Submission Re: Rule 007 Review

To whom it may concern;

We would like to take this time to address a few areas of concern regarding Industrial Wind and Industrial Solar installations. As the demand for energy increases it is imperative that Alberta has a diverse and reliable energy system. Certainly, renewable energy can play a role in that system. Unfortunately, with the way that these industries are being installed throughout rural Alberta the adverse effects to the environment and to human health and well-being are increasing proportionately to the size and breadth of the installations. While we are aware that landowners have the right to sign contracts to allow for renewable projects on their lands, it cannot be done at the expense of neighboring landowners and homeowners. The following are some concerns we would like to see the AUC address in the review of Rule 007.

**Setbacks of Industrial Wind Turbines (IWTs)**

We know that Industrial wind turbines produce both audible sound as well as infrasound. In many studies around the globe infrasound has been associated with adverse health effects on both people and animals. As IWTs increase in size we know that the larger the turbine the more low frequency noise (LFN) is emitted. [[1]](#footnote-1)

Exposure to LFN from wind turbines may result in headaches, difficulty concentrating, irritability, fatigue, dizziness, tinnitus, sleep disturbances, and annoyance. Additionally, exposure to LFN from wind turbines may cause increased risk of epilepsy, cardiovascular effects, and coronary artery disease.[[2]](#footnote-2)

“The essence of the current debate is that on one hand you have the well-funded wind industry 1. advocating that infrasound be ignored because the measured levels are below the threshold of human hearing, allowing noise levels to be adequately documented through A-weighted sound measurements, 2. dismissing the possibility that any variants of wind turbine syndrome exist (Pierpont 2009) even when physicians (e.g., Steven D. Rauch, M.D. at Harvard Medical School) cannot otherwise explain some patients’ symptoms, and, 3. arguing that it is unnecessary to separate wind turbines and homes based on prevailing sound levels. On the other hand, you have many people who claim to be so distressed by the effects of wind-turbine noise that they cannot tolerate living in their homes. Some move away, either at financial loss or bought-out by the turbine operators. Others live with the discomfort, often requiring medical therapies to deal with their symptoms. Some, even members of the same family, may be unaffected.”

In conclusion, Salt and Lichenhan “described multiple ways in which infrasound and low-frequency sounds could affect the ear and give rise to the symptoms that some people living near wind turbines report. If, in time, the symptoms of those living near the turbines are demonstrated to have a physiological basis, it will become apparent that the years of assertions from the wind industry’s acousticians that “what you can’t hear can’t affect you” or that symptoms are psychosomatic, or a nocebo effect was a great injustice”[[3]](#footnote-3)

In a study done by Dumbrille, McMurtry, and Krogh, the objective was to apply the BH criteria to evaluate the relationship between IWTs and adverse health effects. They concluded that:

“… preventative actions should be taken, and policies implemented that are more cautiously protective of public health, safety, and welfare rather than wait for absolute certainty. More stringent regulation is needed to recognize, monitor, analyze, and document effects on the health of local residents and animals.” And that: “Our findings provide compelling evidence that there is a pressing need for risk assessment before deployment of IWT into rural community settings that consider more effective and precautionary setback distances.”[[4]](#footnote-4)

Considering the adverse effects of exposure to LFN from Industrial wind turbines we feel that it is incumbent of the AUC to put in place adequate setbacks from the IWTs to residential homes to protect the health and safety of Alberta residents. Globally there are a plethora of various setbacks ranging from 500m to 15km. **We feel that a minimum setback of 5km should be implemented which would help to site the large Industrial Wind Facilities farther away from populated areas helping to alleviate possible heath risks. A setback of 10-15km would ensure that rural Albertans are protected.**

Purhaps a **factor of 25 (minimum)** should be implemented. This would allow for varying setbacks dependent on the size of the turbine. For example, if a turbine is 200m from base to blade tip then the setback would be 5000m (200m x 25 = 5000m). This would also allow for new technologies that hopefully will see turbines that are not as tall and are less obstructive to have smaller setbacks without changing the regulation in future.

**Viewscapes**

While it is important to protect the beautiful view of our Rocky Mountains, we feel it is important not to overlook the importance of prairie views when considering viewscapes. People choose to live in rural areas for a reason and most notably that would be for the unobstructed views. These views are highly valued by landowners. We have been seeing a resurgence of young people moving into rural areas to live and start small businesses that rely on agricultural lands and views for tourism. Many of these agribusinesses rely on the beauty of the surrounding area to draw urban populations. Majority of rural landowners are amazing stewards of our lands and environment, and it is unacceptable that they are put in the position of having their neighboring lands and viewscapes altered by large Industrial Wind Turbines simply because an adjacent landowner chooses to host. More needs to be done at the initial stages to allow affected landowners and business owners to have meaningful discussions and input regarding siting of renewable project. Visual impact assessments need to be done early in the planning stages.

**Agricultural Land Use**

At present time large solar arrays are being constructed on viable agricultural land in Alberta at a staggering rate. Agricultural land is a finite commodity and once removed (or degraded) cannot be regenerated. Recently, the AUC and the Government of Alberta said they would be using an Agriculture First mandate but thus far it does not seem to be true. When considering a large solar project how can the AUC determine what the productivity of the land is when comparing crops to livestock? How much of a loss in crop production (food stability) is acceptable when allowing the most productive land within a jurisdiction to be used for solar and to a lesser degree wind? In addition to this, **the ambiguity of what constitutes agrivoltaics must be defined before any more projects move forward to ensure that the agricultural output is viable.** In some areas crops can be grown beneath the solar arrays but then cannot in other areas due to varying growing conditions. Again, much study needs to be done to identify what constitutes viable agrivoltaics in Alberta and differing regions of Alberta.

**Renewable facilities should not be considered for land classes of 1 and 2 when utilizing the Canada Land Inventory (CLI) or class 2 and 3 when utilizing the Land Suitability Rating System (LSRS).** It should also be noted that only one classification system should be quoted so as not to cause undue confusion. **Consideration for utilizing land classes lower than 3 (LRSS) should be on a case-by-case basis in conjunction with the municipality.** There are many other options that can be utilized for large solar applications such as existing infrastructure, parking lots etc. The place for solar appears to be on localized, private usage in which excess electricity can be put into the grid or by large corporations utilizing their lands and building in the same manner.

**Battery Energy Storage System (BESS)**

Recently, Premier Danielle Smith indicated that Renewable Companies would need to always provide nameplate capacity rather than generating capacity. This would necessitate the use of Battery Energy Storage Systems (BESS) to be installed at all facilities. We feel that this aspect must be included from the start of the planning phase of a wind or solar project and go through the application process with the AUC in conjunction with the facility, the substation, and the transmission connections. It does not make sense to do it individually after the project has been approved to move forward if the requirements for a BESS are not met.

**Participation Involvement Program**

Within Rule 007 the Participation Involvement Program we find the following:

1.2 Purpose of the participant involvement program:

It is paramount that effective communications take place between the applicant and all potentially affected persons including Indigenous groups, the public, local authorities, agencies, industry and government so that concerns may be raised, properly addressed, and if possible, resolved. All persons whose rights may be directly and adversely affected by a proposed development must be informed of the application, have an opportunity to voice their concerns and have an opportunity to be heard.

As well as:

As mentioned above, the development and implementation of the PIP must occur prior to the filing of an application with the Commission. The elements of the PIP must include:

* Project-specific information.
* A response to questions and concerns.
* A discussion of options, alternatives and mitigation measures.

Although the program exists it seems to benefit the company rather than those closely affected by the proposed project. From all indications companies simply need to hold a public open house, hand out information and then it is the responsibility of the landowners to contact them or the engagement representatives they have hired. From experience, it seems that concerned landowners lay out what their concerns are but little to no response is made. Certainly “discussion of options, alternatives and mitigation measures” seems to be absent. These large companies also rely on separating concerned landowners. The process is very daunting for many individuals and being able to have meetings in a group setting would help those who are intimidated by the idea of raising their concerns. We feel that several informational meetings should be required rather than just the initial one. The prolonged nature of these projects makes it very difficult to know exactly what is going on. We also feel that the notification area should be expanded due to the vast increase in size of the IWTs as well as the size of the solar arrays proposed.

In the past, the common idea that the AUC will simply approve the project regardless of concerned landowner participation lends itself to apathy and a sense of “why bother” on the part of those closely affected as well as in the participation of municipalities. We are hopeful that with the recent reviews of Rule 007 we can see some clarity and defined outcomes that will protect affected landowners that by no fault of their own are thrust into having to fight to preserve their lands, their way of life and their families and that municipalities have the ability to enact their bylaws and have more input into the proposed power projects within their jurisdiction.

Respectfully,

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1. Moller H, Pedersen CS, Low Frequency Noise from Large Wind Turbines in J. Acous. Soc. Of Am 129(6) June 2011 [↑](#footnote-ref-1)
2. Chiu, CH., Lung, SC.C., Chen, N. *et al.* Effects of low-frequency noise from wind turbines on heart rate variability in healthy individuals. *Sci Rep* **11**, 17817 (2021). https://doi.org/10.1038/s41598-021-97107-8 [↑](#footnote-ref-2)
3. Alec N. Salt and Jeffery T. Lichtenhan Department of Otolaryngology Washington University School of Medicine St. Louis, MO 63110 How Does Wind Turbine Noise Affect People? [↑](#footnote-ref-3)
4. Dumbrille, Anne; McMurtry, Robert Y.1,2,3; Krogh, Carmen Marie4. Wind turbines and adverse health effects: Applying Bradford Hill's criteria for causation. Environmental Disease 6(3):p 65-87, Jul–Sep 2021. | DOI: 10.4103/ed.ed\_16\_21 [↑](#footnote-ref-4)