of issues such as decreased property valuations, sleep deprivation, constant noise, affects fire fighting capabilities, plus many other issues.

I
- [✓] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [✓] appearing personally
- [ ] being represented by the following person : .....

(Cross out whichever does not apply)

Date: 24/6/18 Signature: TRunkel

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

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DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
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My name: Ben and Leah Kupsch.

My phone number: 0421769333.

PRIMARY METHOD(s) OF CONTACT: Email address: leah.stringer@hotmail.com.

Postal address: 32 mais TCE
Crystal Brook SA. Postcode 5523.

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [x] owner of local property
- [x] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [ ] a private citizen

66 Brandis St, Crystal Brook

The address of the property affected is 32 mais TCE, Crystal Brook Postcode 5523

The specific aspects of the application to which I make comment on are: We strongly disaggree with the proposed wind towers for Crystal Brook SA. As they will effect the value of our properties and our general life style at Crystal Brook. They are far too big and too close to s

I
- [x] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [ ] appearing personally
- [ ] being represented by the following person : .....

(Cross out whichever does not apply)

Date: 23/06/18 Signature: [signature]

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

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REPRESENTATION ON APPLICATION

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My name: MARY MORRIS.

My phone number: 0438 066634

PRIMARY METHOD(s) OF CONTACT: Email address: morrisdg@outlook.com

Postal address: PO Box 188

EUDUNDA SA Postcode 5374

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [ ] owner of local property
- [ ] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [✓] a private citizen

The address of the property affected is Bectaloo Valley Rd, Betaloo Valley Postcode 5523.

The specific aspects of the application to which I make comment on are: As a long term + frequent visitor, I object to the wind turbines in the project. Project cannot meet Objective 2 of Interface between land uses "Protect community health + amenity from adverse impacts of development" See attachment for further information.

I
- [✓] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [✓] appearing personally OR
- [✓] being represented by the following person : TBA - depending on hearing date.

(Cross out whichever does not apply)

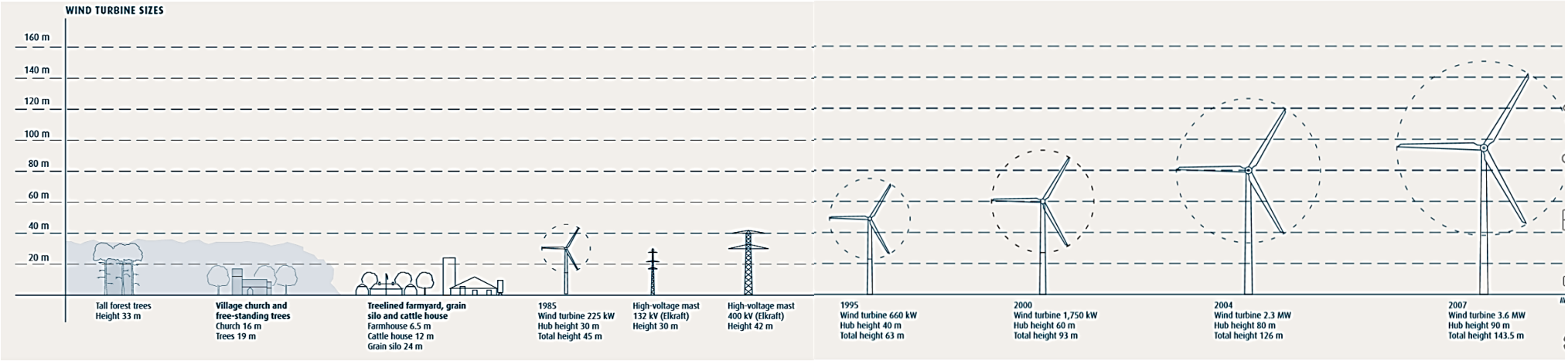
Date: 29/6/2018 Signature: M Morris

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

Wind turbines in Denmark published by the Danish Energy Agency, November 2009

http://www.ens.dk/sites/ens.dk/files/dokumenter/publikationer/downloads/wind_turbines_in_denmark.pdf

Increase in wind turbine size since 1985 and comparison with other tall structures



Emeritus Professor Colin Hansen
School of Mechanical Engineering
University of Adelaide

February 25, 2014

Dear Ms Morris

I am writing to provide my opinions concerning some of the problems associated with the 2009 SA Guidelines for wind farm noise and in particular I am writing in support of the comments made by the well-respected acoustical consultant, Mr Les Huson in his February, 2014 report reviewing the Flyers Creek wind farm approval and his November, 2011 report for the Cooranga North Community in which he described his outside to inside noise reduction measurements. The opinions I express here are my own and are not necessarily endorsed by The University of Adelaide.

One of the more important incorrect assumptions implicit in the guidelines is that there is a substantial reduction in noise when travelling from outdoors to indoors. To satisfy World Health Organisation (WHO) Guidelines, the maximum allowable noise level in a bedroom at night is 30 dBA if the sleep of 90% of people is not to be disturbed. This implies that to protect 90% of people, there must be a minimum noise reduction from outdoors to indoors of 10 dBA if the allowed outside noise level is 40 dBA. The validity of this assumption is discussed below.

The A-weighted noise reduction, from outside noise levels to inside noise levels, that will be experienced by any dwelling will depend on the following factors:

1. The construction of the dwelling (wall materials, number of windows, roof materials etc).
2. The area of openings due to windows being open, particularly in walls facing the source of the sound.
3. The character of the noise: low-frequency noise is less attenuated by houses than high-frequency noise. Thus if the noise consists of mainly low-frequency components (as does wind farm noise at distances of 1 km or more from the nearest turbine in a wind farm), then the noise reduction from outside to inside will be much less and sound will intrude through open windows that are not even facing the turbines.

During the course of undertaking our Australian Research Council funded project on the impact of wind farm noise on rural communities, my research team has made a substantial number of measurements of the reduction in wind farm noise levels from outside to inside for a number of residences in the vicinity of the Waterloo wind farm. All of our measurements have been for the situation where all windows and doors were closed. For this case we have measured between 12 and 15 dBA noise reductions at times during the night when it was clear that the wind farm was the dominant noise source. However, if windows were open, the noise reduction would be substantially less than this and this is supported by the measurements taken by Mr Les Huson and reported in his November, 2011 report. Especially at low frequencies, inside noise levels are very dependent on where in a room they are measured, which means that there would need to be multiple inside measurements taken to properly define an average outside to inside noise reduction and the noise source would need to have a similar frequency content as the predicted wind farm noise at each particular location.

It is clear that specification of 40 dBA of allowable outdoor noise levels is no guarantee that noise levels indoors will not exceed 30 dBA at night so it would be safer to specify average indoor noise levels and the number and location of measurement microphones. During compliance checking it would be preferable to measure indoor noise levels during times when the local wind strength is low to avoid contamination of the data due to noise generated by wind blowing past vegetation and other objects. Taking measurements indoors would also mean that large microphone wind shields would be unnecessary. To avoid contamination of the data by internal noise sources in a residence, the measurements would need to be attended. If this caused problems, compliance checking could consist of outside to inside noise reduction measurements using an artificial sound source and outdoor noise measurements with just the wind farm noise.

A complicating factor that should be mentioned here is that the 30 dBA limit recommended by WHO for people to not suffer sleep disturbance is based on the noise being dominated by traffic noise which is not so heavily weighted towards low-frequencies as wind turbine noise is. It is well-known that low-frequency noise is more annoying than noise spread over low, mid and high frequencies for the same total A-weighted level (dBA). Thus 30 dBA of predominantly low—frequency noise as produced at distant residences by a wind farm will cause more annoyance than 30 dBA of traffic noise. The 30 dBA limit proposed by WHO is also based on the response of people living in the suburbs of European cities where levels of background noise experienced and accepted by residents would be much greater than experienced in an Australian rural environment. Of course there are always a certain percentage of individuals even in an urban environment who will be disturbed at levels of 30 dBA. Finally, distant traffic noise is not modulated, does not vary rapidly over short periods of time and is thus much less likely to cause annoyance than noise of the same average level produced at residences by wind farms, which does vary substantially over very short time periods as well as over long time periods.

The SA EPA wind farm guidelines also suffer from the additional limitations listed below.

1. Compliance checking is based on the measurement of LA90 noise levels, which are the noise levels that are exceeded 90% of the time. Reporting these measurements thus misses the 90% of the data that exceed the reported level. Typically, average LAeq levels would be at least 2 dBA above the LA90 levels (much more for modulated sound which often characterises wind farm noise) and it is the average levels (over a 10-minute time period) that are used in the noise level prediction process specified in the guidelines. Compliance checking also implements the dubious process of fitting a regression line to a large number of data points of measured noise level vs wind speed at the turbine nacelle height. There is usually a large spread in these data of at least 20 dBA. This means that there can be many 10-minute periods for which the average noise level exceeds the allowed exterior noise level by a very large amount, resulting in excessive interior noise levels for significant periods of time, even though the wind farm will be deemed compliant. Thus compliance checking is over-generous to the developer and the process is unfair to the residents as it overlooks extensive time periods where the wind farm noise levels exceed those that are allowed. Therefore I believe that the guidelines should be changed so that the allowable noise levels are “not to exceed” average indoor noise levels, rather than regression-line fitted outdoor noise levels. This is particularly important for the night time, when there is a risk of people being awakened by a loud event. After such an event, the person may have trouble going back to sleep and may lie awake in anticipation of the next noise event.

2. Although there is a penalty of 5 dBA to be added to the measured noise levels if the noise is shown to be "tonal" in nature, there is no consideration of any penalty to be applied if the noise is excessively amplitude modulated (AM) or if it varies substantially over short time periods or if it is predominantly low-frequency in nature. The methodology used to determine the level of AM should be clearly specified and should be based on the results of listening tests. It may be necessary to consider AM of specific third-octave bands rather than the overall level. Findings from the Renewable UK report released in 2013 could provide a basis for an acceptable criteria and method of establishing and quantifying AM.

3. Another limitation is associated with the method of tonality assessment which according to the SA guidelines should follow the method recommended in the standard, IEC 61 400-11. This standard suggests that the assessment should be based on measurements made near a turbine, but it would seem more appropriate to make the measurements near houses where residents are subjected to the noise. The guidelines should also include a requirement to use night-time as well as day-time measurements and should analyse data from all wind directions, not just downwind. In addition all data should be assessed, rather than just the 2 minutes closest to the integer wind speed, all wind speeds should be investigated rather than focusing on only 6 – 10 m/s at 10 m height and instructions should be given on whether to apply the 5 dBA correction to the affected measurement only or to apply it to the value calculated from the regression curve.

4. Another limitation of the SA guidelines is associated with the establishment of the allowable levels when the wind speed becomes sufficient that background noise levels exceed the specified allowed level (35 or 40 dBA, depending on whether the site is zoned "rural living" or "rural industry"). One aspect of the problem is that, especially in conditions of high wind shear, wind at the residence location is not necessarily related to the wind speed and direction at hub height. A second aspect is that according to the guidelines, night-time data are averaged with day-time data to provide a single regression curve which represents the "measured" background noise levels that will be used in compliance checking. A serious draw-back with this approach is that the night time background noise levels are generally substantially lower than day-time levels, so as a result of day-time and night-time averaging, residents are being subjected to excessive noise right at the time they are trying to sleep. Thus there should be different regression curves presented for day-time and night-time. Also the night-time hours should be specified to be between midnight and 5am as this is usually the quietest time period.

5. The guidelines do not address the issue of the noise spectrum being dominated by low frequency noise at the location of the affected residences. To address this highly probable event, limits should be provided that are directed at the low-frequency part of the spectrum such as the DEFRA guidelines published in 2005.

6. Another limitation is associated with the development assessment in many cases, and this is the classification of rural residences as "rural industry" if they produce goods that they sell, rather than the much more reasonable "rural living", as people need to be able to sleep in these "rural industry" zones, something that is not generally a requirement in other industrial zones. In terms of allowed outdoor noise levels, the difference in the above-mentioned classifications is 5 dBA. As the aim of the specification of acceptable noise levels in the case of wind farm

developments is primarily to ensure that the majority of people exposed do not suffer sleep disturbance, and in Australia all wind farm developments are in rural areas, the use of zoning does not make sense – there should just be a single number specified that ensured that people could sleep without being interrupted by wind farm noise. The selected noise limit should be based on a dose response study specific to South Australian rural areas.

7. If on/off testing is to be done to assist in determining compliance, it should be done according to Australian Standard, AS4959:2010 at the "critical wind speed", which is the wind speed associated with the predicted smallest margin of compliance.

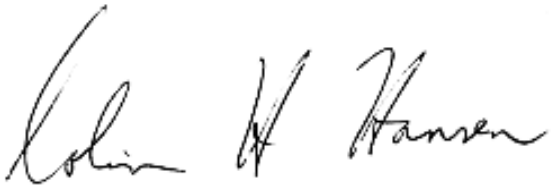
8. Implicit in the EPA guidelines is the assumption that external background noise is capable of masking wind farm noise provided that wind farm noise does not exceed the background noise by more than 5 dBA. However, there is no evidence in the literature that supports this assumption. Further work is required in this area, including the analysis of the masking potential of background noise in relation to typical indoor wind turbine spectra, to determine a suitable threshold.

9. Since measurements of wind farm noise are often required in windy conditions, the guidelines should include specifications for secondary windshields for microphones, which will minimise the contamination of the data from noise resulting from atmospheric turbulence as well as noise produced by wind blowing across the measurement microphones.

10. The effect of air density, wind shear, inflow turbulence and inflow angle at hub height on the turbine sound power levels should be included in the noise predictions so that an upper bound to the turbine sound power is used rather than the values measured in flat terrain with little in-flow turbulence and negligible wind shear. Alternatively an acceptable safety margin could be applied to the sound power levels provided by the manufacturer that takes into account variations between turbines as well as the effects mentioned above.

11. More recent sound propagation models such as Nord2000 and harmonoise are now available and should be investigated for their suitability. In particular, the guidelines should address the uncertainty associated with use of a particular model and the allowable predicted noise levels should take this uncertainty into account.

In conclusion, I believe that there is a strong case for revisiting and modifying the 2009 SA EPA Guidelines for wind farm noise.



Emeritus Professor Colin Hansen
University of Adelaide

Proceedings of 20th International Congress on Acoustics, ICA 2010

23-27 August 2010, Sydney, Australia

Assessment of the methods addressing atmospheric stability effects in the latest SA EPA "Wind farms environmental noise guidelines", New Zealand NZS 6808 and Australian AS 4959

Radek Kochanowski (1)

(1) Aurecon, Sydney, Australia

PACS: 43.15.+S, 43.50.RQ, 43.50.SR

ABSTRACT

Wind farms are an important part of the renewable energy strategy; however with the developments predominantly occurring in rural areas with low background noise levels, they can significantly alter the existing noise environment creating considerable impacts for the affected sensitive receivers. The South Australian EPA "Wind farm environmental noise guidelines" and New Zealand Standard NZS 6808 "Acoustics – Wind farm noise" are the predominant environmental noise assessment methods employed in Australia and New Zealand. Both of these documents have undergone recent revisions along with the introduction of Australian Standard AS 4959 “Acoustics – Measurement, prediction and assessment of noise from wind turbine generators”. This paper investigates and assesses the recent changes in methods with a particular focus on addressing the effect of atmospheric stability on the developed noise criteria.

INTRODUCTION

Wind turbine generated noise levels are unique when compared to standard industrial noise sources as they are highly dependant on the local wind conditions. The emitted noise levels are a function of the wind speed experienced by the wind turbine generator (WTG). The general relationship can be summarised that as the wind speed increases, the sound power of the WTG increases up to a rated power wind speed at which the WTG emits the maximum noise. Figure 1 below shows a typical sound power curve for a WTG.

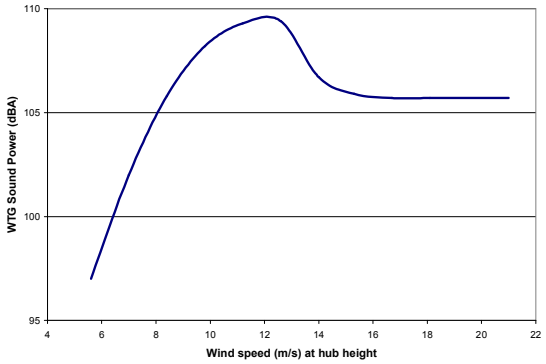


Figure 1. Wind turbine generator sound power curve

As such, this requires a different approach to develop applicable design noise criteria for wind farms, compared to the usual industrial developments because as the wind speed increases it has the potential to create background noise at the sensitive receivers leading to a masking effect of the WTG noise. Standard methods require measurement of noise levels at the sensitive receivers in conjunction with wind speeds at the WTG location. They aim to determine the variance in the background noise environment at the receiver with respect to the changing wind speeds at the WTG site. This is a consistent approach across all of the main assessment methods utilised in Australia and New Zealand as outlined in South Australian EPA "Wind farm environmental noise guidelines", New Zealand Standard NZS 6808 "Acoustics – Wind farm noise" and the newly introduced Australian Standard AS 4959 “Acoustics – Measurement, prediction and assessment of noise from wind turbine generators”.

Previous versions of these guidelines and standards have not taken into account the van den Berg effect (van den Berg, 2003) when developing noise criteria. This relates to the fact that the relationship between hub height wind speeds at the WTG and ground level wind speeds at the sensitive receiver will be different based on the applicable wind profile which is dependant on the atmospheric stability.

This paper investigates the recent changes in the assessment methods outlined in the local guidelines with a particular focus on the benefits of incorporating atmospheric stability into criteria development and thus taking into account the van den Berg effect.

METEOROLOGY

Atmospheric Stability

The degree of stability in the atmosphere is determined by the temperature difference between an 'air parcel' and the air surrounding it. This difference can cause the air parcel to move vertically, and this movement is characterised by four basic conditions that describe the general stability of the atmosphere. In stable conditions, this vertical movement is discouraged, whereas in unstable conditions the air parcel tends to move upward or downward and to continue that movement. When conditions neither encourage nor discourage that movement beyond the rate of adiabatic heating or cooling they are considered neutral. When conditions are extremely stable, cooler air near the surface is trapped by a layer of warmer air above it, with this condition being called an inversion which results in virtually no vertical air motion. These conditions are favourable for noise propagation as the density of the changes increases with altitude which alters the speed of sound creating a refractive effect, which leads the sound waves that would normally radiate out to space to refract back down to surface of the earth leading to an increased experienced noise level at the receiver.

The Pasquill-Gifford (P-G) (Pasquill, 1961) stability category scheme is normally used to describe atmospheric stability. Stability class under the P-G scheme is designated a letter from A-F (and sometimes G), ranging from highly unstable to extremely stable, with class D symbolising neutral conditions which are the most prominent day time conditions.

van den Berg Effect

While assessing complaints of noise from wind turbines, van den Berg originally demonstrated the well known fact in meteorology (and in particular atmospheric boundary layer physics that effects many disciplines) that wind profiles change significantly with atmospheric stability. This is shown below in Figure 2, with the exponent of a logarithmic or power law expression for the velocity modified under differing stability conditions (see for example Irwin, 1979). Prior to this work the wind profile had been assumed to be constant for varying meteorological conditions when considered in environmental noise assessments.

It is apparent from Figure 3 when the velocity profile is referenced to hub height that low ground level wind speeds and therefore low background noise levels can correlate with high upper level wind speeds under stable conditions, and therefore potential exceedance of noise criteria derived from background noise levels correlated to ground level wind speeds (as shown in Kochanowski et al, 2008).

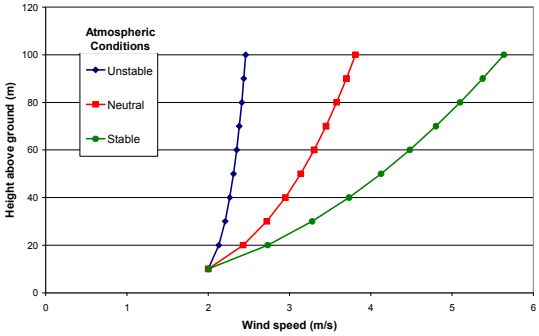


Figure 2. Wind speed profile variation with stability

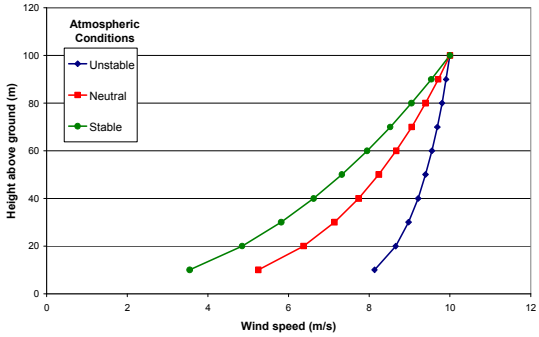


Figure 3. Velocity profile referenced to hub height

The van den Berg effect has been recognised recently by Land and Environment Courts in New South Wales, Victoria, and New Zealand. This paper reviews the updated guidelines and standards to assess in what steps have been taken to take into account this effect.

ASSESSMENT GUIDELINES AND STANDARDS

SA EPA Guidelines

The SA EPA Wind farms – environmental noise guidelines are the only state developed guidelines currently available and enforce in Australia relating to noise assessments of wind energy projects. The guidelines have been also adopted as the preferred assessment method by other states such as New South Wales and Western Australia. The 2009 revisions of the guidelines supersede the original 2003 version.

The noise criteria are set out for two types of receivers which are outlined in the Table 1 below.

Table 1. Receiver types

Receiver type	Relationship with wind farm project
Relevant	The landowner is unconnected with the wind farm project
Non-relevant	The landowner has entered into an agreement with the wind farm developer and is a beneficiary of the project

For the relevant receivers the following predicted noise levels from a wind farm development should not exceed:

- $L_{Aeq,\,10}$ 35 dBA in localities which are primarily intended for rural living, or
- $L_{Aeq,\,10}$ 40 dBA, in other zones, or
- The background noise level ($L_{A90,10}$) by more than 5 dBA.

Rural living zones are considered to be "rural-residential lifestyle" areas which are not used for primary production other than for the occupiers' own use.

Criteria for non-relevant receivers are in accordance with the World Health Organization (WHO) Guidelines for Community Noise and which recommend noise levels of 30 dBA for internal areas and 45 dBA for outdoor areas.

The 2003 version of the SA Guidelines provided a base criteria of $L_{Aeq,\ 10}$ 35 dBA for all relevant receivers. Through the distinction of the different rural zones in the 2009 update of the Guidelines, a higher allowable noise level has been set for areas which contain some rural industry noise.

Background noise measurements should be carried out within 30 m of a house and in the direction of the wind farm ensuring that the position is not sheltered from the wind farm by any elements. In cases where microphone wind levels have exceeded 5 m/s manufacturer windshield specifications have to be provided to display the validity of the data otherwise measurements at wind speeds in excess of 5 m/s need to be discarded. As per standard noise survey methodology, rain affected samples are also to be removed from analysis. A total of 2,000 valid measurement intervals, where at least 500 points are collected for the worse case wind direction, are required for the regression analysis to develop background noise levels at integer wind speeds. Worse case wind direction is defined as a spread of 45° either side of the direct line between the nearest wind turbine and the relevant receiver.

The SA Guidelines have been updated to carry out the regression analysis relative to hub height wind speeds at the turbine location instead of previously relaying on wind speeds at 10 m above ground. Should the wind data be only available at lower levels the Guidelines state that:

> Atmospheric stability conditions should be taken into account to assure accurate conversion of the data from the different height.

The SA Guidelines also recommend the use of ISO 9613-2 or CONCAWE noise propagation model with the following conservative inputs:

- Atmospheric conditions at 10°C and 80% humidity
- Weather category 6 (if CONCAWE method utilised)
- Hard ground (zero ground factor)

However, the updated SA Guidelines do not give consideration to the effect of atmospheric stability on the noise propagation nor is there any potential allowance for the generation of time specific or wind direction specific criteria especially if distinct groups of data are present in the scatter plots. The introduction of relating wind speeds to hub height rather than to data at 10 m above ground will only reduce the error previously associated with estimating the wind shear model for the site.

New Zealand Standard NZS 6808

The current version of the NZS 6808:2010 supersedes the original issue of the Standard which was published in 1998.

The assessment initially requires a prediction of the noise emissions from the wind farm to identify the location of the $L_{90,10\ min}$ 35 dBA noise contour. This can be carried out using the full ISO 9613-2 noise propagation algorithm in noise modelling software or utilising simpler scaled down version of the ISO 9613 which can be calculated by hand. If sensitive receivers are identified within the 35 dBA contour, noise monitoring should then be carried out.

The Standard sets acceptable noise limits (at sensitive locations and at any wind speed) at a level which should not exceed the background noise by more than 5 dB or level of $L_{90,10\ min}$ 40 dBA, whichever is greater. For the 2010 version of the standard a "High Amenity Area" criteria was introduced lowering the criteria to background noise + 5 dB or $L_{90,10\ min}$ 35 dBA, whichever is lower. This was introduced to allow for special circumstances where a more stringent level may be justified especially when predicted wind farm noise levels are on average more than 8 dB above the existing background noise during evening and night times.

The noise monitoring in the Standard requires the correlation of background noise data with wind speeds at the wind turbine location for a minimum of 10 days which is equivalent to 1440 data points. A regression analysis is to be carried out to determine whether any relationship between the two is present. The 2010 version of the Standard requires wind speeds to be referenced to hub height. This reduces the error of assuming a constant wind profile for various atmospheric stabilities when the wind speeds were referenced to 10 m above ground and then extrapolated to hub height.

The Standard highlights that:

> If there are markedly different groups within the scatter plot then separate scatter plots may be required for different conditions, including wind direction and times-of-day.

This allows for the potential to develop criteria that could be restricted to various time periods or to develop atmospheric stability specific criteria. If it is impractical to accommodate the multiple criteria into the operation strategy of a wind farm, the more stringent and most conservative criteria should be applied for the whole project.

However there is no guidance to specific meteorological criteria or reference to atmospheric stability conditions and when these separate regression analyses should be developed. It is essentially left up to the discretion of the acoustic engineer carrying out the assessment whether such criteria are applicable for a given site.

Australian Standard AS 4959–2010

The Australian Standard AS 4959–2010 has been developed in an effort to standardise the measurement, prediction and assessment methods used to assess the noise emissions from wind farms across Australia. Input is required from the Relevant Local Regulatory Authority to determine what is considered a minimum noise level limit based on the existing ambient noise environment at the affected receivers. The Relevant Local Regulatory Authority should allow the minimum noise level limit to be exceeded provided the background noise level is not exceeded by a certain amount.

At each nominal wind speed, the noise limit should be the higher of:

- Minimum noise level limit
- Background noise levels plus the specified amount

This allows for individual council or state bodies to determine what are deemed as appropriate noise criteria for their specific areas while applying standardised measurement, prediction and assessment methodology for Australia-wide wind energy developments.

Similar to the NZS 6808, an indicative noise prediction equation is specified (which is the same as per NZS 6808:1998). It is explicitly stated that all analysis should be referenced to hub height wind speeds, with an explanation (as provided above) that the…

> …actual wind speed that would be measured at 10m AGL varies from site to site and in different atmospheric conditions.

The noise monitoring requirements are consistent with the SA Guidelines (2009), requiring at least 2000 valid data points which cover the required range of wind speeds and directions. Exclusions are required of rain affected samples and wind speeds at the microphone in excess of 5 m/s without specially built microphone windshields for higher wind speeds. A regression analysis as per the other guidelines is to be carried out relating to hub height wind speeds.

As outlined in NZS 6808, the Australian standard similarly states that:

> Where regression curve analysis does not conform to the expected trends, i.e. there is not a clear relationship between increasing wind speed and increasing background noise levels or there appears to be more than one distribution, then further investigations are necessary to determine possible causes.

Further on in the Standard it is emphasised that:

> Consideration should be given to carrying out separate correlation of background sound levels with wind speed for different directions and/or times of day, particularly where atmospheric stability issues are apparent or are suspected.

By separating the collected data into different times of day and/or wind directions, specific criteria can be generated which apply to the particular conditions.

Unfortunately no guidance is provided on the minimum sample sizes of the separate regression analyses as well as when should they be undertaken, i.e. what is considered a sufficient occurrence of atmospherically stable conditions and/or down wind conditions such that separate analysis is required.

DISCUSSION

It is unfortunate that the updated versions of the guidelines and standards only provide minimal guidance if any, in relation to the effect of atmospheric stability on wind farm noise emissions.

Based on the above assessment techniques, only the AS 4959 explicitly mentions the possibility of carrying out separate correlations of background noise for different wind directions and/or times of day particularly where atmospheric stability issues are apparent or suspected.

One other particular observation is the lack of guidance in the guidelines and standards as to when such an assessment is deemed appropriate, along with what is considered a sufficient and practically obtainable sample data size to carry out the correlation studies of noise levels versus hub height wind speeds at the WTG site.

The NSW Industrial Noise Policy notes that atmospheric stability represents a significant noise impact and calls for additional assessment when instability occurs for 30% or more of the total night-time during winter (June, July and August), a similar threshold level should be adopted for wind farm noise assessments. The occurrence of various atmospheric stability classes can be easily calculated from long term collected proponent wind mast data based on the standard deviation of the change in wind direction as outlined by the Sigma Theta descriptor.

Splitting up the correlation analysis into individual Pasquill Stability Criteria can lead to very small sample sizes especially if stable conditions were not prevalent during the carried out noise survey. Should a minimum sample size be introduced, this then has the potential to significantly increase noise assessment costs, as well as delay project deadlines. This would likely be due to the fact that the noise survey would have to be carried out during a site-specific time of year when the stable conditions would be most prevalent (usually the night time during winter months).

There is also the issue of the practical application of these criteria, i.e. when should one set of criteria begin to apply compared to another during shoulder periods when there is a change in the atmospheric conditions. This would have significant implications on the WTG programming should different operating modes be required for different stability noise criteria. As outlined in the NZS 6808, the most conservative criteria should be applied for the whole project however this has the potential to unfairly limit full capacity operation of the wind farm especially without explicitly outlining when such measures should be applied.

Developing regression curves between day and night times can provide significantly increased sample sizes from the noise survey, thus the determination of specific criteria for each time of day. This will potentially take into account the occurrence of most of the stable conditions at each site as they predominantly occur during the sunset hours. Based on seasonal analysis on the likelihood of stable conditions occurring, specific criteria could be applied to certain times of year when there is an increased likelihood of stable conditions occurring at regular intervals.

Another benefit of time specific criteria is that they are easier to understand for the general public (especially the affected receivers) as it would clearly state at what time of day and/or year specific criteria would be applicable. Implementing stability specific criteria leaves the public confused as to when certain criteria apply, since it is generally very difficult to determine in what current stability state the atmosphere is in without meteorological monitoring equipment. This leaves affected receivers with no option but to trust the wind farm operator that they are correctly monitoring atmospheric conditions and applying control measures to reduce noise emissions as outlined per the applicable development conditions. This is not a desirable situation for sensitive receivers which do not have a good relationship with the wind farm operators, based on the fact there is regular opposition to wind farm developments.

CONCLUSION

This review of the updated Australian and New Zealand guidelines and standards for the assessment of noise from wind turbine farm developments has identified the need to take into account some of the effects relating to atmospheric stable conditions as part of the assessment process.

A strength of the updated versions of these documents, is that they have reduced the potential error associated with wind shear approximation by referencing all wind measurements to wind turbine hub heights rather than 10 m above ground level. However these assessment methods do not take into account the potential atmospherically stable effects during the criteria generation process.

The AS 4959 and NZS 6808 provide clauses for the potential to develop condition or time of day specific noise criteria, yet it's shortfall is that there is no explicit method outlined.

It is the opinion of the author that future updates of the reviewed documents should include explicit and detailed meth-

odology on when and how atmospheric effects should be taken into account as part of the assessment, as well as the generation of atmospherically stability specific criteria - whether they are relative to individual stability classes or relating to times of day and year when stable conditions have been determined to be most prevalent for the specific development site Such an approach would result in the development of more accurate and realistic criteria and allow for the improved operation of WTGs .

REFERENCES

Australian Standard AS 4959, 2010, *Acoustics- Measurement, prediction and assessment of noise from wind turbine generators*

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EPA (SA), 2009, *Wind farms – environmental noise guidelines,* Environmental Protection Agency

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Objections to the siting of 26 wind turbines on the Flinders Ranges as a component of the Crystal Brook Energy Park.

1. As a frequent visitor to the Mid North and Flinders Ranges I object to the negative visual impact which 26 turbines 240 m high will have on the iconic Flinders Ranges.

2. Similarly, I object to the sub-audible sound emissions and amplitude modulation which will make it unpleasant, even unbearable for me and my daughter to visit friends and family in this area if the turbines are built and operating.

3. Current SA EPA environmental wind farm guidelines 2009 (SA2009) are overdue for review and do not adequately protect the amenity and sleep of the nearby community from adverse impacts. (see Attachment: Emeritus Professor Hansen guidelines discussion)

4. SA2009 are based on ETSU R-97, written in 1996 when the tallest turbine height was 63 metres, 40 m hub height and 23 m blades producing 660KW of power. It is unthinkable that the SA guidelines which are over 20 years old are relevant for turbines 4 times this height and many times the blade swept area. (Attachment: Danish Energy Agency Comparison of sizes)

5. SA2009 and SONUS do not address Amplitude Modulation which is a major source of disturbance for residents at other Mid North wind farms despite "statistical compliance" with the 40 dB(A) limit.

6. SA2009 do not address the effect of atmospheric stability on wind farm noise emissions. Ie Van den Berg Effect. (See Attachment: Kochanowski 2010)

7. SA2009 and SONUS do not address vibration or excitation of the building fabric or low frequency noise inside residences even though Hansen has shown that LFN levels can be greater inside dwellings due to room resonances and standing waves. (Hansen attachment)

8. SONUS have carried out their background noise measurements at nearby homes in the Summer months of December and January and as such this data is not representative of the background noise at other times of the year. Eg stable conditions in winter when the presence of inversion layers increases noise levels for residents.

9. NHMRC funded studies are currently underway to investigate the impacts of wind turbine noise on sleep. It is irresponsible of planning authorities to approve further wind farms before the results of these studies are known.

10. The Precautionary Principle should be used to refuse the wind turbine component of the proposed Crystal Brook Energy Park.

Mary Morris PO Box 188 EUDUNDA SA 5374

121

DPTI:scapreps

From:	Janet Redden <janet.redden@icloud.com>
Sent:	Thursday, 28 June 2018 11:51 PM
To:	DPTI:scapreps
Cc:	DPTI:Minister Knoll; admin@saplanningcommission.sa.gov.au; DEM:Minister Dan van Holst Pellekaan; frome@parliament.sa.gov.au; mayor@pirie.sa.gov.au; kjackson@pirie.sa.gov.au; nwilson@pirie.sa.gov.au
Subject:	Submission re objection to Crystal Brook Energy Park (354/V003/18)
Attachments:	CCF_20180628_000005.pdf

To Whom it May Concern,

Please find attached my submission for objection to the proposed Crystal Brook Energy Park to be constructed by Neoen Australia Pty Ltd (development number 354/V003/18). My email below is outlined in brief on the submission attached also.

Let me begin by saying that I am vehemently opposed to the Crystal Brook Energy Park proposal. Like many others I have discussed this with, I am not against renewable energy. However, there are appropriate locations for such projects, and on the outskirts of a town and in such close proximity to existing residences, is not one of them.

My main reasons for objecting are as follows:

- Visual impact of 26 wind turbines that are 240m high. Crystal Brook is well known and promoted as the Southern Flinders Ranges, and also the Gateway to the Flinders Ranges. The placement of 26 towers of significant height (240m) will be unsightly to a beautiful scenic feature just north of the town and leading into the Flinders Ranges, a main tourist area of South Australia. The Heysen Trail also winds its way through the area where the towers will be located. Many residents who have purchased land/properties in the Talbot Rd, John St area have purchased due to the scenic and rural outlook, and have paid for this accordingly. This proposal (wind towers specifically) will significantly detract from their scenic visual outlook. I was advised by Neoen representatives that from our property (55 Bowman Street Extension – on an eastern extension of the town's main street, and faces northwards), that we will see a significantly altered skyline with dominating wind turbines. My understanding is also that the wind towers will be located in close proximity to each other (3 rotor blade widths apart), which will further increase the density of the visual impact.
- Health impacts of wind turbine infrasound. What physical health impact of towers that are so large and such an increased output (compared to other wind farms) are truly known?? As a person who suffers vertigo and migraines I am very concerned of the infrasound low frequency vibrations that these turbines will emit, and how this will affect myself, my health and also that of my children. Having heard firsthand of people who live near other wind farms who suffer from nausea and sleep disturbances, this is of significant concern to me. In addition to physical health impacts mental health is a concern – in particular the stress of this proposal that has already occurred for many of the closest residents who will be most affected.
- Devaluation of properties. For many of us our home is our main (and only) asset. To face a reduction in value of our properties due to the proximity of these towers is alarming. Nearby residents face the prospect of significantly decreased property valuations, or when trying to sell their property lack of potential buyers due to towering wind turbines nearby. In an already depressed regional real estate market, houses will continue to take months (or years) to sell, if they can be sold at all.
- Interference to Television/Radio signal and Internet services. The application states that television and internet services may be affected, with the alternative option to transfer to satellite based services.

For many residents this will be a financially unviable and limiting option. Internet services that are degraded will severely impact businesses in the town.

- Impact on native wildlife. One of the first things I noticed when moving into our newly built house 4 years ago (previously from Stanley Street, Crystal Brook) was the increase in birdlife and wildlife that we frequently have on and around our property. Grass parrots, galahs, kookaburras, kangaroos and lizards frequently pass through our property and provide joy to our children who love the fact that we live in a rural residential location, yet within walking distance to the main street. I am concerned that the 26 wind turbines will deter wildlife and birdlife such as this, as others have commented to me that they have noticed a decline in wildlife near other windfarms (Clements Gap).

Lastly, it deeply saddens me that this proposal has divided our community. Since moving to Crystal Brook in 2007 I have witnessed firsthand what a tightknit community it is. Crystal Brook is a town proud of its heritage, its sporting achievements, one that strives to look after its own, with residents that pride themselves on being from "The Brook". Unfortunately, due to a handful of people (host landholders) who have pursued this project with Neoen, the resulting impact has been significantly damaging effects on the core of this town and community – its people. This windfarm proposal I fear has caused a large rift amongst lifelong friends, one that may take a long time to recover.

I urge you to reject this application based on the numerous objections that I'm certain have been lodged in addition to my own, for the many reasons I have already outlined, but also importantly for the future of our community.

Kind Regards,

Janet Redden

0418 856 946

55 Bowman Street Extension (PO Box 93)

CRYSTAL BROOK SA 5523

DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Neoen Australia Pty Ltd
Development Number:	354/V003/18
Nature of Development:	Crystal Brook Energy Park - Hybrid renewable energy project comprising a wind farm (26 turbines with a capacity up to 125MW), a solar farm (400,000-500,000 solar panels with a capacity up to 150MW), an energy storage facility (Lithium-ion battery with a capacity up to 130MW / 400MWh) and associated infrastructure for connection to the electricity grid (including a 33kV/275kV substation and a 300m long 275kV transmission line between the substation and the 275kV Para-Bungama transmission line).
Zone / Policy Area:	Primary Industry Zone - Port Pirie Regional Council
Subject Land:	32 allotments, approximately 3.5km north of Crystal Brook and 23km south-east of Port Pirie.
Contact Officer:	Lee Webb
Phone Number:	7109 7066
Close Date:	**Friday 29 June 2018**
During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders Street, Adelaide during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).	

My name: Ashley Redden

My phone number: 0428 892 566

PRIMARY METHOD(s) OF CONTACT: Email address: ashley.redden@bigpond.com

Postal address: PO Box 93

Crystal Brook SA Postcode 5523.

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [✓] owner of local property
- [ ] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [ ] a private citizen

The address of the property affected is 55 Bowman St. Extension Crystal Brook SA Postcode 5523.

The specific aspects of the application to which I make comment on are: reasons for objection include as follows:

- visual impact on unique ranges scenery
- property devaluation for those closest to wind towers
- interference with television and internet services.

I
- [✓] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [ ] appearing personally
- [✓] being represented by the following person : To be Advised

(Cross out whichever does not apply)

Date: 25/6/2018 Signature: [signature]

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

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My name: DEANNE MCCOY

My phone number: 0418825 1095

PRIMARY METHOD(s) OF CONTACT: Email address: deeloxton@yahoo.com.au

Postal address: 1 GILES STREET

CRYSTAL BROOK Postcode 5523

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [ ] owner of local property
- [ ] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [✓] a private citizen

The address of the property affected is ..... Postcode .....

The specific aspects of the application to which I make comment on are:

- Effect on visual aspect of Southern Flinders Ranges
- Health effects on local township and affected residents
- Affects on local wildlife due to low frequency sound emissions

I
- [ ] wish to be heard in support of my submission
- [✓] do not wish to be heard in support of my submission

(Please tick one)

by
- [ ] appearing personally
- [✓] being represented by the following person: To be confirmed

(Cross out whichever does not apply)

Date: 25/6/2018 Signature: .....

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

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My name: ELIZABETH TRAEGER

My phone number: 0407 285 663

PRIMARY METHOD(s) OF CONTACT: Email address: liztraeger07@gmail.com

Postal address: _____

_____ Postcode _____

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [ ] owner of local property
- [ ] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [✓] a private citizen

The address of the property affected is EDMUND TERRACE CRYSTAL BROOK Postcode 5523

The specific aspects of the application to which I make comment on are:

- LOCATION
- SIZE OF TURBINES
- VISUAL AMENITY
- CUMULATIVE EFFECT OF WIND FARM DEVELOPMENTS

(SEE ATTACHMENT)

I
- [✓] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [ ] appearing personally
- [ ] being represented by the following person : _____

(Cross out whichever does not apply)

Date: 28/6/18 Signature: E M Traeger

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

Proximity to a township/Size of turbines

The proposed wind farm is situated 3.5 kms from the centre of the township of Crystal Brook. and 1.3 kms from the nearest dwellings. This is far too close considering that the noise and annoyance from this type of industrial site is strongly reported across the world. Furthermore, the low frequency noise and vibrations emanating from the turbines has been reported by some people to cause ill health. I am aware of many stories of people (often farmers) who have been affected by the noise and vibration from wind turbines, some having been forced to leave their homes following the establishment of wind farms nearby.

Because these reports are so numerous and convincing they have come to the attention of the National Health and Medical Research Council (NHMRC). The adverse health effects of living near wind farms has certainly not been discounted by the NHMRC who has stated that *"Given the limitations of the existing evidence and continuing concerns expressed by some members of the community, NHMRC considers that further high quality research on the possible health effects of wind farms is required."*

This matter is so serious the NHMRC have awarded two grants totalling $3.3 million to enhance the evidence-based understanding of the effects of wind farms on human health.

The potential for the Crystal Brook community to experience annoyance and adverse health issues is further compounded by the size of the proposed turbines. The 26 turbines proposed are much larger than those already established in the Mid North. Each turbine is 240 metres tall (which is twice the size of the Clements Gap turbines) with an output up to 4.8MW.

There is a kindergarten, primary school, aged care facility and hospital in the town and thus many vulnerable and susceptible people. It is therefore reasonable to suggest that, until there is clear evidence that wind farms are safe, they should not be placed near populated areas and certainly not with turbines the size of those proposed.

Visual Amenity

Crystal Brook is known as the gateway to the Flinders Ranges. An industrial site the magnitude of this proposal will detract from this image. In the proponents proposal they make the claim that there would be potential benefits to tourism. There is no evidence to support this contention. I suggest that visitors to the area come to enjoy the scenery and vistas the Flinders Ranges has. It is far more likely that visitors will stay away from Crystal Brook and head to non industrial areas of the Flinders Ranges. I know I would.

Cumulative effect of wind farm developments

The Mid North of the state has shouldered an inordinate amount of the burden of hosting wind farm developments. I would urge the Commission to consider the number of wind farms that already exist in the Mid North and take this into consideration when assessing the proponent's application. There are already 9 wind farms within a 100 km radius of Crystal Brook. Surely this is enough for one region of the state to tolerate.

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DEVELOPMENT ACT, 1993, S49/S49A – CROWN DEVELOPMENT
REPRESENTATION ON APPLICATION

Applicant:	Neoen Australia Pty Ltd
Development Number:	354/V003/18
Nature of Development:	Crystal Brook Energy Park - Hybrid renewable energy project comprising a wind farm (26 turbines with a capacity up to 125MW), a solar farm (400,000-500,000 solar panels with a capacity up to 150MW), an energy storage facility (Lithium-ion battery with a capacity up to 130MW / 400MWh) and associated infrastructure for connection to the electricity grid (including a 33kV/275kV substation and a 300m long 275kV transmission line between the substation and the 275kV Para-Bungama transmission line).
Zone / Policy Area:	Primary Industry Zone - Port Pirie Regional Council
Subject Land:	32 allotments, approximately 3.5km north of Crystal Brook and 23km south-east of Port Pirie.
Contact Officer:	Lee Webb
Phone Number:	7109 7066
Close Date:	**Friday 29 June 2018**
During the notification period, hard copies of the application documentation can be viewed at the Department of Planning, Transport and Infrastructure, Level 5, 50 Flinders Street, Adelaide during normal business hours. Application documentation may also be viewed during normal business hours at the local Council office (if identified on the public notice).	

My name: Patricia Taylor

My phone number: 0408810660

PRIMARY METHOD(s) OF CONTACT: Email address: bpat2@bigpond.com

Postal address: PO Box 169

Crystal Brook SA Postcode 5523

You may be contacted via your nominated PRIMARY METHOD(s) OF CONTACT if you indicate below that you wish to be heard in support of your submission.

My interests are:
- [x] owner of local property
- [x] occupier of local property
- [ ] a representative of a company/other organisation affected by the proposal
- [x] a private citizen

The address of the property affected is 118 Talbot Road Crystal Brook SA Postcode 5523

The specific aspects of the application to which I make comment on are: Submission attached

I
- [x] wish to be heard in support of my submission
- [ ] do not wish to be heard in support of my submission

(Please tick one)

by
- [ ] appearing personally
- [ ] being represented by the following person : .....

(Cross out whichever does not apply)

Date: 22/06/2018 Signature: Trish Taylor

Return Address: The Secretary, State Commission Assessment Panel, GPO Box 1815, Adelaide, SA 5001 or scapreps@sa.gov.au

State Commission Assessment Panel.

Adelaide SA

22/06/2018

Dear Secretary,

We wish to submit our concerns re the proposed Neoen wind farm to be situated at the start of the Flinders Ranges, and within only a few kilometres from our rural community. Crystal Brook relies on a certain percentage of tourism to survive and yet this will now be thwarted by the ugliness of massive wind towers overlooking the town and our popular recreation area Bowman park.....shame. The Netherlands have placed these monstrosities out at sea because they are a blot on the landscape, and yet our country seems to disregard this and continue to allow, in this case a foreign company to ruin our beautiful pristine rolling hills that are our communities attraction.

We were disappointed some Crystal Brook residents could turn their backs on their community by actively pursuing Neoen to invade our area, all in the blind need for wealth. We were also appalled with the letter that was penned on page 209 of the Neoen submission, and read how this landowner will be happy to evict an already depressed young tenant to pursue this need. This tenant will certainly be unable to find a rental in the community for $60 per week, unless of course it is riddled with white ants as well..... shame!!

Because the Port Pirie Regional Council denied Neoen access to land, they have jammed the proposed towers into an area where the manufacturers recommended spacing has been ignored. We ask how this company can disregard these recommendations. Interstate laws are wiser and this would never even be allowed. Taking into consideration the mammoth size of these towers along with the geared turbines, what extreme affects will it have on our telecommunications? The noise level? The visual impact? Health issues? The biodiversity? Can Neoen actually answer these issues with HONESTY?

We are an elderly couple who will in all probability be incapable of selling our home if this goes ahead, as we are one of the households greatly affected by this project. We had planned to sell over two years ago as the property is becoming too much for us to handle and we need to down size. Our views are one of the greatest selling points, but when we are no longer able to physically maintain our home who will care that our property has devalued to the point where we cannot afford to relocate?

We beg you to stop this project; can Neoen truthfully say that they are unaware of another less invasive area available? Once they obscure our blue skies there is no turning back, and even one life that is affected is one too many. We are not against renewable energy but some brave person needs to be able to put up their hand and say "enough, a better solution is required".

Sincerely,

Brian and Patricia Taylor

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Charlie Richards

252 Hughes Gap Road Crystal brook

0412743481

charlierich@bigpond.com

Dear State Commission Assessment Panel (SA planning commission)

I am one of a group of landholders that selected Neoen to develop the clean energy farm at Crystal Brook. This company was chosen as they stay with the project from development onwards. They don't on sell so they are part of the community for the life of the project.

It is a very exciting project combining solar, wind and storage providing 24/7 power, a world class project of clean energy very suited to this area. The project will provide a stable income for our farm plus the spin-offs for the community and region are huge.

Yours Sincerely

Charles Richards

14/6/2018