STATE OF NORTH DAKOTA

PUBLIC SERVICE COMMISSION

Public Service Commission
Public Utilities
Rulemaking

Case No. PU-16-775

COMMENTS OF DRAKE LIGHTING, INC

The North Dakota Public Service Commission ("Commission") has proposed changes to N.D.A.C. § 69-06-08-01 (6)(n): Policy Criteria – Lighting Systems. Drake Lighting, Inc. ("Drake") the US distributor for Technostrobe, Inc. ("Technostrobe") respectfully provide comments regarding the proposed wording in reference to "aircraft detection lighting systems".

One of the first solutions accepted by the FAA was to decrease the vertical beam of the light. This reduced the amount of light going to the ground lowering the amount of light impact on the community. GPS synchronization was another solution and made all of the lighting flash at the same time. The last of these was to lower the flash rate from 40 flashes a minute to 30fpm.

Light mitigating solutions that are outside the standard lighting equipment are in its infant stages. The ADLS – Aircraft Detection Lighting System ("ADLS") was approved as a light mitigating solution in the 12/04/15 update to the FAA 70/7460-1L. This solution is by no means the last solution to come.

The wording used in this new rule appears to Drake as being to restrictive in light of new product develops. It is our request the Commission review the wording to allow other light mitigating solutions to be proposed as they become available.

Drake would propose the following wording be considered.

> n. A commitment to install light mitigating technologies for wind energy conversion facilities subject to Federal Aviation Administration approval.

This simple change will open the door to new solutions. The wording will also provide an incentive for developers to search out new solutions and bring them to the state.

In support of this request I would point out a few details regarding some of the above light mitigating solutions discussed.

Vertical Beam

- Older lighting equipment had a larger vertical beam with a negative beam of up to 10-degrees.
- The next generation of lighting equipment reduced this to 5-degree negative beam.
- The current lighting equipment today offers a zero degree negative beam reducing the light reaching the ground significantly.

ADLS

- These are approved by the FAA site-by-site and can be denied for some of these reasons.
    - Being near an airport.
    - In the path of low flight routes.
    - On or near military training facilities.
    - In the path of frequently used flight routes.
- In some cases it would be required to have lighting on a portion of the farm at all times.
- The default for the lighting equipment is "on" at 100% intensity.
- This system does not mean the lights are off all the time but off when none of the criteria is met for being "on". If any of the below are met the system will turn on at 100% intensity till cleared.
    - When the communication between radar units is interrupted.
    - If individual lights cannot report back to the control unit they must be on at 100% intensity.
    - If the system detects an object at least 1 sq. m in size.
    - If the system looses communication with any item within the system.
    - If equipped with audible controls, a pilot outside of the 3NM range can energize the lights.

LIDS™

- Current lighting intensities are designed based on the worst-case scenario of 1-mile visibility. In most localities, this only occurs 15% of the year. Light systems only need to be at 100% intensity around 60 days a year. The rest of the time, a light in dimmed mode is more than sufficient for the safety of the pilots.
- This system is not approved in the US today but is in the trial phase and could be approved for use on specific farms as early as August 2017.
- This system will be approved by the FAA site-by-site. It is not yet known what reason could limit this system from being used. We are hopeful since the lighting system is on all the time it will have less restrictions on its use.
- The intensity of the lighting equipment will operate based on the visibility around the wind farm.
    - 10km plus, the lights will operate at 10% intensity (or 200cd)
    - 5km plus, the lights will operate at 30% intensity (or 600cd)
    - Less than 5 km of visibility, the lights will operate at 100% intensity (or 2,000cd)