

## Merle Lavin

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**From:** Carly Chang  
**Sent:** Friday, 22 September 2017 2:17 PM  
**Subject:** FW: Te Rere Hau s 128 - Response to Mr Bill Harding

Good afternoon,

Please see below correspondence from NZWL in response to Mr Bill Harding's question.

Thanks

**CARLY CHANG** | Committee Administrator

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**From:** Vicki Morrison-Shaw [<mailto:vicki.morrison-shaw@ahmlaw.nz>]  
**Sent:** Friday, 22 September 2017 7:56 a.m.  
**To:** Carly Chang  
**Cc:** John Maassen  
**Subject:** Te Rere Hau s 128 - Response to Mr Bill Harding

Dear Carly

In paragraph 4 of its 21 September 2017 Minute the Hearings Panel directed NZ Windfarms to provide a response to the question raised by Mr Harding as to "whether the applicant's revenue metering in the past have 50Hz filters fitted?".

NZ Windfarms has advised that:

We can confirm that we do not have 50Hz Bandpass filters on our generation equipment, nor are we aware of any such technology used in the power industry. Mr Harding's insistence on the use of such filters appears to relate to his assertion that all wind turbines use asynchronous generators; whilst this is generally true in that most variable speed pitch control modern turbines use asynchronous generators, our turbines have limited pitch control and use synchronous generators. At the hearing Mr Harding referred to a Te Apiti observation post where site information referred to asynchronous wind turbines; we assume he was looking toward the Te Apiti or Tararua Wind farms, which both employ variable speed asynchronous turbines. As stated, our generation platform is very different, and is hard to see from this observation post, hence the potential confusion for Mr Harding. The generators in our turbines are Cummins Stamford HCI 534F models, a very commonly used synchronous generator widely used in gas, diesel and hydro generation. We trust this answers Mr Harding's queries.

I trust this email is a sufficient response. However, if the Panel would prefer this response on NZ Windfarms letterhead or in an evidence statement format please let me know.

Kind regards

**Vicki Morrison-Shaw**  
Senior Associate

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