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October 09, 2018

John O'Neill, Senior Manager, Assessment Management
Grand Renewable Wind LP / Grand Renewable Wind GP Inc.
2050 Derry Road West, 2nd Floor
Mississauga, Ontario
L5N 0B9

Dear Sir:

**Re: Acoustic Audits - Renewable Energy Approval # 0300-8UQPKR
Grand Renewable Energy Park - Wind Component
Haldimand County
Reference Number 8913-8MCQLL**

The ministry has reviewed the following acoustic audits, prepared by Aercoustics Engineering Ltd., which addressed the noise immissions (I-Audits) and emissions (E-Audits) from your facility:

I - Audit Reports entitled:

1. *ASSESSMENT REPORT - Project: 14284.00, Grand Renewable Wind Farm – 1st Immission Audit, Receptor Measurements, dated December 12, 2015, and*
2. *ASSESSMENT REPORT - Project: 14284.00, Grand Renewable Wind Farm – 2nd Immission Audit, Receptor Measurements, dated April 18, 2016.*

E - Audit Reports entitled:

1. *REPORT ID: 14284.00.T10.RP4, Grand Renewable Wind Farm – Turbine T10, IEC 61400-11 Edition 3.0 Measurement Report, dated March 2 2018 – Revision 4,*
2. *REPORT ID: 14284.00.T058.RP1, Grand Renewable Wind Farm – Turbine T058, IEC 61400-11 Edition 3.0 Measurement Report, dated February 4, 2016 – Revision 1.*
3. *REPORT ID: 14284.00.T060.RP5, Grand Renewable Wind Farm – Turbine T060, IEC 61400-11 Edition 3.0 Measurement Report, dated March 2, 2018 – Revision 5, and*

4. *REPORT ID: 14284.00.T063.RP5, Grand Renewable Wind Farm – Turbine T063, IEC 61400-11 Edition 3.0 Measurement Report, dated March 2, 2018 – Revision 5.*

By means of this letter, it is acknowledged that your firm has submitted the reports to fulfill the requirements of conditions “F” and “G” (I and E Audits) of your Renewable Energy Approval . Our assessment of the above reports have yielded the following:

I-Audits

It is concluded that two of the three receptors (receptors 2885 and 3276) have adequately fulfilled the the requirements of condition “F” in the Approval. several calculations related to receptor 2956 were not accurately determinable (ambient exceeded or equalled the turbine on data). Therefore your firm will be required to conduct one more I- Audit, in the vicinity of receptor 2956, using the 2017 Compliance Protocol for Wind Turbine Noise (Protocol), based on one (1) minute time intervals.

Your firm is only required to take measurements for a maximum of six weeks and if necessary use section E 5.5 (11) of the Protocol to draw conclusions with respect to compliance at this receptor.

Within 30 days of the date on this letter or a date agreed to in writing by the District Manager of the Hamilton District Office, the wind facility is to acquire approval from this office with respect to where the additional audit will be conducted.

Within 6 months of the date on this document or a date agreed to in writing by the District Manager of the Hamilton District Office, the wind facility is required to undertake the I-Audit in accordance with Section D/E of the Protocol and submit the results of the audit to this office.

Please refer to the annex of this letter for more details of our analysis.

E-Audits

Two out of the four turbines (T 10 and T 58) assessed are in compliance with the applicable limits.

Turbines T60 and T63 exceed the maximum sound power level specified in the Approval by more than 0.5 dB (0.7dB and 0.9 dB respectively). Your firm acknowledges this excess and has opted to use section E3.1 of the Protocol (remodelling with the higher sound power levels) to demonstrate compliance.

The approach is acceptable, provided all the 2.221 MW turbines are modeled at 105.9 dBA; with the exception of Turbine T 60 which can be modelled with a sound power of 105.7 dBA.

The updated Acoustic Assessment Report should be submitted to my office and the Hamilton District Office no later than 30 days after the date on this document or a date agreed to in writing by the the District Manager of the Hamilton Office.

Please refer to the annex of this letter for more details of our analysis.

Posting of Audits

In accordance with sections E3 and E 5 of the Protocol your firm will be required to post the acoustic audit reports, (both I and E audits), on the project website, once the ministry has completed its review of all the acoustic audit reports and deemed them complete. The acoustic audit reports, and any updates must be made available to the public on the project website for the life of the project. The ministry will inform you when to post the audits on the project website.

Review Referred to the District Office

By means of this letter, this facility is also referred to the Hamilton District Office with respect to the timings and submission of the additional report and audit.

If you have any questions regarding the above, please contact me at the above phone number.

Yours truly,

A handwritten signature in cursive script, appearing to read "Denton Miller".

Denton Miller
Senior Noise Engineer

c: District Manager, MECP Hamilton - District Office

Annex

I-Audits

The first and second I-Audits campaigns at the receptor locations under assessment are complete from a data perspective. However several turbine only sound level calculations were not accurately determinable (turbine off measurements exceeded or were equal to the turbine on measurements).

A summary is provided in the table below:

Receptor	1st Audit Report ; Dec 15th, 2015				2nd Audit; April 18, 2016			
	Turbine Only: Wind speed Bins (m/s)				Turbine Only: Wind speed Bins (m/s)			
	4	5	6	7	4	5	6	7
2885								X
2956				X	X		X	X
3276								

X = Calculation not possible

The ministry will therefore require the wind facility to conduct one more I- Audit in the vicinity of receptor 2956 using the 2017 Compliance Protocol for Wind Turbine Noise (Protocol), based on one minute time intervals.

The I-Audit must be based on at least 6 weeks of measurements. If sufficient data is not acquired after 6 weeks of measurements then in accordance with section E 5.5(11) of the Protocol, appropriate (statistical) data analysis, where necessary may be used to derive valid conclusions (i.e. statement of compliance), in accordance with good scientific data analysis techniques.

The wind facility is to acquire approval from District Manager of the Hamilton District Office where the additional audit will be conducted within 30 days of the date on this letter or a date agreed to in writing by the subject District Office.

The wind facility is required to undertake the audit in accordance with Section D/E of the Protocol and submit the results of the audit no later than 6 months after the date on this document or a date agreed to in writing by the the District Manager of the Hamilton District Office.

E-Audits

In a letter from Aercoustics dated March 2, 2018 it is acknowledged that turbines T60 and T63 exceed the maximum sound power level specified in the Renewable Energy Approval by more than 0.5 dB (0.7dB and 0.9 dB respectively). The letter also states your firm intends to demonstrate compliance at the worst-case receptors in accordance with section E3.1 of the Compliance Protocol for Wind Turbine Noise. Specifically, Option 1. For reference E 3.1.1 Option 1 is copied below:

E 3.1.1 Option 1: Re-modelling

The owner/operator may choose to remodel the wind facility based on the Sound power levels in the E – Audit and the modelling parameters in the Acoustic Assessment Report used to support the Approval.

The owner/operator will then be required to submit an updated Acoustic Assessment Report to the Ministry (see Figure 1 in section E 4 of this document). For further direction, proceed to section E 3.1.3 of this document.

The Sound power level used in the remodelling should represent the worst-case scenario. For example, if more than one Sound power values are available for a particular model of turbine (based on approved E-Audits) in a subject facility, the highest Sound power level should be used when remodelling turbines which were not audited.

The approach is acceptable. With the exception of Turbine T 60 (105.7 dBA) all the 2.221 MW turbines must be modelled at 105.9 dBA.

If your firm is able to show that the remodelled sound levels meet the Ministry's Sound level limits at all Points of reception, the Ministry will confirm that:

- a. the E - Audit shows that the measured Sound power levels of the wind turbines (or wind facility) exceed the Sound power levels set out in the Approval;
- b. the remodelled/measured Sound levels demonstrate compliance with the Ministry's Sound level limits at the Points of Reception; and
- c. the Ministry will not take further action or require that the Approval be amended This does not preclude the Ministry from requiring future acoustic audits, based on valid complaints from residents..

The updated Acoustic Assessment Report should be submitted to my office and the Hamilton District Office,

- a. no later than 30 days after the date on this document or
- b. a date agreed to in writing by the the District Manager of the Hamilton District Office.