

Chairman Thompson and Members of the Committee,

My name is Jonathan Sill. I have taken a vested interest in the passing of SB478. So much so I have written some amendments that, if added, would strengthen this legislation to the point it provides clear direction to how wind energy system developers/owners and county boards of commissioners are to act in regards to light mitigation technologies. You will find my amendments following this written testimony.

To be clear, SB478 is not an anti-wind bill. It simply requires wind energy systems to install and maintain a form of light mitigating technology on each and every wind turbine that is currently operating, under construction, or is in the planning/development stages. These systems are FAA approved and safe for use all across the country. Similar legislation to this bill was put into law in North Dakota in 2017 and multiple wind energy conversion systems have been built since then with many more in various stages of development.

Currently there are just under 4,000 wind turbines spread out across the state. With looking at future projects under consideration to be built between now and 2025, there will be potentially an additional 2,600+ wind turbines built. This means an additional 2,600+ red lights dotting the countryside every night from when the tower goes into service until it is torn down. In some cases, this can be for 30+ years. Keep in mind that is just what has been applied for up to 2021, that doesn't include what will be applied for this year and the years after that. Within 12 nautical miles of my house there have been 108 500' wind towers installed in the Irish Creek wind farm. From my house I can see roughly half of them. This is a nuisance 100%. We are not talking about a radio antenna off in the distance, we are talking about over 60 red lights flashing repeatedly from dusk until dawn. There is NO way to avoid them. This legislation would give me and my neighbors our dark night-time sky back.

There are certain geographical places in Marshall county where you are high enough to see the lights of 4 different wind farms, bringing the total of red lights one can see to well over 325, with another 200 due to go online next year. That is over 500 lights taking away from the countryside.

Of the members of this committee, five of your districts are primarily urban in nature so your districts don't have this to worry about, however two of your group, Senators Bowers and Kloos, have future wind projects slotted for your districts with potential turbine counts of over 400 and 300 respectively. Now this doesn't seem like a big number considering the amount of territory all of your district's cover, but please keep in mind the rest of the state. From my research there are two senators that currently have 229 and 408 turbines operating in their district with a potential for 999 and 733 more for their districts respectively. Can you imagine what the night sky would look like with well over 1,000 red blinking lights dotting your skyline every night?! I certainly do not want to.

The committee has already listened to a presentation about the ins and outs of ADLS and similar light mitigation systems so I won't go into that, I will however touch on the financial side of this legislation. It is stipulated that the developer/owner will bear all costs associated with the implementation and maintenance of these light mitigation systems. Will this be a sizeable sum? Yes, but depending upon the actual wind energy conversion system in question your costs will wildly differ. The newer facilities that are under construction or are less than 5 years old will have significantly lower costs than the

facilities that are the older ones in the state. As far as the matter of paying for these upgrades, lets look at the potential revenue streams these facilities create. For example, the Irish Creek wind farm, built by NextEra Energy, has entered into a 20-year Power Purchase Agreement with Amazon. Now the details of this agreement are not available, but even if we are to estimate that the dollar amount Irish Creek is selling the electricity to Amazon at what the Southwest Power Pool stated as the average real-time price of 2020 of \$16.62 per megawatt hour. Lets say that the Irish Creek wind farm runs 12 hours a day for 365 days a year for the full 20 year term, that gives you \$157,238,496.00 in potential revenue. Also please don't forget the current Production Tax Credit that this facility qualifies for of \$18 a megawatt hour. So if this number were to stay current and under the same calculations as above of 12 hours a day, that comes to \$170,294,400. Both of those totals together brings us to \$327,532,896 of potential revenue off just this one facility in Kansas. I am fairly certain the Irish Creek/NextEra wind facility can afford to install and maintain a light mitigation system to give the citizens that live within and around the footprint their night-time skies back. Please keep in mind that those figures are based on fixed variables. We know the wind doesn't blow every day so these numbers may change and the Production Tax Credit may go away in 5 years, but these numbers are a snapshot of if that facility was to run at 50% of its potential for the term of its Power Purchase Agreement.

I ask you to please think of the Kansas Citizen who lives on the edge of a city or out in the country. A citizen who signed up to have turbines on their ground, or those who did not have a choice in the wind farm going up around them. Please consider what it would be like to not be able to look out any window of your house at night and not see the constant beat of tens if not hundreds of red blinking lights from dusk until dawn. I implore you to consider my amendments and the passage of SB478 so that ALL citizens of Kansas can have their dark skies back. ADLS and similar systems are safe proven methods of doing this. Please do the right thing, because there are THOUSANDS of these turbines looking to be built in the state with no end in sight.

Thank you for your time in reading this. If you have any questions, please contact me.

Regards,

Jonathan Sill

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3-7-2022

Below is my amendments to SB478 and a basic reasoning for the changes I am suggesting:

Session of 2022

SENATE BILL No. 478

By Committee on Utilities

2-9

AN ACT concerning wind energy conversion systems; relating to obstruction lighting; requiring installation of light-mitigating technology systems; authorizing boards of county commissioners to determine the type of lighting system required.

Be it enacted by the Legislature of the State of Kansas:

Section 1. (a) (1) On and after July 1, 2022, no wind energy conversion system shall be constructed, **be re-powered**, or commence operations in this state unless such system is equipped with a light-mitigating technology system that complies with federal aviation administration regulations 14 C.F.R. § 1.1 et seq. and is approved for operation by the federal aviation administration.

(2) Prior to construction or operation of any such wind energy conversion system, the board of county commissioners of any county in which construction is proposed **shall require** light-mitigating technology system **as part of** such wind energy conversion system. The developer shall submit an application to the board, **of form and in the manner specified by the board, containing no less than three different light-mitigating technology systems that such developer could install and then maintain** upon such wind energy conversion system. The board shall have the authority to approve **one of the** proposed light-mitigating technology system or to require the

installation of another light-mitigating technology system of **their choosing** to serve the public interest. **Once the board and the developer have agreed upon the type of light-mitigating technology that is to be used; the developer shall apply to the FAA an application for the use of said light-mitigation system on each industrial wind tower along with the FAA Form 7460-1 that is required for each proposed structure and any alternative structures. If the FAA determines the manner of light-mitigating technology that the developer applied with is insufficient and rejects it, the developer shall either submit one of the two other systems submitted to the board of county commissioners or work with the FAA to determine what style of technology may be sufficient and approved. If the FAA determines that no light-mitigating technology may be used on the proposed facility then the board of county commissioners have the authority to not allow the project to proceed, in its current form, until a solution can be found to allow such technology. The developer shall provide all documentation, applications, and correspondence between the developer, sub-contractors of the developer, and subsidiaries or owners of the development and the FAA, with the board of county commissioners in regard to all matters aeronautical and light-mitigating for the proposed wind energy conversion system.**

Any developer of a wind energy conversion system that has not started physical construction of major materials associated with the proposed facility on site prior to July 1, 2022, but has already applied to the FAA the FAA Form 7460-1 for every turbine location associated with the proposed facility shall send written notice to the board of county commissioners of the county said facility is located to advise them of this legislation and that they are working towards compliance no later than January 1, 2023. The developer shall submit an application to the board, of form

and in the manner specified by the board, containing no less than three different light-mitigating technology systems that such developer could install and then maintain upon such

wind energy conversion system no later than July 1, 2023. The board shall have the authority to approve one of the proposed light-mitigating technology system or to require the installation of another light-mitigating technology system with board approval to serve the public interest. Once the board and the developer have agreed upon the type of light-mitigating technology that is to be used, the developer shall apply to the FAA, and other appropriate Federal and State agencies, an application for the use of said light-mitigation system on each wind tower along with the FAA Form 7460-1 that is required for each structure no later than December 31, 2023. The installation and activation of the chosen and approved light-mitigation technology shall be no later than December 31, 2024. The Developer may not commence commercial operations of the wind energy system until an agreed upon timeline for the upgrading of the newly constructed facility to accept and operate the light-mitigating technology is in place. This timeline shall be no longer than 2 years. No waivers may be applied for the extension of this deadline. If the FAA determines the manner of light-mitigating technology that the developer applied with is insufficient and rejects it, the developer shall either submit one of the two other systems submitted to the board of county commissioners or work with the FAA to determine what style of technology may be sufficient and approved. If the FAA determines that no light-mitigating technology may be used on the proposed facility then the board of county commissioners have the authority to not allow the project to proceed, in its current form, until a solution can be found to allow such technology. The developer shall provide all documentation, applications, and correspondence between the developer, sub-contractors of the developer, and subsidiaries or owners of the developer and the FAA with the board of county commissioners in regards to all matters aeronautical and light-mitigating for the proposed wind energy conversion system.

(b) (1) Each owner or operator of a wind energy conversion system

that was constructed and commenced operations in this state prior to July

1, 2022, shall install and maintain a light-mitigating technology system

that is consistent with federal aviation administration regulations 14 C.F.R.

§ 1.1 et seq. and approved for operation by the federal aviation

administration. Each owner or operator of a wind energy conversion system in the state shall have sent

written notice to the board of county commissioners of the county said facility is located to advise them

of this legislation and that they are working towards compliance no later than July 1, 2023. Each owner

or operator of a wind energy conversion system in the state Shall have a plan in place with the board of

county commissioners of the county said facility is located to upgrade/install on or before July 1, 2024.

Each owner operator of a wind energy system shall submit an application to the board, of form

and in the manner specified by the board, containing no less than three different light-mitigating

technology systems that such developer could install and then maintain upon such

wind energy conversion system. The board shall have the authority to

approve one of the proposed light-mitigating technology system or to require the

installation of another light-mitigating technology system of their selection to serve the

public interest. Once the board and the developer have agreed upon the type of light-mitigating

technology that is to be used, the developer Shall apply to the FAA, and other appropriate Federal and

State agencies, an application for the use of said light-mitigation system on each wind tower along with

the FAA Form 7460-1 that is required for each structure. If the FAA determines the manner of light-mitigating technology that the developer applied with is insufficient and rejects it, the developer shall either submit one of the two other systems submitted to the board of county commissioners or work with the FAA to determine what style of technology may be sufficient and approved. The Developer Shall provide All documentation, applications, and correspondence between the developer, sub-contractors of the developer, and subsidiaries or owners of the developer and the FAA with the board of county commissioners in regards to all matters aeronautical and light-mitigating for the proposed wind energy conversion system.

Such light-mitigating technology system shall be installed

on or before July 1, 2026. If the wind energy conversion system was built or entered commercial operation on or after July 1, 2020, no waivers may be applied for the extension of this deadline. If any such owner or operator does not install

such a light-mitigating technology system prior to such date, the owner or

operator shall discontinue the commercial operations of the wind energy conversion

system until such light-mitigating technology system is installed and

operational. If this occurs the owner operator will still maintain said facility for commercial operation and maintain existing aeronautical avoidance lighting already in place pursuant to FAA policy.

If it is found by the owner operator of a wind energy conversion system that the type and model of industrial wind turbines used in said facility are of an old enough generation that they can not be altered to accept any such forms of light-mitigating technology, then a waiver may be applied to from the board of county commissioners the facility is located in. This waiver shall be for no longer a time than 4 years and shall exempt the owner from having to install light-mitigating technology for this time period.

Before the end of this 4-year waiver period the owner operator shall periodically research to see if any light-mitigating technology has become available for the model of turbines used at the facility. At the end of the 4-year waiver term, the owner operator shall present to the board either the light-mitigating technology they intend to use on the facility or that none exists, and at which point the owner may reapply for another waiver to continue commercial operation use of the facility without any light-mitigating technology for a period of 2 years. At the end of the 2-year waiver term, the owner operator shall present to the board either the light-mitigating technology they intend to use on the facility or that none exists, and at which point the owner may reapply for a second waiver to continue commercial operation use of the facility without any light-mitigating technology for a period of 2 years. If after this 2-year waiver period is reached and no light-mitigating technology has been developed that the owner operator may use to upgrade the facility, then the board of county commissioners have the authority to request the facility be decommissioned or re-powered. At any time during the waiver periods, the board of county commissioners may present viable options for light-mitigating technology for consideration to be used on said facility. The owner shall deliver a report as to the viability of the suggested system and proceed with it if it is.

If it is found the course of the application processes listed in this legislation that the FAA, or other legitimate State or Federal agencies, that the use of any light-mitigating technology is strictly forbidden for the area in which the wind energy conversion system is or will be constructed, the developer shall give in writing such determinations to the board of county commissioners for dissemination to the public and if this facility is yet to be built the developer will work in good faith with the county and various State and Federal agencies to curtail the project to accept a manner of light-mitigating technology.

(c) Any costs associated with the installation, implementation, operation and maintenance of light-mitigating technology systems shall be the sole responsibility of the developer, owner or operator of the wind energy conversion system.

(d) As used in this section:

(1) "Light-mitigating technology system" means aircraft detection lighting, light intensity dimming solution technology or any comparable system capable of reducing the impact of facility obstruction lighting while maintaining conspicuity sufficient to assist aircraft in identifying and avoiding collision with a wind energy conversion system. **Examples: Aircraft Detection Lighting System (ADLS), Light Intensity Dimming Solution (LIDS)**

(2) "Wind energy conversion system" means an electric generation facility consisting of one or more wind turbines and any accessory structures and buildings, including substations, meteorological towers, electrical infrastructure, transmission lines and other appurtenant structures.

(3) "Re-powering" means the act of upgrading or modifying an existing wind energy conversion system already in commercial operation. This could entail the addition of new blades, nacelles, or any other

significant capital improvement that will upgrade the facility in its power generation and operating capability. This term applies when more than 5% of an existing wind energy conversion system's equipment is modified by the examples previously listed.

(4) "Industrial wind turbine" means any wind turbine with a generating capacity in excess of one megawatt

Sec. 2. This act shall take effect and be in force from and after its publication in the statute book.

1. The original bill just touched on new construction and existing, I added a segment for those who haven't started the major physical construction phase yet, but have begun the case study process with the FAA. Think High Banks Wind farm of NextEra in Republic and Washington Counties. This process lays out a different timeline for them to become compliant with this bill if it were to become law. I tried to think of a realistic timeline process for the upgrading of existing structures across the state, and while it may seem drawn out, I feel this has the best chance of not placing an "undue financial burden" on existing owner/operators, because you know that will come up. I also kept the timelines a little longer than some may want but keep in mind that these things wear out fast, and with the language earlier in the bill requiring the use of light-mitigating tech when the facility is re-powered I feel they will be forced to upgrade just due to the need to keep the farm current/economical. If they don't want to upgrade then they will decommission and remove the farm which is a win too.
2. Added "re-power" to the first sentence. This catches ALL future upgrades to any existing farm in the state. I also defined it to be broader to encompass blade swapping and the like.
3. Set up a system where the wind developer will show the county commissioners three different types of light-mitigation systems. The commission and developer will agree on one. it will be applied for to the FAA along with applications for case study like they do now. If not approved of then an alternate will be chosen. If still not approved the county commission has authority to block project in its current form until something can be figured out. I also added that the developer shall provide all documentation to commission in regards to applications and the like for these systems.
4. I also developed a waiver to allow the facilities to still operate commercially while a solution is being found to upgrade the older sites. Once again I was trying to come up with a "real-world" solution that Anderson and his pro-wind buddies would have a hard time picking apart. I feel that the waiver structure and timeline is more than sufficient for a company that "wants" to still keep operating in the state a chance to upgrade their facility, but keep in mind some may not want to, and at the end of the waiver timeframe they would have to shut down, which would probably be well past the efficient life of the farm any way.
5. I added a definition for re-power and industrial wind turbine towards the end.

