The Honourable Jeff Seeney MP
Deputy Premier
Minister for State Development, Infrastructure and Planning
PO Box 150009
City East QLD 4002

Dear Mr Seeney,

Thank you for your letter dated 11 June 2014, regarding the development application for the Mount Emerald Wind Farm at Arriga in Mareeba. You have sought advice from my Department regarding the potential health impacts of the wind turbines on the surrounding community including mitigation measures.

The National Health and Medical Research Council (NHMRC) noted in its Draft Information Paper: Evidence on Wind Farms and Human Health released in February 2014 that "There is no reliable or consistent evidence that wind farms directly cause adverse health effects in humans. However, the NHMRC acknowledges that there is consistent (however poor) evidence that proximity to wind farms is associated with annoyance and, less consistently, with sleep disturbance and poorer quality of life."

The NHMRC Draft Information Paper acknowledges that the impact of noise from wind farms has indirect health-related effects such as annoyance, sleep disturbance and quality of life. It would therefore be appropriate that the impact of noise in particular low frequency noise at sensitive receivers be considered during the assessment of the development application.

I am advised that NHMRC has identified that further research is needed to explore the relationships between noise at varying distances from wind farms and indirect health-related effects. A targeted call for research is anticipated to be announced by NHMRC once they have considered all submissions to the draft information paper.

Should officers of your Department require further information, please contact Ms Uma Rajappa, Director, Environmental Hazards, on telephone 33289338.

Yours sincerely,

Dr Jeannette Young
Chief Health Officer

Office
Level 7
147-163 Charlotte Street
Queensland Health Building
BRISBANE QLD 4000

Postal
GPO Box 48
BRISBANE QLD 4001

Phone
3234 1138

Fax
3235 9573
Hi Ursula,

From reviewing the proposed conditions, I have a few suggestions which I am putting into the document.

I am suggesting removing the 8dBA above the background part of condition 4, as I believe it overly complicates/confuses the matter without significant benefit. As long as it is all prefaced with qualifiers that these are essentially transitional conditions until the SDAP assessment and ERA conditions are put into place we avoid setting a precedent. As long as we retain the 35dBA for during the night period I believe that we are protecting the community amenity.

My other suggested changes relate to
- the defining of “noise affected facades” which may cause confusion. As long as it’s well defined I don’t think it will be a problem. This is also relevant to condition 5 (the low frequency noise assessment).
- Adding in a requirement for checking of the noise model for effects of topography. The proponent has used a 0.5 ground effect in their noise modelling, which has been shown to underpredict noise levels under certain circumstances, as described in the draft guideline. Adding a requirement for this check in the conditions may take the form of either spelling out what we require or referring to the UK good practice guide.

On a related issue, the information provided is not sufficient to determine compliance with the dBC requirements. However, I don’t anticipate that the proponent will have any trouble complying as they have already shown that they can comply with the Danish low frequency requirements. The dBC levels used can be found in:
- the Draft NSW Wind Farm Guideline (2011);

We are still keen to see that a condition requiring compliance monitoring is included, with the results submitted to the local authority. Is there any way for this to happen? I would expect a significant negative reaction from the community if there is no assessment required after they complete the wind farm.

Happy to discuss via teleconference when you get the chance.

Best regards,

Matthew Terlich
Senior Consultant - Acoustics

Savery & Associates Pty Ltd
Acoustic and Vibration Consultants
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PO Box 265 The Gap QLD 4061
Hi Matt,

Just touching base regarding my email from yesterday. Have you identified any issues that may need to be resolved prior to us providing comments to the call-ins team?

I am out of the office today & Monday, so once you have the results of your review, please let me know and I'll organise a teleconference with yourself, Steve Adams and I.

Thanks again,
Ursula.

Sent using OWA for iPhone

From: Ursula O'Donnell
Sent: Friday, 17 October 2014 11:11 AM
To: Matthew Terlich
Cc: Steve Adams
Subject: Fw: Mt Emerald wind farm conditions

Hi Matt,

As discussed earlier today, we have completed a SARA review of the original Mt Emerald conditions, and have reached a point we are happy with the noise conditions.

Could you please review conditions 4-6 from a technical perspective and ensure I have used the appropriate acoustic terminology, as well as whether the restrictions would work.

With regards to condition 5, could you please confirm what the source for the 65dB and 60 dB (C weighted) low frequency emission requirements? We removed the tonality penalty that was originally applied in the initial conditions, and propose to add the low frequency SDAP provisions as a condition. I would also like your opinion as to whether or not this would be a feasible requirement for the development that has been proposed?

I will give you a call tomorrow to discuss.

Cheers,
Ursula.

Ursula O'Donnell | Principal Planner
State Assessment and Referral Agency (SARA)
Department of State Development, Infrastructure and Planning
From: Steve Adams  
Sent: Thursday, 16 October 2014 4:40 PM  
To: Graeme Bolton; Ursula O'Donnell  
Subject: Mt Emerald wind farm conditions

Well I've worked my magic. (The first version was invisible!)

Originally 41 conditions, now 14 after slicing and dicing, compression and smoke & mirrors.

I've put the Chief Executive down as receiving all reports. The question is whether we want to approve those reports or have them send them merely for info and compliance purposes. I have highlighted the conditions where we have to make the choice.

A further question for the Traffic Management Plan is do we want the applicant to just consult with the affected Council's before sending the TMP, or also get the Council's endorsement for the TMP before submitting the TMP.

Have fun reviewing

Steve Adams  
Manager (Development Assessment Advisory Team)  
State Assessment and Referral Agency (SARA) Team  
Development Assessment Division  
Planning and Property Group  
Department of State Development, Infrastructure and Planning  
Queensland Government

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Please consider the environment before printing this email

Great state. Great opportunity.

Steve Adams  
Manager (Development Assessment Advisory Team)  
State Assessment and Referral Agency (SARA) Team  
Development Assessment Division  
Planning and Property Group  
Department of State Development, Infrastructure and Planning  
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Great state. Great opportunity.
This email is free from viruses and malware because avast! Antivirus protection is active.
Hi Ursula

Please find attached the revised conditions prepared by Matthew with some later additions from me.

I think that another way to get around the “measurement” issue is to state the operating performance requirements in condition 4 (see mauve additions).

The value of having these included is that the proponent is aware that these are performance requirements right from the outset.

At the acoustic report stage, the proponent will simply state that demonstration will be provided by means of measurement when the wind farm is operational, and that a report will be prepared and forwarded to the relevant stakeholder, or be available for inspection if required.

Irrespective, in the event of complaints the performance requirements to be applied during a measurement assessment are stated in the approval conditions.

This is a much preferable position to be in in the case of noise complaints, because now the investigating acoustician (employed by the proponent) will have a conditional performance requirement against which to test.

Matthew is away to day and has not been part of this recent addition to his response.

Best Regards,
John Savery
Managing Director

Savery & Associates Pty Ltd
Acoustic and Vibration Consultants
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Acoustic Ph: (07) 3300 6288 Fax: (07) 3300 0574 Mob:
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Environmental PO Box 265 The Gap QLD 4061
Engineers

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Hi Jane,

Further to your comments today, please find attached a final version of the Assessment Report for the Mount Emerald Wind Farm.

This version responds to each of the comments and to our discussion of earlier this afternoon.

Please note that the document control version is retained at version 005.

Kind regards,

Leo Mewing

SENIOR PLANNER

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RTIP1415-079 page number 24
Dear Greg,

Thank you for your letter of 17 December 2014 (attached).

The members of Wind Energy Queensland are astounded by some of the statements in that letter. In your email of 29 May 2014, you advised “I am seeking approval to undertake a fundamental redraft of the wind farm code, particularly to include new/replacement sections relating to noise, low frequency noise and infrasound. We will use independent consultants to assist us in this regard.”

In that email, you also undertook to us that “As soon as I have a better draft, I will contact you to arrange a copy to be sent to you and a time to meet.” You apparently have a redraft but have not provided a copy to us. Please provide a copy by return as you undertook to do.

You now state, “As part of the independent review and further investigation, it was concluded that many of the complex acoustic characteristics raised by submitters (such as infrasonic and special audible noise emissions) cannot be predicted or measured. Consequently, these types of impacts cannot appropriately be incorporated into the draft code and guideline for consideration through the development assessment process.”

We must query the independence of the source from whom you are getting your advice.

You have either been badly advised or have not understood the advice you have received and this is not the first time (e.g. in your email of 24 April 2014 you advised “We believe the draft wind farm state code adequately deals with noise-related issues for wind farms” but after receipt of submissions, you advised that the first draft of the wind farm code required a fundamental redraft by necessary implication an acknowledgement by you of poor advice that your department received).

Many experts state that Infrasound and special audible characteristics can both be predicted and measured. We encourage you to seek clarification from EHP on this. See also International Standard IEC 61400 – 11 second edition 2002-12 (Acoustic noise measurement techniques); S Cooper “The measurement of Infrasound and Low Frequency Noise for Wind farms” (presented to the Wind Turbine Noise Conference Denver 28 – 30 August 2013); Les Huson in the Flyers Creek Wind Farm Approval 25 November 2013 Review; EHP submission on noise on DSDIP draft Wind Farm Code. For EHP’s views see underlined comments, RTI 1314-135 Part 2 (DEHP advice on noise re DSDIP draft windfarm code) page 73 and others in the following link: www.dropbox.com/sh/e8oqt6uujlkbdso/AACct7u7nfbyZpR9hEE8RYuia/Documents%20for%20Release%20(DEHP%20advice%20on%20noise%20re%20DSDIP%20draft%20windfarm%20code)%20-%20RTIP1314-135%20(Part%202).pdf?dl=0
On the 11.12.2014 I contacted your Department and was referred to Ursula O’Donnell, Principal Planning Officer, as the person who is now running the Wind Farm Code development process in lieu of Kristiane Davidson. Ursula advised me that the team is getting their acoustic advice from John Savery. Ursula was unaware that Mr Savery had advised on and was primarily responsible for the first draft of the Wind farm Code. She was also unaware that Mr Savery was engaged by, and providing evidence for, the proponent of the Rabbit Ridge Wind Farm at an appeal court hearing in early 2015 and therefore has a conflict of interest by also providing advice on the Wind Farm Code.

Wind Energy Queensland understood that you agreed that the first draft of the Wind Farm Code was poorly written, inconsistent with existing Qld Noise Legislation and generally inappropriate and unacceptable and Mr Savery was the author of the first draft. You advised that you would undertake a fundamental redraft and use independent consultants. Wind Energy Queensland assumed that John Savery had an obvious conflict of interest and his first draft was so bad that a fundamental redraft was required and that he would no longer advise DSDIP or play any part in the development of a Wind Farm Code for Qld.

In early 2014 we provided you with a written submission on why Mr Savery is not suitable to advise on the Wind Farm Code. This submission detailed Mr Savery’s involvement in the promotion of the Rabbit Ridge Wind Farm which has been subject to an appeal court hearing since shortly after it was unanimously refused by the Southern Downs Regional Council in November 2013 and we detailed numerous reasons why John Savery was not suitable to provide DSDIP advice to develop a Wind Farm Code. These included his obvious conflict of interest, no known professional experience with wind turbine noise and the fact that he misreplicated advice from EHP in the Rabbit Ridge Wind Farm Noise Report and failed to amend the report when I personally informed him of the misrepresentation. (For more detail please see PPs 5, 7, 8 and 18 of Wind Energy Queensland’s submission on the first draft Wind Farm Code. By his own admission, John Savery’s first draft will not protect Queenslanders (see P 18 of WEQ submission)).

Again we point out to you that you are being poorly advised as evidenced by the factually incorrect statement you have included in the attached letter regarding the ability to predict or measure infrasonic and special audible noise emissions. My understanding is that your advice is coming from John Savery. Please correct me if this is not the case. You have stated in your letter that “the Qld Government decided to conduct an independent review of the draft code and guideline by qualified and leading experts in acoustic engineering”. We are only aware of John Savery advising on the redraft. Is he the qualified and leading expert you are referring to and has he reviewed his own work?

Minister Powell has provided a written undertaking that experts in his department (EHP) would be made available to assist in the development of the Wind Farm Code.

It is through either the lack of time, incompetence or bias of John Savery that your Department is still working on a wind farm code 12 months after it was commenced and it is hard to imagine with his continued involvement that we will see an acceptable document given that he is unable to change his advice from the advice he will present to the appeal Court in 2015.

We have requested on several occasions that you utilise services from EHP as offered by Minister Powell. You advised me on the 19.11.2014 that EHP have reviewed the redraft of the Draft Wind Farm Code. I spoke with Lindsay Delzoppo, EHP on the 12.12.2014 and he advised that he enquired with the relevant people in his department and he was confident that EHP have not reviewed the redraft of the Draft Wind Farm Code and they have had no input since submitting to the first draft. An examination of their submission to the first Draft prior to its public release revealed that your Department ignored most of EHP’s comments and preferred the advice of John Savery who you were aware has a major conflict of interest and is bound by professional advice he has already given to promote the Rabbit Ridge Wind Farm.
Wind Energy Queensland are very concerned that the deliberate use of an unsuitable consultant and the failure to achieve a result has burdened the State and community members with unnecessary cost and loss of time. Minister Powell has offered the services of his experts and we request that you accept his offer to achieve an expedient end to this situation and a Wind Farm Code that will reasonably protect Queenslanders.

WEC will not accept the current situation and will seek assistance to achieve a Wind Farm Code that will protect Queenslanders more sensibly if you are unable to accommodate our reasonable request.

Your statement in your attached letter of 17 December 2014 indicates that you will fail to apply the precautionary principle that the Sustainable Planning Act requires you to apply. Under that principle, “lack of full scientific certainty should not be used as a reason for postponing a measure to prevent degradation of the environment if there are threats of serious or irreversible environmental damage.” (see S 5(2) of the Sustainable Planning Act.) The July 2010 statement issued by the NHMRC urges the application of the precautionary approach in relation to infrasound. Your email of 29 May 2014 and your letter of 17 December 2014, confirm that you accept that there are threats of serious or irreversible environmental damage from infrasound and special audible noise emissions but you are postponing a measure to prevent degradation of the environment by not including appropriate provisions in relation to them in the draft Wind Farm Code and advising that “the Queensland Government will continue to update the code and guideline as advances in methodology, modelling and technology become available”.

You are bound to apply the precautionary principle by S 5(1)(a)(iii) of the Sustainable Planning Act. The draft Wind Farm Code must provide that every approval of a Wind Farm must contain conditions binding the proponent and operator not to cause infrasound or special audible noise emissions that threaten serious or irreversible environmental damage.

Please advise as soon as possible what steps you intend to take to amend this situation.

Regards

Spokesperson for Wind Energy Qld

From: Sharmaine Sallaway
Sent: Wednesday, December 17, 2014 4:25 PM
To: [redacted]
Subject: Draft wind farm state code and associated planning guideline

Hi Bryan,

Greg sends his apologies for missing the 3:30pm telephone conversation. Unfortunately he was required to leave the office for an urgent matter.

Greg has asked that a forward through to you a copy of the letter that was posted today.

Kind regards
Sharmaine Sallaway
Executive Assistant
Office of the Deputy Director-General
Planning and Property Group
Department of State Development, Infrastructure and Planning
Queensland Government
Planning Reform Queensland

Great State. Great Opportunity. And a plan for the future.
Please consider the environment before printing this email.
Thank you for your submission on the draft wind farm state code and associated planning guideline. In response to submissions received during consultation, the Queensland Government decided to conduct an independent review of the draft code and guideline by qualified and leading experts in acoustic engineering.

Based on the comments in the submissions and the findings of the independent review, further research was conducted into the noise component of the draft code and guideline. This work has now been completed.

As a result of this work, significant changes have been made to the draft wind farm code and guideline. Amendments to the draft code include clarifying and better codifying performance outcomes and acceptable outcomes in alignment with the Queensland development assessment framework; and to specify more clearly the expectations of applicants during the assessment process. Amendments to the guideline reflect the changes in the code, as well as clarifying the minimum supporting actions and evidence required to demonstrate compliance with the relevant provisions of the code.

As part of the independent review and further investigation, it was concluded that many of the complex acoustic characteristics raised by submitters (such as infrasonic and special audible noise emissions) cannot be predicted or measured. Consequentially, these types of impacts cannot appropriately be incorporated into the draft code and guideline for consideration through the development assessment process. Despite these limitations, the Queensland Government will continue to update the code and guideline as advances in methodology, modelling and technology become available.
The amended draft wind farm code and guideline will be re-notified and placed on the departmental website (www.dsdip.qld.gov.au/infrastructure-and-planning/strategic-planning/draft-wind-farm-state-code.html) for four weeks commencing Monday 19 January 2015. The public and affected parties will be invited to comment on the revised documents during this period.

If require any further information or you wish to provide further comments on the above or revised code and guideline, please submit to windfarms@dsdip.qld.gov.au.

Yours sincerely

Greg Chemello
Deputy Director-General
Planning & Property Group
Dear Jackie,

Mr Greg Chemello, Deputy Director-General, DSDIP, advised Tablelands Regional Councillor, Marjorie Pagani, in late 2014 that his department has recommended the approval of Mt Emerald Wind Farm. Wind Energy Queensland believe the recommendation has not included an assessment of the low frequency noise or infrasound that we know will be produced by the proposed wind farm.

We would like to draw your attention to one of the latest developments in the wind farm industry. It involves the known impact of low frequency noise and infrasound at existing wind farm developments. The impacts include the correlation between low frequency noise and infrasound generated by wind farms on the one hand and, on the other hand, feelings of nausea, pressure, inability to sleep etc affecting the health of the residents in the vicinity of the wind farm - some to the extent that they are forced to leave their homes. It was investigated by the current Senate inquiry which is covered in this recent edition of Today Tonight Adelaide in the following link:


EHP’s concerns about low frequency and infrasound are raised on the first page of the attached document which was their submission to the Draft Wind Farm Code currently being developed by DSDIP. This supports the correlation established by acoustician Steven Cooper between infrasound and adverse impacts on health.

Numerous acousticians, mostly involved in the wind farm industry, disagree with EHP’s advice regarding low frequency noise and infrasound. We believe this to be the case with the acoustician, John Savery who originally advised the then Government on the original draft of the wind farm code and is currently advising DSDIP on wind farm noise. Mr Savery is currently also advising the proponent of Rabbit Ridge Wind farm at Dalveen and is set to provide evidence in the Court Appeal in the very near future. Mr Savery has a serious conflict of interest and we have formally raised our concerns with Greg Chemello and yet Mr...
Savery is still advising DSDIP. We believe this to be inappropriate because of the obvious conflict of interest and duty and unnecessary given that the Qld Government have their own noise experts in EHP. We encourage you to take your advice on wind farm noise matters from your own Government’s noise experts in EHP to avoid any perceived or actual conflicts of interests with noise experts who are heavily involved in the wind industry.

We draw your attention to the following comments (highlighted in yellow) in an email from Mr Chemello (full email is below).

I am seeking approval to undertake a fundamental redraft of the wind farm code, particularly to include new/replacement sections relating to noise, low frequency noise and infrasound. We will use independent consultants to assist us in this regard.

Obviously, Mr Chemello did not “use independent consultants”. A number of people working on wind farms in the department have changed but Mr Savery is still the consultant. Mr Chemello is aware of the need to assess the low frequency noise and infrasound but we believe his department has failed to do so for the Mt Emerald Wind Farm proposal.

We recommend you seek immediate advice and a full assessment of the impact of low frequency noise and infrasound on the community surrounding the proposed Mt Emerald Wind Farm from noise experts in EHP prior to making a decision on Mt Emerald Wind Farm.

It is clear your Government is aware of the correlation between low frequency noise and infrasound adverse impacts on health and yet your department have failed at this stage to complete those assessments as required by the Precautionary Principle in Section 5 of the Sustainable Planning Act. This would appear to be a deliberate attempt to avoid providing the Mt Emerald Community the standard protection that is afforded to other Qld communities that are possibly impacted from low frequency noise and infrasound noise from other industries such as mining and CSG.

Please advise that you will remedy this situation by seeking an assessment of the impacts of low frequency noise and infrasound from EHP prior to making a decision on Mt Emerald Wind Farm.

Please advise that, under your direction, the noise component of the Qld Wind Farm Code will be developed by DSDIP based on advice gained from EHP noise experts.

Please also note from Steven Cooper’s evidence to the Senate inquiry included in the Today Tonight Adelaide program referred to above, the importance of conditioning any wind farm approval requiring the applicant and operator to shut the wind farm down for a period to allow proper “on/off” noise compliance testing to ensure the community is not being harmed by excessive wind turbine noise.

If you wish to discuss the contents of this email please contact myself on 07 46 686780. The 6 community representatives of Wind Energy Queensland are available to meet with you to discuss the planning of wind farm developments for Qld. We are very concerned about the lack of transparency, lack of community consultation and failure to listen, under the previous government, particularly in relation to the development of the Draft Wind Farm Code. We trust that this will change under your direction.

Regards

Spokesperson for Wind Energy Queensland
Bryan

I've had a long think about how best to progress this given our discussion last week and further considerations of the submissions we have received on the draft code.

I am seeking approval to undertake a fundamental redraft of the wind farm code, particularly to include new/replacement sections relating to noise, low frequency noise and infrasound. We will use independent consultants to assist us in this regard.

We therefore will not be in a position to finalise the wind farm code by 30 June 2014. Our next set of changes to the planning regulations is scheduled for September 2014 so I am now aiming to achieve that.

Once we have a revised draft code that I think better addresses the issues we discussed last week, we will consult with you (and other parties who provided submissions on the current draft). I suspect this will be in August.

We therefore do not need to meet on the 13th June as we previously agreed.

As soon as I have a better draft, I will contact you to arrange a copy to be sent to you and a time to meet.

Regards

Greg Chemello
Deputy Director-General
Planning and Property Group
Department of State Development, Infrastructure and Planning
Queensland Government
(4) If a concurrence agency's response requires the application to be refused, the assessment manager must refuse it.

326 Other decision rules

(1) The assessment manager's decision must not conflict with a relevant instrument unless—

(a) the conflict is necessary to ensure the decision complies with a State planning regulatory provision; or

(b) there are sufficient grounds to justify the decision, despite the conflict; or

(c) the conflict arises because of a conflict between—

(i) 2 or more relevant instruments of the same type, and the decision best achieves the purposes of the instruments; or

Example of a conflict between relevant instruments—

a conflict between 2 State planning policies

(ii) 2 or more aspects of any 1 relevant instrument, and the decision best achieves the purposes of the instrument.

Example of a conflict between aspects of a relevant instrument—

a conflict between 2 codes in a planning scheme

(2) In this section—

relevant instrument means a matter or thing mentioned in section 313(2) or 314(2), other than a State planning regulatory provision, against which code assessment or impact assessment is carried out.
EHP Response to draft Wind Farm Code, Queensland

Noise review of the Wind Farm Guideline

EHP would argue that wind farms should meet the following environmental objective:

The activity will be operated in a way that protects the environmental value of the acoustic environment; and

The performance outcomes should be:

1. Sound from the activity is not disturbing at a sensitive receptor.
2. The release of sound to the environment from the activity is managed so that the adverse effects on environmental values including health and wellbeing and sensitive ecosystems are prevented or minimised.

Sensitive receivers must include all animals that may be constrained by fences.

On Page 57 of the Draft Guideline: Wind Farms it states, “that the general approach in setting noise criteria for new developments is to require compliance with a base noise level.” For audible noise generated by wind farms EHP is satisfied that the standard set in AOS1 of the Draft SDAP is compliant with the Environmental Protection Policy (Noise) 2009 (the EPP Noise) and would meet performance outcome 1 listed above. However the EPP Noise does not address low frequency or infrasonic noise and the measurement approach provided in the guideline cannot achieve compliance with performance outcome 2, with regard to low frequency or infrasonic noise. Either a specific condition needs to be included for low and infrasonic frequencies or there will need to be a buffer distance between the wind farm and the sensitive receivers.

Proportion and attenuation.

EHP requests that the authors consider the following with regard to the propagation and attenuation of low frequency and infrasonic sound:

- Low frequency noise and infrasound cannot be measured by dB(A). By design, the A filtering process filters out low frequency and infrasound. Low frequencies and infrasound need to be measured in dB(Lin).

- Attenuation by air absorption for infrasound is over one hundred times less than that for audible sound. Attenuation may be as low as 12.4 dB for each doubling of distance where it is close to the cylindrical propagation mode; and where it is further away from the spherical propagation mode of normal sound, the attenuation is 20 Log(R). The rate of attenuation of infrasound and low frequency sound is between 14.3 Log(R) and 12.4 Log(R) rather than the conventional 20Log (R) for audible sound. Attenuation is particularly an issue where the diurnal cycle causes significant temperature differences, as this influences air absorption. The Australian context can have extreme temperature differences as a feature of its diurnal cycle. Generally the propagation of sound is higher during the night than in the say time.

- The Queensland climate context differs greatly from Europe and Northern America and this influences the way in which structures are built and used for example, windows are more often fully open and outdoor spaces are used more frequently than in the Europe or the USA.
Attenuation in outdoor and indoor spaces, operate differently for infrasonic and low frequency sound than for normal sound because that attenuation is frequency dependant. Strong attenuation occurs at the normal audio frequency and very weak attenuation (as low as zero) occurs at low frequencies. Further to this, indoor sound levels can be higher than outdoor sound levels, at some frequencies due to coupling between structural resonances and low frequency sounds. These sounds can be transmitted by air and by vibration through structures, traveling up to 25 kms from the vibration source.

Thresholds

Figure 1 shows that the annoyance thresholds between 20Hz and 30Hz for humans will be exceeded by up to 4dB while complying with the 35dBA criterion. Enough evidence has been presented in the literature to establish annoyance thresholds for infrasonic and low frequency sound and to establish and predict when such annoyance threshold would be exceeded.

Comments on Figure 1

Figure 1 on the next page shows the propagation of the audio noise of one wind turbine measured using the dB(A). Compliance with the 35dB(a) level would be achieved at 1.4km for the single turbine. It can be observed that for one turbine the annoyance threshold is exceeded by up to 4dB.
Distance associated with Onset of Thresholds; Annoyance and Physiological Effects for frequencies between 20Hz to 30Hz

Source level one turbine between 20Hz and 30Hz frequencies

Source level audio frequencies

Figure 1: Propagation of audio frequency of one turbine and associated criteria of 35dBA combine with the associated 20Hz to 30Hz low frequencies and the propagation corresponding that frequency band and associated annoyance effects

RTIP1314-135 (Part 2) RTI Document No. 208
Mr James Coutts  
Executive Director, Planning and Property  
Department of State Development  
PO Box 150009  
City East  QLD  4002

Dear Mr Coutts,

Thank you for your email inquiry from Mr Adam Yem, Acting Director dated 23 April 2015, regarding the National Health and Medical Research Council (NHMRC) Statement: Evidence on Wind Farms and Human Health (Feb 2015) and the proposed Mount Emerald Wind Farm development at Arriga in Mareeba.

In light of the recent NHMRC Statement your department has sought the following advice:

1. Given the NHMRC’s statement issued in February 2015, Queensland Health also concludes “that there is currently no consistent evidence that wind farms cause adverse health effects in humans.”

2. Given the change to the Victoria Planning Provisions, and provided there are no existing dwellings within 1 kilometre of any proposed wind turbine, Queensland Health does not have any concerns with the proposed Mount Emerald Wind Farm.

The NHMRC statement notes that based on direct evidence there is no consistent evidence that wind farms emissions directly affect health outcomes. However, the NHMRC also noted that taking into account evidence of health effects of similar emissions from other sources (parallel evidence), there are unlikely to be any significant effects on physical or mental health at distances greater than 1,500 m from wind farms. Given the limited reliable evidence, the NHMRC considers that further high quality research is warranted.

The Department of Health supports the NHMRC position statement and notes that physical and mental health effects are unlikely to occur at distances greater than 1,500m.

Should officers of your Department require further information, please contact Ms Uma Rajappa, Director, Environmental Hazards, on telephone 33289338.

Yours sincerely,

Dr Jeannette Young  
Chief Health Officer

3/4/15

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