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Xcel Energy Data Request No. 1-1  
 Case No.: PU-17-362  
 Response To: North Dakota Public Service Commission  
 Requestor: Victor Schock  
 Date Received: May 10, 2022

Question:

Please provide separate answers for each of the facilities.

I understand this data has been provided for some of the wind facilities in prior years, however we would like to receive more recent data for those systems now that they have been in operation for an additional 1-2 years.

This is a list of the facilities I would expect responses for:

Case No	Name
PU-17-362	Border Winds

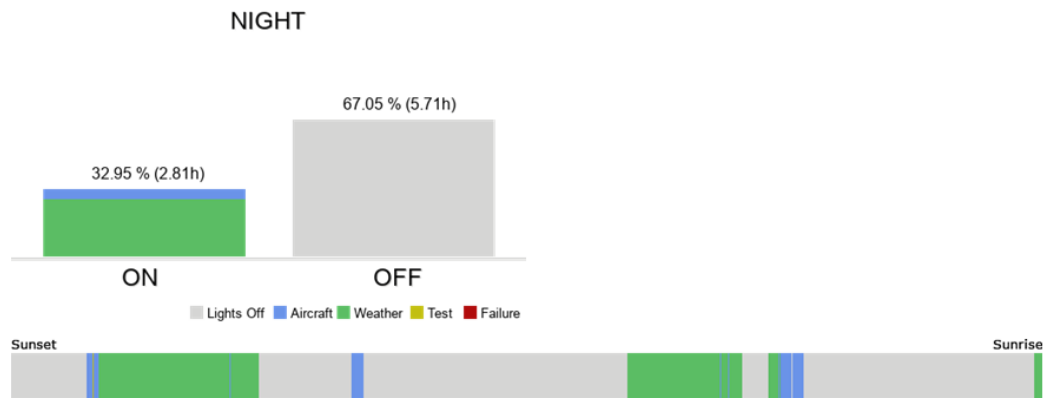
1. Who is the manufacturer of your ADLS system?
2. What systems are in place to collect operational data for the ADLS system?
3. Can the system determine if an aircraft caused the mitigation of the ADLS system or if it was caused by something else?
4. Provide in percentages what is triggering the ADLS system.
5. What percentage of the lights are required to be in continuous operation?
6. What are the reasons for the continuous operation?
7. How often are the lights mitigated by the ADLS system?
8. What percentage of time are the lights mitigated by the ADLS system?
9. What are the impediments to more frequent light mitigation?
10. What other data can you provide based upon your company's experience with ADLS?

Response:

1. DeTect, Inc.

2. DeTect's *Harrier ADLS Manager Display* is the software used to monitor current lighting status, collect data, and generate performance reports for both our Border Winds and Courtenay facilities.
3. Detect's system uses sophisticated algorithms to analyze the size, shape, speed, and altitude of each aerial object to make a determination as to whether the tracked object is an aircraft. Because the process is not 100 percent fail safe, the system is designed to default to "lights on" mode if there is an inability to positively identify a target or uncertainty about the nature of the aerial object.
4. Xcel Energy is currently working with DeTect to expand their reporting to weekly and monthly summary reports to provide this and other information. Currently, DeTect is providing daily performance that provides a breakdown of the reasons during the night that the ADLS illuminated the turbine lights (due to aircraft, testing, failure, weather). Below is an example of the reporting provided thus far:

Harrier ADLS Summary Xcel Energy - Borders  
From sunset 2022-05-19 to sunrise 2022-05-20



- Lights were OFF for 5 hours, 42 minutes and 43 seconds during the night.
- Lights were ON due to Aircraft for 23 minutes and 30 seconds during the night.
- 11 Weather events were triggered during the night (2 hours, 24 minutes and 32 seconds).
- There were no radar processing issues.
- There were no ADLS failsafe events.
- There were no Database issues.
- Lights comms test was performed at night per FAA requirements.
- There were no comms issues with ADLS Manager.

As shown above, on this night weather was a factor in activating the lights. Dense fog, heavy snow fall, or even a low elevation thunderstorm can result in a default activation. The detection system is using radar (it does not work off of aircraft transmitters) so if there is any possibility of the radar not being able to sufficiently detect aircraft due to weather conditions it will default to lights on.

5. There are no turbine lights at Border Winds that are required to be illuminated at all times. If an individual light, or a few lights, are activated while the rest of the lights are off it is likely related to a hardware, software, or a communication network issue at that tower.
6. See answer to #5. Any issues with the ADLS radar tower such as the loss of both primary and back-up power or a radar component failure will put all lights in the default “lights on” state and they will stay on through the night.
7. See response to #4. Summary information for a monthly or longer term period is not available at this time.
8. See response to #4
9. Bird migration can play a role, at least seasonally, in “fail-safe” activations of the system (i.e., a fail-safe event is when the ADLS is unable to determine with certainty whether the aerial target is an aircraft or not, so the system defaults to “lights on”) based on their flight patterns, speed, and flock size and shape, as they can mimic low-speed aircraft. Issues with hardware, software, and network communication equipment can also cause individual light activations at towers. Should the ADLS radar experience power loss or an equipment issue then it may cause all lights in the wind facility to activate in default mode until the issue is resolved. This mode essentially causes the lights to behave as they would if they weren’t connected to an ADLS system, which is compliant with FAA regulations.
10. None at this time.

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