## Minutes

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| **Company** | Pacific Hydro Pty Ltd<br>ACN 057 279 508 |
| **Meeting** | Cape Bridgewater Community Consultative Committee Meeting No. 4 |
| **Date** | Wednesday, 4 December 2013 |
| **Time** | 6.00 - 7.30pm |
| **Location** | Bridgewater Surf Live Saving Club |
| **Attendees** | Lane Crockett, GM, Pacific Hydro<br>Emily Wood, Communications Manager, Pacific Hydro<br>Danny Walsh, Senior Wind Analyst Engineer, Pacific Hydro<br>Steven Cooper, The Acoustics Group<br>Cath Smith, Futureye<br>Cape Bridgewater residents<br>Other community members |

### 1. Welcome and Introductions

Cath Smith, Futureye facilitator, introduced the meeting and went over the agenda. A small number of Cape Bridgewater residents were in attendance as were members from other communities in Victoria and South Australia. The minutes from the previous meeting were discussed, some adjustments were required and feedback will be needed. Pacific Hydro requested community members provide written feedback if possible to ensure minutes are updated as per requests.

### 2. Summary of previous meetings and agreed actions

Regarding the discussion in the last meeting about real time data, there was a comment made that AECOM are able to provide real time data from permanent noise monitoring. Lane explained that MDA is a similar company to AECOM. Discussion then halted and referred to separate part of agenda.

### 3. Steven Cooper introduction and presentation

Steven Cooper is an acoustician who was recommended by residents and will be conducting the noise testing at three homes in Cape Bridgewater. He said he was very happy to be a part of this innovative testing, that Pacific Hydro is looking to go above compliance.

Steven gave a presentation which provided information around the standards for which studies are and will be conducted under, previous studies around wind farms, and noise and vibration.

Steven begins by talking about the noise Standard used for testing compliance at wind farms. He says the issue with the Standard is that the standard is only looking at A-weighting which doesn't pick up infrasound.

Steven utilised a number of graphs as visual aids throughout the presentation. The first was a compliance graph. Steven talked about the challenges that can arise from this, as it shows the 'average' noise so there will be times when the noise is above the line or the 'average'.

He next shows a frequency weightings graph. A-weighting is general, it follows the way the human ear hears the noise. Normal noise does not have a low frequency.

Next graph shows a wind farm sound power level. He says it can be shown using a filter or linear.

Next is a graph showing the response from human ear. He says we don't hear very low frequency. dBA is not loudness, it's a number.

Next graph shows general noise. Steven explains that wind farms generate frequencies that are in the low frequency band. Usually 20Hz is what you can hear. A different type of microphone is required to record below this. Gas and wind produce 10Hz frequency.

Next he talks about 1/3 octaves, that they are used to show characteristics, specifically, a subjective character that can be more annoying. Explains that normally we measure wind farms noise over 10 minute periods and create an average. Questions, does the average describe the variation in noise?

Steven explained that if a residence has trees around it, then the background noise should be higher. He said that we have to compare like with like.

He talks briefly about aircraft noise showing a slide with a noise response curve relating to aircraft noise. The standard is based on 10% of population being upset. Steven said that some people will not be bothered by any noise at all, and others will.

Referring back to wind farm testing, Steven explained that we need to put microphones near residences close to wind farm to determine the source of noise. He suggested that other loggers can be put further away to calibrate and compare to others.

Steven showed a graph of turbine on hill with house in valley. He explained the different effects that wind direction has on the house. Refers to regression line which does not look at wind direction.

More graphs showing different things including background noise, wind rose, quadrants of the wind rose, old style downwind turbine noise, wind turbine signature graph, unweighted noise, low frequency and infrasound graphs.

Steven also explained that where you are can affect what you hear. For example, there is generally less noise when you are upwind. When you are downwind, there are more stable effects, and therefore more noise. He talked about wind shear and explained that it's not always 'greater wind, greater noise'.

Steven said we need to find what's causing the problem [at Cape Bridgewater], and suggested that Pacific Hydro and the community can review the findings together and go back to government if new legislation needs to be created. Steven said that we all need to work together to find a better way, that he doesn't know what will be found. Suggested that we may need better experts, but we don't know yet.

Questions follow including:

Q: Have you done monitoring on wind farms that are new and old?
A: Ambient monitoring proposed. Waubra and Waterloo has been tested. Glen Thompson, Capital Cullerin, Woodlawn wind farms. Ambient measurements at home. Trees create a lot of noise.

Q: With wind farms that have been operating for several years, does it impact noise?
A: It shouldn't. The clunks and mechanical noises are maintenance issues. We are looking at compliance monitoring to pick up abnormal noise. They have vibration testing inside on gearboxes.

There was further discussion about a specific situation for an attendee.

Cath Smith, Futureye facilitator, talks about where we are at now. The aim is to have a public project (keeping private information private) and for the Community Consultative Committee to be briefed about it. Ideally, it will lead to clarification of issues so they can be remediated. It didn't start out as an academic approach but now we are now looking at an evidence-based, scientific approach.

Lane said that now is the time to identify the issues and remedy them. He said that we don't know what we are going to find, but hopefully what comes out of it is fixing this situation.

Q: 'If the people find it unbearable, how do they continue on? How can we have a positive outcome if we won't shut the wind farm down? We know it's a step by step and you're still building wind farms. We have

suffered enough. My family has been here before.'
Lane apologised that we are not able to do anything for them right now. He said he didn't know where this is going to go, but we won't be shutting down the wind farm.

A range of comments about Steven Cooper's involvement and wind farm noise, impact on specific residents, what might happen in different scenarios, timeframe for testing.

Lane and Steven explained that after Christmas we can go back to families to explain implications of report. It will be specific to families. Once that is agreed, we can go forward as soon as we can get equipment into the field.

Steven Cooper commented that so far each family has a different issue. Due to this, diaries from the families are essential, and he will be asking a lot of questions as he needs to decipher what is going on. There was further discussion about what he is trying to do.

There was discussion and comments regarding the construction of new projects.

**4. Complaints process review**

Ongoing. Explained the process being undertaken at Pacific Hydro.

**5. Permanent noise monitoring trial**

Brief explanation that we hope that loggers will be deployed soon so that we have some results to present in the new year.

**6. Complaints for the month**

No new complainants. Same issues raised - noise, vibration were main concerns.

**7. Next meeting planning**

February will be first meeting in 2014.