

19 December 2014

640 10127 Response to EPA 20141219.docx

Union Fenosa Wind Australia Pty Ltd
Suite 4.03, 68 York Street
Sydney NSW 2000

Attention: Shaq Mohajerani

Dear Shaq

**Paling Yards Wind Farm
Response to EPA**

SLR Consulting Australia Pty Ltd (SLR) is the acoustic consultant for Paling Yards Wind Farm and has prepared the noise impact assessment report for the project (Report No **640.10127-R1R3**). The following is a response to each of the questions/queries from the EPA and a summary of any action taken. The changes made apply to the latest revision of the report, number **640.10127-R1R5**.

Submission 100343 – NSW EPA

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Wind speed at microphone height was not measured to exclude wind-affected data.	<p>Local wind speed, due to the sheltering by the house and local vegetation, is typically lower than at higher elevations above ground.</p> <p>SLR has previously undertaken the exclusion process (wind logged at microphone height) and has found that almost no points are excluded and the net result on the final curve is negligible.</p> <p>Additionally, as the wind speed is a 10 minute average, and wind seeds at 1.5 m AGL in a typical garden setting are highly variable, then it is that the L90 statistic (quietest 10%) will be affected by wind on microphone disturbance.</p> <p>In any case, the noise limits do not rely on the background + 5 dBA curve for most locations.</p>
Red dots used by the consultant on photographs of monitoring equipment may have concealed whether or not the wind screens were installed properly.	<p>Red dots were placed over the picture to show the location of the microphone more clearly. They can sometimes be difficult to see, particularly when photos are printed out. The red dots have been removed in the most recent version of the report.</p> <p>The EPA will observe that indeed, some of the microphones were not yet in place or had not yet had their windscreens put on at the time the photos were taken, however SLR can confirm that windscreens were used for all measurements, as is standard practice for all environmental noise logging.</p>
Noise loggers were installed in vegetation at a number of locations, which may have led to elevated	For some of the background monitoring locations, the entire house is surrounded by trees and vegetation. Finding a location that is not influenced by wind in trees would not be

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background noise curves.	representative of the actual noise levels at the house. Sometimes noise logger location is dictated by other constraints including presence of other noise sources, residents consent, access considerations, security, prevailing wind direction and shelter. In any case, the limit does not rely on the background + 5 dBA curve for most locations.
The NIA did not specify the height at which wind speed measurements were undertaken, but states that it was adjusted to 100 m height wind speed.	Wind speed measurements were taken at 20, 40 and 60 m above ground level on each wind mast. The hub height wind speed was calculated based on the 10-minute shear value calculated from the 20 m and 60 m AGL wind speeds. This information is included in revision 5 of the report.
The number of valid data points reported for three of the monitoring locations, regression curves may have been affected by the noise floor of the noise logging instrument used, between 22 dBA and 30 dBA (higher than recommended in the draft NSW guidelines.)	The requirements for noise loggers are that they be at least Type 2 certified; no minimum noise floor is given. The loggers used were all Type 1, exceeding this requirement. There is a requirement for Sound Level Meters undertaking frequency analysis measurements to have a noise floor less than 20 dBA, but this does not apply to loggers in the background monitoring campaign. In any case, the limit does not rely on the background + 5 dBA curve for most locations.
Plotted data for location 128 showed some stratification, and correlation of background noise measurements with wind speed at location 10 was very low (a maximum of 0.26683). This may indicate excessive extraneous noise levels at these locations.	The standard does not require a minimum R^2 value, only that the value be stated. Upon investigating this issue, it was discovered that a referencing error had caused some of the scatter plots in the report to be incorrect. The regressed lines and equations used for the technical assessment were not affected, only four of the presented graphs in the report document. This error has been corrected in the new revision of the report.

The EPA recommended Conditions of Project Consent are in keeping with the assessment procedure laid out in SA EPA Guidelines, with the exception of the 'flat' noise limit, that is, 35 dBA for all wind speeds. SLR notes that background noise has already been shown to exceed this value at higher wind speeds at some locations and that background noise can also vary on a seasonal basis. Furthermore, we note that the predicted levels of noise at some locations are very low compared with the background noise levels. Thus, when the compliance measurements are conducted, it is possible that the noise levels will have slightly increased and/or be above 35 dBA but not due to noise from the wind farm. It is important that NSW EPA understands that measuring wind farm noise at levels close to or below ambient background noise is technically difficult and that the limit should not be read to literally mean that if the regressed noise line is over 35 dBA that the wind farm is in breach.

We trust this letter addresses all the issues satisfactorily.

Yours sincerely,



Philip Setton
Project Consultant