

2 September 2014

M/s Karen Jones
Director, Infrastructure Projects,
NSW Department of Planning
SYDNEY NSW 2000

Dear M/s Jones,

Re: Wellington Power Station

About 5 years ago I retired and moved to Wellington after working in Testing & Certification Australia in Sydney for 40 years. Now I live on a quiet north facing riverbank facing the proposed power station. See the attached photo taken from my living room 2 years ago.

I had heard rumours of building a massive noisy power station on the edge of the town. Due to my noise background, the idea did not make any sense, so I dismissed it outright until 2 weeks ago, when I became concerned about future noise annoyance for the entire town.

I am writing to you as the Project does not cover how to deal with noise complaints.

Most part of my working life I was an authorised NATA (National Association of Testing Authorities) Signatory in Community Noise Assessments. I have been involved in over one hundred noise complaints against Energy Australia.

I have witnessed noise test on transformers at various manufacture's premises on behalf of Energy Australia covering almost all of their purchases. I also tested some zone transformers on behalf of Tasmanian Hydro Electric Commission and SEQUEB of Queensland. During the early years, only arithmetic averages of pressure levels were calculated. Nowadays quadratic means and more meaningful sound power levels are required. Some manufactures even request frequency spectrums at various distances away.

In addition to the above witness testing, I have performed various field surveys on zone, kiosk and pole transformers. Some zone transformer surveys lasted several years due to volumes involved. The aim was to establish noise records of all zone transformers, especially the ones that had not been witnessed during the manufacturing phase.

A major portion of my work was noise annoyance testing, but I mention briefly having been involved in occupational hearing damage testing, impulse noise testing, ultrasonic noise testing, microphone testing, reverberation times, earmuff assessments, daily noise doses including allowable exposure times etc.

Justified annoyance complaints were usually against noises emanating from Distribution Zone Transformers, Roadside Kiosks Transformers, and Pole Transformers with or without platforms,

Air Conditioning Units, Air Compressors and CLC (Customer Load Controller) Motor/Generator Sets used to inject the hourly signals to provide power to off-peak hot water tanks in various households. (There were also dozens of unjustified and marginally justified complaints)

Sometimes more than a single + 5 dB(A) penalty had to be used due to the character of the offending noise and occasionally, when several penalties were involved, various duration allowances were deducted for short lasting event contributions.

There was a brief period when EPA required L95 level background noise compliance. It was too hard to comply in practice and requirements were relaxed to L90 values.

To illustrate what happened with noise complaints over time, I created the following 'generic' story to make the point in layman's language without numbers, dates, places, people etc.:

'Power supplier' had to build a new substation due increasing load. They contemplated possible locations and asked a 'Test house' to perform 'Background noise' survey. 'Test house' found out that 'Location C' had the best 'Background A'. Now 'Power supplier' asked a 'Council', could we build a new substation at 'Location C', getting an answer: If you meet 'Background A', go ahead.

'Power supplier' asked a 'Manufacturer' can you make transformers suitable for 'Background A' that a 'Test house' will pass. They did. New substation was commissioned, everything was fine.

New houses were built closer to the substation. A few years later 'Power supplier' received a noise complaint and asked the 'Test house' to investigate. The result was that the noise complaint was justified. 'Power supplier' approached EPA, explaining that they were the first to arrive on the site, having done everything that was required, and now there is justified noise complaint, what can we do?. EPA answered that it makes no difference who was there first, and if there is a justified noise complaint, resolve it to complainant's satisfaction.

'Power supplier' told the 'Manufacturer' that the transformers you made earlier satisfactorily are no longer quiet enough. We have to move them somewhere else. Can you make quieter ones that the 'Test house' will pass? 'Manufacture' said yes, but best ones are very expensive.

Quietest possible transformers were made and commissioned to the complainant's satisfaction.

Years passed, more houses were built closer to the substation. 'Power supplier' received a new noise complaint. 'Test house' found it justified. 'Power supplier' went to EPA, saying that we have a new justified noise complaint. We are using the quietest possible transformers and have satisfied the previous complaints. Can you give us some leniency? EPA said that it is your noise, you have to stop it. Construct brick walls around them! Walls were built and complaints stopped.

Now new high rise development started one street further away, behind the houses that had complained years earlier. New noise complaints were received from high rise residents. 'Test house' learnt that the 4-sided high brick walls reflected noise up, making noise complaints from high rise residence further away justifiable. 'Power supplier' asked EPA, what can we do now?. EPA answered that build a roof over the brick walls. It is your noise; stop it at the boundary, only 'Railways' are excused. 'Power supplier' couldn't build the roof due to heating transformers.

The substation was mothballed and years later demolished and the land sold. ('Generic' end)

I was amazed how seriously Energy Australia took my evaluations and how fairly they complied with EPA requirements. Energy Australia changed their name several times, but the culture to improve quality of life stayed. Their senior engineers worked in various committees progressively improving and/or introducing new Australian Standards as technology advanced.

ERM Power Ltd has not disclosed the total sound power level of the source or used their own measured background level of LA90 = 25 dB(A) in any of their assessments.

ERM has disclosed sound pressure/distance from source information combination only for one location. Using that information, I calculated the probable sound power level of the source and estimated 2000m distance to my place and calculated that the offending noise at my place might exceed the background of 25 dB(A) by 9 dB(A)

On the attached map:

Position A indicates the location of the proposed site.

Position B shows where I live.

Inside Circle 1 Offending noises may exceed the background by more than 5 dB(A).

Inside Circle 2 In my opinion, offending tonal noises could be audible, as tonal noises can be heard below the background, hence the penalty. Older people, having lost the masking effect of the higher frequencies, could hear tonal low frequencies relatively louder, making the annoyance worse to them.

So far I have tried to convince you with illustrations, how powerful consequences even a single justified noise complaint may have.

In principle, noise assessment is easy. The most important thing is the background noise level, as the excess that determines the justification, is always referred to it. The science how noise decays with distance is well known. When the sound power level of the source and the background level into what it must decay are known, the circle of the justified complaints area can be drawn.

Please, look at Circle 1 carefully. There may be serious noise consequences anywhere inside it.

I appreciate how difficult it is to determine the total sound power level of an entire plant, that has not even been built yet. That is why the site location is vital. All I can tell you that, as for most of the town the background level is 25 dB(A) there will be problems. If the

power station noise at end receiver is 30 dB(A) or less, the noise may be audible, but the noise complaints are unlikely be successful, if the values are higher than 30 dB(A) the complaints may be justified.

I would urge you not to approve the modifications and to let the Project Approval lapse.

Yours sincerely,

Martin Sannikka
WELLINGTON NSW 2820