

## MINUTES

### SENATE SELECT COMMITTEE ON WIND TURBINE LIGHTING

October 27, 2022  
Room 548-S—Statehouse

#### Members Present

Senator Elaine Bowers, Chairperson  
Senator Mike Thompson, Vice-chairperson  
Senator Marci Francisco, Ranking Minority Member  
Senator Ethan Corson  
Senator John Doll  
Senator Michael Fagg  
Senator Rick Kloos  
Senator Mike Petersen  
Senator Pat Pettey  
Senator Ronald Ryckman

#### Members Absent

Senator Mark Steffen

#### Staff Present

Lindsay Archer , Kansas Legislative Research Department  
Heather O'Hara, Kansas Legislative Research Department  
Matthew Willis , Kansas Legislative Research Department  
Kate Smeltzer, Kansas Legislative Research Department  
Nick Myers, Office of Revisor of Statutes  
Carly Humes, Office of Revisor of Statutes  
Randi Walters, Committee Assistant

#### Conferees

Casey Cathey, Director, System Planning, Southwest Power Pool  
Jeff McClanahan, Director, Utilities Division, Kansas Corporation Commission  
Brad Mears, Executive Director, Kansas Municipal Utilities  
Crystal Perkins, Regional Intergovernmental and External Affairs Specialist for the South  
Central United States, Office of Intergovernmental Affairs, U.S. Department of Energy  
Tom Vinson, Vice President, Policy and Regulatory Affairs, American Clean Power  
Association  
Aaron Ray, Associate Director for Energy, National Conference of State Legislatures  
Commissioner Julie Fedorchak, Chair, North Dakota Public Service Commission  
Jay Hall, Deputy Director and General Counsel, Kansas Association of Counties  
Senator Jerry Sonnenberg, Colorado General Assembly  
Bob Brock, Director of Aviation, Kansas Department of Transportation  
Steven Sample, Executive Director, Military Aviation and Installation Assurance Siting

Clearinghouse, U.S. Department of Defense  
Jesse Lewis, Senior Vice President and General Manager, Americas, DeTect, Inc.  
Jeff Schleicher, Director, Wind Energy Services, Terma  
Kimberly Gencur Svaty, Kansas Power Alliance

## **THURSDAY, OCTOBER 27 ALL DAY SESSION**

### **Welcome and Committee Member Introductions**

Chairperson Bowers called the meeting to order at 9:04 a.m. The Chairperson welcomed the Committee members and asked the members and staff to introduce themselves. Seven conferees participated via Webex. Chairperson Bowers explained the Committee will make recommendations and approve a Committee report that will be submitted to the 2023 Legislature. The Chairperson further explained the Committee is not holding a hearing on any particular piece of legislation, but receiving information on a specific topic that could be used to draft legislation.

### **History of the Kansas Electric Transmission Authority and Incentives for Wind Development in Kansas**

Chairperson Bowers recognized Lindsay Archer, Research Analyst, Kansas Legislative Research Department (KLRD). Ms. Archer presented a history of the Kansas Electric Transmission Authority (KETA), including information on its creation, mission, statutorily allowed actions, membership and organization, and abolishment. In addition, Ms. Archer discussed KETA's notable actions, as listed in a January 12, 2015, publication titled "KETA New Member Orientation Guide." In answer to a question from the Committee, Ms. Archer stated KETA primarily dealt with transmission issues and not grid operations. Another Committee member commented KETA participated in regional meetings of the Southwest Power Pool (SPP), as Kansas falls within SPP territory. ([Attachment 1](#))

Chairperson Bowers next recognized Matthew Willis, Senior Research Analyst, KLRD. Mr. Willis provided an overview of Kansas wind energy tax incentives and explained the two primary state tax incentives regarding renewable wind energy are accelerated amortization and property tax exemption. Mr. Willis noted that attached to his memorandum were a map of wind turbines in Kansas by location, as of 2022, and graphics showing the number of wind turbines in Kansas by exemption status, the statewide estimated tax by exemption status, the estimated tax by county and exemption status, and the number of wind turbines by county and exemption status. ([Attachment 2](#))

In response to questions by Committee members, Mr. Willis agreed to provide further information regarding:

- If the wind company that has constructed a wind turbine sells the wind turbine to a new owner within the first 10 years after construction, whether the new owner would be able to restart the accelerated amortization process; and
- Whether appraisal practices define the "pad site" as commercial real property.

## Southwest Power Pool: Role, Jurisdiction, and the Anticipated Growth of Renewable Energy

Chairperson Bowers recognized Casey Cathey, PE, Director, System Planning, SPP. ([Attachment 3](#)) Mr. Cathey highlighted SPP's updated mission statement. Mr. Cathey's presentation highlighted SPP's members, including the first international member, Saskatchewan Power. Mr. Cathey provided and explained a geographic view of SPP as a regional transmission organization (RTO); the miles of extra-high voltage transmission; SPP's annual savings and benefits; and SPP's services, generation queue, and transmission planning for the future.

In answer to questions from the Committee:

- Regarding whether the Federal Energy Regulatory Commission (FERC) could require more than the 10 percent of transmission interconnects between SPP and Midcontinent Independent System Operator (MISO), another RTO to the east of SPP's footprint, Mr. Cathey explained from SPP's perspective as an RTO. SPP runs a coordinated system planning study, the Joint Targeted Interconnection Queue Study, with MISO to attempt to identify additional inter-regional projects. Mr. Cathey explained that over a year ago, the two RTOs looked at the SPP and MISO queues and then ran studies to understand what infrastructure would be necessary. Mr. Cathey indicated they are working on the cost allocation aspects of that possibility. Mr. Cathey noted FERC's 2021 State of the Market Annual Report indicates SPP as a region had the lowest energy rates with the amount of wind produced in the region; however, with lower energy costs and increased energy production, there will be increased transmission costs. It is SPP's hope that there is still a net benefit to produced energy from renewable energy sources;
- Regarding how much transmission line interconnect would have to be added to comply with any FERC requirements to provide more interconnection between SPP and MISO, Mr. Cathey explained SPP has yet to actually have an inter-regional project with MISO. Mr. Cathey indicated they have 280 tie-lines with MISO, and during Winter Storm Uri, SPP imported more than five gigawatts from MISO; typically, SPP imports and exports only one to one and a half gigawatts, which illustrates there is actually a fairly strong existing tie with MISO;
- Regarding increasing the required planning reserve margin (PRM) from 112 percent to 115 percent of generation capacity, Mr. Cathey indicated the reason was based on a number of things: the variable nature of wind and solar; the incremental load that is being seen; and the volatility in the load. Another aspect of it is the amount of operations alerts that are being seen in real time. Mr. Cathey noted a biennial study, the Loss of Load Expectation Study, where SPP works with SPP members to update all of the assumptions in those studies and look two and five years out. Mr. Cathey explained they are constantly looking at this and working with international companies as well, because they do not want to just artificially keep raising the PRM. Mr. Cathey stated wind and solar energy does have a capacity value so it needs to be valued properly, and PRM is just one of their tools to do that. Mr. Cathey indicated the SPP has a number of initiatives to better accurately predict what issues they may uncover. Mr. Cathey noted sometimes wind and solar energy are not being generated, so SPP needs

to ensure that moving forward, SPP has enough rampable capacity to be able to serve the required load. Mr. Cathey indicated the timeline to comply with those requirements is for summer 2023; and

- Regarding the SPP's wind forecasts versus the actual wind production, Mr. Cathey explained that when the forecasted wind will serve almost 100 percent of the transmission load, there are a number of issues in play. One is called self-scheduled resources such as coal, nuclear, hydro, and gas facilities that sometimes have a 12-hour restart time; so, if these other resources are shut down, it will take that time before they can be turned back on. Engineers and operators constantly look at this issue to mitigate consequences if wind or solar production would suddenly cease. Mr. Cathey noted that SPP must ensure some amount of rampable capacity of conventional resources, currently gas and coal, is kept online so that when the wind drops, the load can be picked back up.

### **Kansas Corporation Commission: Role and Jurisdiction**

Chairperson Bowers recognized Jeff McClanahan, Director, Utilities Division, Kansas Corporation Commission (KCC) and noted the attendance of Peter Barstad, Legislative Liaison, KCC. ([Attachment 4](#)) Mr. McClanahan highlighted renewable generation non-jurisdictional entities. Mr. McClanahan explained any developer is allowed to construct renewable generation facilities that sell wholesale power without becoming a public utility. To opt out of that regulation, the developer only needs to provide notice to the KCC that they are opting out. ([Attachment 5](#)) Mr. McClanahan next highlighted renewable generation jurisdictional utilities. Mr. McClanahan discussed the elements of KCC review, including the purchase power agreement, a predetermination docket, and a potential prudence review. Mr. McClanahan noted the KCC does not have authority over siting except for nuclear generation. If one of the KCC's jurisdictional utilities wants to acquire renewable generation, the KCC would not have any siting authority. Mr. McClanahan concluded with an overview of transmission related to renewable generation. Mr. McClanahan explained generator tie-lines and stated FERC has determined those interconnections or tie-lines are sole-use, limited and discrete, radial in nature, and not part of the integrated transmission network.

In answer to questions from the Committee:

- Mr. McClanahan indicated the actual siting of the renewable energy facility is approved by the counties. The developers then acquire easements for the transmission line. The transmission lines can vary in length. Mr. McClanahan indicated that is why the KCC tells the developer choosing to opt out of becoming a public utility that the developer cannot claim public utility status for eminent domain purposes when negotiating for those easements. Claiming utility status would be viewed as a revocation of the opt-out provisions;
- Mr. McClanahan indicated NextEra's Wolf Creek to Blackberry transmission line is not related to a renewable generation facility, but fits underneath their transmission line siting. Mr. McClanahan explained NextEra first had to acquire public utility status, which is in the initial phase of review. Mr. McClanahan further explained the actual siting of the transmission line will be a subsequent docket with the KCC that has not yet been filed; and

- Mr. McClanahan indicated that, once a public utility status has been granted, it remains as long as the same entity remains in place. For example, if the existing utility wants to build another transmission line, the utility is not required to seek public utility status again, but the utility would have to seek approval of the siting for the transmission line that would involve eminent domain.

## **Morning Break**

The Chairperson called for a brief break before the Committee continued.

## **Federal Funding for Renewable Energy Projects**

Chairperson Bowers recognized Brad Mears, Executive Director, Kansas Municipal Utilities. ([Attachment 6](#)) Mr. Mears presented information that had been provided to the Kansas Renewable Energy Conference on Monday, October 3, 2022, about federal funding and how communities can prepare and plan to access that funding. Mr. Mears highlighted the Infrastructure Investment and Jobs Act (IIJA), also known as the Bipartisan Infrastructure Law (BIL), and noted all of the various program areas to which this \$1.2 trillion funding will attach. Mr. Mears stated this is truly a once-in-a-generation opportunity to access funds, and they want to make sure Kansas has the opportunity to participate in receiving some of those funds. Mr. Mears next discussed the Kansas Infrastructure Hub; problematic issues for Kansas cities and utilities; possible state assistance; utility organization partnership; and examples of funding opportunities. Mr. Mears highlighted what communities need to do now to make sure their organizations are ready. Mr. Mears further highlighted the grant application process and timing as well as key indicators of funding success, and he discussed maximizing funding for Kansas.

Chairperson Bowers next recognized Crystal Perkins, Regional Intergovernmental and External Affairs Specialist for the South Central United States, Office of Intergovernmental Affairs, U.S. Department of Energy. ([Attachment 7](#)) Ms. Perkins indicated that as of July 2022, \$853 million in grants has been announced and is headed to Kansas with 95 specific projects identified for funding. Ms. Perkins covered several topics in her presentation on the U.S. Department of Energy funding opportunities including funding distribution and implementation. Ms. Perkins highlighted IIJA/BIL provisions on various issues in Kansas, including clean energy and power resilience, legacy pollution cleanup, and electric vehicle charging. Ms. Perkins briefly discussed upcoming funding announcements. Ms. Perkins referenced some of the resources on the BIL website such as funding opportunities and a list of BIL programs at the U.S. Department of Energy. Ms. Perkins referenced IIJA/BIL resources, indicating she would encourage everyone who is involved in planning for cities and states to make sure they reach out to her or the U.S. Department of Energy for access to these resources. Ms. Perkins explained Justice 40 Resources, where 40 percent of the money for these programs will go to disadvantaged communities. Ms. Perkins mentioned the Inflation Reduction Act (IRA) and the Kansas IRA Fact Sheet. Ms. Perkins concluded by stating she wants to be a resource and to make sure that Kansas receives as much federal moneys as possible.

In answer to questions from the Committee:

- Ms. Perkins indicated there is not specific funding for aircraft lighting on wind turbines; however, she offered to further discuss the possibility of grant opportunities for this purpose;

- Mr. Mears indicated funding will be awarded to existing programs already receive federal funding;
- Mr. Mears stated the definition of a small community varies by program, but usually is defined as having a population of 10,000 or less. Mr. Mears indicated they were meeting with the Kansas Infrastructure Hub to talk about some of the challenges these communities are facing. They are looking at ways that strengthen both the grant writing and administration of those grants through a variety of organizations and agencies which may take some assistance on the legislative side. Ms. Perkins pointed out communities that are in close proximity can also work together on some opportunities so they can share resources when applying for these grants;
- Mr. Mears indicated there have been discussions with Community Development Block Grant staff at the Department of Commerce; and
- Ms. Perkins agreed to work with legislative staff to work on finding some federal funding for lighting on the wind turbines.

### **Overview of Light Mitigating Technology and Federal Aviation Administration Standards**

Chairperson Bowers recognized Tom Vinson, Vice President, Policy and Regulatory Affairs, American Clean Power Association. ([Attachment 8](#)) Mr. Vinson detailed the authority of the Federal Aviation Administration (FAA) over wind turbine lighting and the specific FAA requirements wind turbines must comply with. He then discussed current light mitigation technology and stated that Aircraft Detection Lighting Systems (ADLS) is the only FAA-approved light mitigating technology. Mr. Vinson stated that while ADLS is FAA-approved, developers cannot automatically install such systems on their wind farms – each ADLS installation is approved by the FAA on a case-by-case basis.

In answer to questions from the Committee:

- Mr. Vinson indicated the FAA has certified four individual vendor systems as meeting the ADLS performance requirements; however, Laufer no longer exists. The three other companies that have been approved by the FAA are Terma, DeTect, and Vestas. Mr. Vinson indicated Vestas is a wind turbine company that also offers light mitigation technology;
- Mr. Vinson indicated that within the FAA Lighting and Marking Advisory Circular there are some general provisions that apply to different structures, but in the case of wind turbines the FAA drafted a chapter specific to wind turbine lighting. Mr. Vinson stated he cannot speak to whether they have requirements for other structures for simultaneous flashing, but the FAA did require that for wind turbines. Mr. Vinson indicated if there is a change to the FAA Lighting and Market Advisory Circular, the FAA does not necessarily require retrofitting;
- Mr. Vinson indicated that for the wind turbines right now, there is a single red flashing light at the top of the nacelle. He stated the FAA has found the red light is more visible to pilots than a white light. The FAA wants more lighting for the



taller turbines so pilots would have a sense of the scale of that structure. Mr. Vinson indicated the communications towers requirements should be in the FAA Lighting and Marking Advisory Circular that was provided to the Committee members;

- Mr. Vinson indicated the time frame for the approval of an ADLS system can be a few months. Mr. Vinson explained that in general, the FAA wants wind turbine developers to file their 7460 forms roughly 120 days prior to the planned construction to give the FAA approximately four months to review the project. Mr. Vinson explained it does not necessarily take that long, and it depends on where the project is located; and
- Regarding the limitations on what legislators can do and still preserve property rights for wind developers and property owners, Mr. Vinson stated the FAA ultimately has final say on what is authorized lighting-wise for use on a wind farm. Mr. Vinson explained there is recognition that the FAA has the ultimate authority for aviation safety. Mr. Vinson further explained a state- or county-level requirement must be conditioned on the FAA authorizing the developer and operator to deploy that type of system on an individual wind farm.

### **Working Lunch - Presentation on State Action**

Chairperson Bowers paused the meeting briefly to give the Committee members and staff time to pick up their lunches.

The Chairperson recognized Aaron Ray, Associate Director for Energy, National Conference of State Legislatures. ([Attachment 9](#)) Mr. Ray provided background information on state legislative action related to wind turbine lighting. Mr. Ray indicated that on a state level, states may choose to adopt more stringent wind turbine lighting system rules as long as those rules comply with FAA regulations. Mr. Ray briefly reviewed relevant state statutes and regulations related to wind turbine lighting and ADLS. Mr. Ray provided information on five states in particular: Colorado, Minnesota, North Dakota, South Dakota, and Vermont. Mr. Ray also provided examples of legislation other states have considered or adopted. Mr. Ray stated the examples highlight continued state action to address the need for appropriate safety measures while reducing the impact of wind turbine lighting. Mr. Ray next noted and explained some resources that are not specific to lighting requirements but might be of interest to the Committee.

In answer to questions from the Committee:

- Mr. Ray agreed to research and report on the requirements for how the states that have enacted laws are handling existing structures and lighting systems;
- Mr. Ray provided his thoughts in regard to why there is not a uniform federal law but, instead, each state having different requirements. Mr. Ray explained the federal government has set a minimum standard which is represented by FAA regulations that states are free to add requirements beyond the current regulations, as long as they do not require something that is not in compliance with FAA regulations. The federal government has essentially set a floor that states are free to go beyond;

- Mr. Ray discussed how statutes could address the FAA denying approval of the requested installation of lighting technology. Mr. Ray noted that local governments could mandate a performance standard rather than a specific lighting technology such as the least visually impactful option or require the developer to look at the available technologies and choose the technology that has the least visual impact. Mr. Ray noted the Colorado example where they included an extension of time to install such a system if the technology that they are acquiring is not available;
- Mr. Ray commented that Riley County requiring white lighting during the day and red at night, according to a 2008 report, might be due to red at night being the preferred or required light color. He further noted the state of technology in 2008 may be very different today; and
- Mr. Ray noted it is ultimately a choice for the Legislature to make whether existing structures are required to meet a new standard or, as in the Colorado example, new requirements are applied only to new construction with grandfather exceptions for the existing structures.

### **Recent Legislation: Wind Turbine Lighting**

Chairperson Bowers recognized Nick Myers, Assistant Revisor of Statutes, Office of the Revisor of Statutes, to provide a briefing of 2022 SB 478. ([Attachment 10](#)) Mr. Myers explained the bill would have required the installation of obstruction lighting systems on those wind energy conversion systems in the state that mitigate the intensity or duration of the obstruction lighting installed upon those wind energy conversion systems. Mr. Myers noted that during the 2022 Legislative Session, the Senate Committee on Utilities held hearings on, worked, amended, and then tabled the bill. The bill went no further during the Session. Mr. Myers provided a summary of the bill as it was introduced as well as the adopted amendment.

In answer to questions from the Committee:

- Mr. Myers explained that in the bill as introduced, the light mitigating technology system would have to comply with FAA requirements. The bill as introduced gave each board of county commissioners the authority to ultimately determine the type of light mitigating technology system that would be installed on the wind turbines within the county. Mr. Myers agreed the amendment removed that local county commission requirement. The amendment would require, for new wind turbines that are coming online after July 1, 2026, an application to be filed with the FAA for a light mitigation technology system, of which only ADLS is currently approved;
- Regarding who would be liable if the county requested additional requirements and there was an accident, Mr. Myers explained the bill still required the system to comply with FAA requirements. Mr. Myers indicated the FAA still has governance, and is not aware of any liability concerns with the FAA. Mr. Myers indicated he presumes if the county were to require something that was outside of FAA requirements, that developers probably would not comply as they must comply with FAA requirements; and



- With regard to the difference between the current FAA regulations and 2022 SB 478, Mr. Myers explained the only FAA-approved light mitigating technology systems available right now are ADLS from three companies. The FAA is considering some other types of lighting mitigating technology that can reduce the impact of the lighting, but those have not been approved by the FAA yet. Mr. Myers indicated this bill would have required the installed ADLS to turn on when an aircraft is in the area and turn off when an aircraft is not in the area. Mr. Myers noted Republic County is one of the counties most recently dealing with light mitigating technology systems requirements. Mr. Myers indicated he saw that within their negotiations with the wind developer in their area that the county has set a requirement that an ADLS system be installed on the wind turbines. Mr. Myers indicated counties can negotiate and do this already. This bill would have required light mitigating technology systems on all wind farm projects in the state moving forward.

### **Presentations: Wind Turbine Light Mitigation Legislation in North Dakota**

Chairperson Bowers recognized Commissioner Julie Fedorchak, Chair, North Dakota Public Service Commission. ([Attachment 11](#)) Commissioner Fedorchak provided background history of light mitigating technology in North Dakota. The Commissioner highlighted the 30 different wind farm projects in North Dakota. The Commissioner next discussed the North Dakota law enacted in 2017 and highlighted three parts of the law: a deadline for the Commission to adopt rules, a deadline for new facilities, and a deadline for retrofitting existing facilities.

Commissioner Fedorchak provided a list of the 30 wind projects required to install light mitigating technology systems and indicated only three do not have the technology implemented. Commissioner Fedorchak discussed the factors that resulted in the three wind projects that have not been able to comply with the law and the Commission's actions in response. In addition, the Commissioner also discussed the seven companies that have been fined for failure to activate ADLS by their deadlines.

The Commissioner explained an issue is there is only one FAA-approved technology. The FAA is considering another system, Light Intensity Dimming Solution, for approval and the Commission has talked to its vendor. It is a system that utilizes a dimming technology and is different from ADLS; it has nothing to do with radar or aircraft detection. It changes the strength of the lights based on the conditions in the atmosphere, resulting in dimmed lights in clear conditions and brighter lights in foggy weather. She indicated the wind developers are interested in this technology as it is cheaper than ADLS.

In response to questions from the Committee:

- Commissioner Fedorchak commented on including optimization period language regarding the false triggers on the lights in law. She explained North Dakota does not have an optimization period in law, so the Commission has an informal discussion with wind developers to address the issue. The Commissioner noted the Commission has been meeting with the developers every year to get an update on their lights-off, lights-on percentages. The Commissioner commented that it could be provided in law; however, she would recommend allowing Kansas' version of North Dakota's Commission the authority to work on the issue

with developers. A Committee member commented that, unlike in North Dakota, the Kansas Corporation Commission has no authority over wind projects;

- Commissioner Fedorchak indicated that the law has not slowed wind development in North Dakota. She commented that they have had plenty of new permit application requests since this law was enacted and continue to receive them, with several currently pending. The Commissioner explained the cost is up to \$1 million per facility for a 200- or 300-megawatt site and, in the scheme of a \$300 million project, that cost is relatively small. The Commissioner stated they have emphasized that in an era where permitting and siting any kind of energy infrastructure is a challenge, this is a great way for companies to try to be proactive, improve their public relations, and try to mitigate one of the biggest complaints that residents have which is the red lights that continually blink; and
- Commissioner Fedorchak indicated that the wind farms that are not in compliance did not meet the deadlines for installing ADLS and having the new technology operational. The Commissioner explained the fining is, by statute, up to the Commission's discretion. The North Dakota Public Service Commission advocacy staff investigates the situation and proposes a fine to the Commission. The Commission then ultimately approves a fine. The Commissioner indicated they have some general standards in mind that they adjust based on circumstances, but there is not a rate in statute that the Commission is obligated to follow.

### **Role of Local Government in Planning and Siting of Wind Projects**

Chairperson Bowers recognized Jay Hall, Deputy Director and General Counsel, Kansas Association of Counties (KAC). ([Attachment 12](#)) Mr. Hall stated local government does have a role in the siting of each of these wind projects. Mr. Hall emphasized that it is an issue of local control and that local governments take into consideration what their local citizens want. Some counties are interested in wind development and wind energy, and those counties have pursued wind energy development. Other counties are not interested in wind energy development, and those counties have pursued means to not have wind energy developed in their counties. Mr. Hall explained zoned and unzoned counties in Kansas. Mr. Hall described the potential processes of wind development for zoned and unzoned counties.

In answer to questions from the Committee:

- Mr. Hall stated he believes the counties do a good job of taking care of this particular issue. He indicated that trying to establish some sort of one-size-fits-all from the State would be problematic because one of the groups he described would inevitably lose some portion of local control. He stated that he was speaking specifically on siting.
- Mr. Hall indicated that lighting can be a part of siting but both zoned and unzoned counties typically just require that lighting meets the minimum FAA standards because it really is a safety issue;
- In regard to unzoned counties using a conditional-use or special-use permit process for the siting process, Mr. Hall indicated that the unzoned counties are

familiar with those permit processes already. Mr. Hall explained the scale is different, but the process is much the same in that there would still be review by the board of county commissioners. Mr. Hall stated it just falls to the local government to make the determination of whether wind energy development is good for that county, whether enough people support it, whether it is enough of a benefit to that county, or is something that does not reflect what that county wants to be;

- In regard to a wind farm on the border of one county and whether the state should play a role due to possible different rules by neighboring counties, Mr. Hall indicated the KAC encourages those counties to work together on those projects. Mr. Hall agreed with the Committee member that local control for counties is statutory not constitutional; and
- Mr. Hall indicated the FAA determines whether a project can have a mitigating system and it is not a board of county commissioners decision to overrule the FAA determination.

Written-only testimony was submitted by Spencer Duncan, Government Affairs Director, League of Kansas Municipalities. ([Attachment 13](#))

## **Military Considerations**

Chairperson Bowers recognized Steven Sample, Executive Director, Military Aviation and Installation Assurance Siting Clearinghouse, Office of the Assistant Secretary of Defense (Energy, Installations, and Environment), U.S. Department of Defense (DoD). ([Attachment 14](#)) Mr. Sample highlighted the mission of the Clearinghouse and indicated, when considering legislation that addresses wind turbine lighting, the DoD would ask that the state process include a request for a mission impact statement from the Clearinghouse so the DoD can review each project and provide a thorough answer. Mr. Sample stated the DoD can provide mission compatibility letters to Kansas as they do in other states. Mr. Sample stated, in addition, they would prefer that the process allow DoD to inform the state of all concerns regarding military readiness and not confine the analysis to lighting.

In answer to questions from the Committee:

- Mr. Sample indicated some states request the letter of mission compatibility from DoD in the state process, but there is no federal requirement;
- Mr. Sample indicated the radius that is considered safe around the wind turbines is 500 feet vertically. He explained that the FAA is concerned only about aircraft pilot safety and does not take into account that military aircraft fly at 300 feet; hence, wind development is not constructed near military facilities or military training locations. The letter of compatibility would ensure a state with military installations will receive notice of military training exercises or military aircraft that may take place near a proposed wind development site;
- Mr. Sample indicated the average response time for a mission compatibility letter is about 40 days. Mr. Sample explained that most projects that are not a problem

for DoD are cleared very quickly, but DoD may take longer to respond regarding a project that may have an issue;

- Mr. Sample discussed the process by which the FAA talks to DoD during the FAA permitting process. Mr. Sample stated that, in terms of energy production, the Clearinghouse has oversight on the response so they can be involved and work on any solutions that might be available. Mr. Sample noted that right now DoD's review will happen early in the process when the developer files locations and heights. The developer tells DoD the physical nature of the project and that is what DoD reviews. It is only after DoD and all of the other FAA concerns are assessed that the developer then submits the lighting plan to the FAA. Mr. Sample stated that as it stands right now, the DoD does not see lighting plans. He indicated that he is working with the FAA to figure out a way to bring DoD into the lighting review process; and
- Mr. Sample stated a letter of compatibility is required currently by Oklahoma, Indiana, and Alabama, and there is a similar requirement in North Carolina; Oregon, Texas, New York, and Pennsylvania are considering similar requirements. Mr. Sample indicated when a state or local entity receives a letter from the Clearinghouse, the letter states the DoD's position.

### **Wind Turbine Light Mitigation Legislation in Colorado**

Chairperson Bowers recognized Senator Jerry Sonnenberg, Colorado General Assembly. ([Attachment 15](#)) Senator Sonnenberg stated his bill, Senate Bill 22-110, was signed into law on June 8, 2022. He explained the bill requires wind turbines in Colorado to be fitted with light mitigating technology; however, the requirement is only for wind turbines built in the future. The bill does not require wind turbines to be retrofit, but wind turbine owners could do so. Senator Sonnenberg discussed the ideal time to retroactively fit wind turbines with the light mitigating technology is when a contract for providing energy is close to expiration and part of the contract negotiations could include retrofitting, as recapturing costs for the retrofit could be included in the contract. Senator Sonnenberg indicated the goal is to make wind turbines work for developers and the community that does not want its skyline polluted by flashing red lights on a regular basis.

In answer to questions from the Committee:

- Senator Sonnenberg stated the Colorado General Assembly did not have any pushback from the counties. He indicated the counties were favorable toward the bill, because the bill allows the county to choose whether to participate in requiring light mitigating technology;
- Senator Sonnenberg explained they did bring stakeholders together and held a number of discussions. He stated the bill was sent to the "kill committee" where no action would be taken on it because there was pressure against the bill. He indicated he had a good working relationship with those in the renewable energy sector, and they continued to have discussions and negotiate. He explained they had conversations up until the end on amending the bill, working with stakeholders, and trying to make changes to make the bill more acceptable to all parties; and

- Senator Sonnenberg explained the part of the bill referencing “approval from the FAA” means FAA approval to equip and operate light mitigating technology for at least 30 percent of the proposed wind turbines included within a new wind-powered energy generation facility. He explained often the FAA will not approve a partial light mitigation plan. He indicated they included this requirement to tell developers that if they cannot meet the 30 percent threshold, there is no sense in moving forward with the wind development.

## **State of the Industry**

Chairperson Bowers recognized Bob Brock, Director of Aviation, Kansas Department of Transportation (KDOT). Mr. Brock stated that the aviation industry is economic development for Kansas and that Kansas’ way to compete against other states is to create an infrastructure and an ecosystem of airspace that is open, safe, better equipped, better designed, ready to accept new emerging technology, and accept growth that the industry needs so much that aviation companies want to come here to test and then stay here to build. Mr. Brock noted they have a 21-minute video with upcoming economic development projects, emerging technology, and why KDOT Aviation is guiding the state to attract more aviation industry business.

In answer to questions from the Committee:

- Mr. Brock stated he is a pilot. Mr. Brock explained there is a rule that no DoD aircraft can be flown within 500 feet of any person or equipment. Mr. Brock indicated that from a pilot’s point of view regarding the lights on turbines, the earlier the pilot sees them, the better; however, the kinds of systems that would do this in an automated fashion are geared to provide lighting early enough. Mr. Brock noted among the new things KDOT is doing across the state with a joint task force is to conduct pilot programs to ensure projects and activities are safe, proven, and approved by the FAA. Mr. Brock explained that a pilot is similar to a driver of a car: a driver wants to see as far down the road as possible, watching for curves or obstacles in the road, just like a pilot looks for clear skies ahead;
- Mr. Brock explained there is no Kansas map of test pilot lanes because Kansas competes for aircraft testing projects with other states, specifically North Dakota. He noted the maps that do exist are for military training routes and Kansas’ supersonic flight test corridor. Kansas is the only state that has a supersonic flight test corridor; it is at 39,000 feet and above. At a Committee member’s request, Mr. Brock indicated he would provide a copy of the map to Committee staff to share with the Committee members; and
- Mr. Brock indicated that Kansas has a close relationship with the FAA. He also noted he sits on aviation rule-making committees. Mr. Brock explained that Kansas is one of five states in the country the FAA asked to represent industry, aircraft manufacturing, and flight safety on behalf of states. Mr. Brock indicated he was unaware of an FAA committee on wind turbine lighting, but he could inquire about one.

## Aircraft Detection Lighting Systems Presentations

Chairperson Bowers recognized Jesse Lewis, Senior Vice President and General Manager, Americas, DeTect, Inc. ([Attachment 16](#)) Mr. Lewis provided an overview of the history of the company and provided background information on ADLS, noting it is a relatively new technology. He stated the FAA began assessing ADLS in 2011. Mr. Lewis stated in evaluating a site for ADLS, an analysis of the site and surrounding area is completed to ensure the radar technology of ADLS can sense all airborne targets from 200-1,000 feet above ground level. Mr. Lewis explained the light control manager system interacts with scanning radar on high-flying aircraft, which turns the lights on. He stated the rule of thumb on ADLS costs is \$1.0-2.0 million for a complete ADLS system for a wind farm. Mr. Lewis noted the cost will be based on the size of the wind farm and how many turbines there are, as well as the terrain.

In answer to questions from the Committee:

- Mr. Lewis indicated the cost is \$1.0 million-\$2.0 million for a typical wind farm;
- Mr. Lewis explained the company commissions the ADLS, maintains and operates the system, and continues to optimize the ADLS based on local issues that may arise. Mr. Lewis noted they have a dashboard to monitor all of the ADLS, receiving daily reports on the lights-on percentage each night, which is a good feedback loop for understanding what issues, if any, the ADLS has; and
- Mr. Lewis indicated the company operates 60 ADLS. He explained that does not mean they have 60 operational wind farms; some larger wind farms have 3 ADLS.

Chairperson Bowers next recognized Jeff Schleicher, Director, Wind Energy Services, Terma. ([Attachment 17](#)) Mr. Schleicher noted the two ADLS providers in the United States today are Terma and DeTect. He indicated they have very similar technology, and he described the main differences between the two companies' products. Mr. Schleicher's presentation introduced the Terma company and discussed its various markets. He next provided an overview of the surveillance and mission systems and FAA regulatory requirements stipulated by Advisory Circular 70-7460-1M. Mr. Schleicher next explained technologies considered to date, including shielding, dimming, and radar. He indicated ADLS is highly configurable, noting there can be a single radar cover a wind farm or multiple wind farms, or there can be multiple radar systems on a single wind farm, or multiple radar systems covering multiple zones within a wind farm. Mr. Schleicher concluded by highlighting the reasons for purchasing and installing an ADLS.

In answer to questions from the Committee:

- Mr. Lewis indicated most Terma customers install a security fence, not always for security but to keep cattle out. He explained that if a line or fiber is cut, the lights would turn on. He further explained that typically DeTect and Terma have spare parts nearby which ensures a quick fix. He stated there is usually a wind site manager on each project who identifies issues and works with the company to resolve the issues directly. He stated that with the daily reporting and weekly reporting they have, they are able to pick up on any issues pretty quickly and get them resolved;



- In response to if there are any ADLS down today, Mr. Lewis said they have one. He explained that sometimes when a system is down, they have to shut down the whole wind farm. When that occurs, the lights are off and they have to issue a notice to airmen to let them know those lights are not working;
- Mr. Schleicher explained Terma offers a 20-year service level agreement and described the various service levels. He stated if something happens with the actual radar, there are built-in safety factors so that all the lights come on automatically;
- Mr. Lewis indicated the biggest obstacle that DeTect has had to overcome is weather. He stated the weather algorithms struggle to detect aircraft in light rain. If the ADLS cannot safely detect aircraft, they force the lights on;
- Mr. Schleicher stated Terma's biggest challenge is the Canada geese in North Dakota and explained the challenges. He indicated the birds in flight resemble an aircraft, which triggers the ADLS to turn the lights on for 30 minutes. The geese land underneath the wind turbines and rest or eat for 30 minutes, then take flight, which again triggers the ADLS to turn the lights on for 30 minutes. Terma has been working hard over the past few years on its artificial intelligence algorithms related to Canada geese. He noted they have not resolved the problem, but they have improved greatly the efficiency of the lights-on, lights-off when the geese fly in the fall;
- Mr. Lewis responded to a question regarding the cost of bringing ADLS to an existing wind farm and whether the turbines would need new light bulbs. He explained it usually involves getting rid of the existing lights or just installing a light control module. He stated sometimes the lights are ADLS-compatible lights but the wind turbines do not have a light control module. The cost depends on that and how old the wind farm is;
- Mr. Lewis indicated a new light control module probably would cost \$1,500. Mr. Schleicher indicated it may be between \$1,200 and \$1,500 and, depending on the manufacturer, could be as low as \$800; and
- Mr. Lewis indicated to add the radar system would depend on how big the tower is, but anywhere from \$500,000 to \$1.0 million for one radar system.

### **Industry Experience with Light Mitigation Technology**

Chairperson Bowers recognized Kimberly Gencur Svaty, Kansas Power Alliance. ([Attachment 18](#)) Ms. Svaty provided answers to some of the unanswered questions that were asked earlier in the meeting:

- Related to tax treatment, Ms. Svaty indicated if a project was developed and then the project was sold, the new owner would not be able to carry forward that depreciation or start over and take advantage of that accelerated depreciation. Once a project has gone through the accelerated depreciation, it cannot take

advantage of the depreciation again. Ms. Svaty noted the transfer of ownership does not trigger any other tax change or tax treatment;

- Related to the treatment of pad sites, Ms. Svaty indicated the pad site is defined as related to oil and gas, telecommunications towers, and also wind towers. It is essentially the area surrounding the concrete base where the wind turbine stands. The pad site would be taxed at the commercial rate as opposed to the agricultural valuation;
- Related to the public utility status and transmission build, Ms. Svaty explained there is a wind developer that has also gotten into the business of transmission specifically seeking to build a transmission line in Kansas. Those are two separate businesses within a company; the wind farm is a non-state-regulated business, while the transmission business is state-regulated. Ms. Svaty noted the transmission business has applied for public utility status giving it the right of eminent domain, but not the wind farm business because that right of eminent domain is not transferable;
- Related to federal funding for ADLS, Ms. Svaty indicated a county would likely be the entity that could apply for grant funding; and
- Related to wind farms that operate across county boundaries, Ms. Svaty noted there are several wind farms that operate across county boundaries, and she would provide information to Committee staff about how those communities work together.

Ms. Svaty provided background information on the Advanced Power Alliance. Ms. Svaty highlighted 2022 SB 478 and indicated the Alliance did express its opposition to the bill as it was written. Ms. Svaty noted the Alliance is not opposed to light mitigation technology and expressed commitment to working through some of the issues associated with the bill. Ms. Svaty stated that light mitigation technology and ADLS are not the same and are not interchangeable. Ms. Svaty noted light mitigation technology is the preferred language for legislation as opposed to ADLS in order to provide the most flexibility.

Ms. Svaty next explained the FAA interaction process. Ms. Svaty explained the meaning of a contingency approval as related to wind farm siting. Ms. Svaty noted there has been an executive order in Kansas related to military installations and wind farm siting for more than 10 years; wind developers are required to coordinate closely with state military installations. Ms. Svaty highlighted the FAA Advisory Circular on FAA wind turbine requirements. She further discussed installation considerations and costs, including supply chain issues, and system maintenance, performance of technology, and the feedback received from landowners and communities on the presence of wind farms.

In answer to questions from the Committee:

- Ms. Svaty stated retrofitting would require a reapplication to the FAA for the light mitigation technology which is approximately a four-month process;
- Ms. Svaty described the repower process, indicating two projects in Kansas have gone through a repower, meaning the fitting of new blades on the wind turbine.

She noted it is never an instance where all of the equipment comes down and then all new equipment goes up. The projects can largely still stay operational during a repower. She noted one of the challenges of retrofitting existing wind turbines in Kansas is timing – how would the interface with SPP work because SPP controls when the wind projects are or are not providing power onto the grid;

- In answer to how long a tower would be down for retrofit, Ms. Svaty indicated she would inquire with operators in North Dakota who have retrofitted for ADLS. She stated another issue with regard to retrofitting is where does the money come from to pay for it. She noted one of the most favorable attributes of a wind farm contract is the fixed price. She explained when someone enters into the contract for a renewable energy project, they know exactly what they are going to pay on the last day of the 20- to 25-year contract; there's no deviation, it is already spelled out in the contract;
- Ms. Svaty explained the tax incentive in the new Inflation Reduction Act for renewable energy, noting the amount was just reinstated as it had phased out already. She indicated it came back in for another ten years, so that the production tax credit is exactly what it has been for the past couple of decades. She indicated it would not help mitigate costs for existing wind farms. She explained the federal production tax credit is related to new wind farms going forward. She noted existing projects are already out of the production tax credit and that credit could not be used for retrofitting;
- Ms. Svaty stated the production tax credit is for ten years. She agreed the older wind farms will phase out of the production tax credit, but the new ones will receive it with any new construction. She indicated this is the same production tax credit valuation that it has always been;
- Ms. Svaty indicated ADLS is the only light mitigation technology approved by the FAA thus far. She noted three types of light mitigation technology are under consideration but have not yet received FAA approval;
- Ms. Svaty indicated she would defer to the Legislature as policymakers, but she agreed the flexibility to include new types of light mitigation technology in the future would be useful going forward;
- Ms. Svaty indicated the executive order she referenced took effect in 2011. She noted the executive order is in the process of being updated. She will follow-up with Committee staff on its status;
- Ms. Svaty indicated there is a property tax exemption for transmission lines, and she described the difference between transmission lines and generator lead lines;
- Ms. Svaty agreed that instead of repower, one of the solutions would be to consider what Colorado Senator Sonnenberg mentioned. She explained that when contract renegotiation occurs, that might be the time to look at integrating new technology into the project and adding in the cost of light mitigation technology;

- Ms. Svaty stated there may be 10 existing wind farms in the next decade when recapture will occur, and in the next 10 to 12 years, a large number of wind farms will be having light mitigation technology installed on them;
- In regard to the provision in Colorado’s statute regarding the approval from the FAA to equip and operate light mitigating technology for at least 30 percent of the wind turbines in a wind farm, Ms. Svaty agreed to have some discussion with stakeholders regarding a percentage required to have light mitigating technology installed; and
- A Committee member requested that Ms. Svaty research, in addition to the contracts coming to an end, if there are any other ideas on the repower component and timing.

### **Committee Discussion, Comments, and Recommendations**

Chairperson Bowers invited discussion for the purpose of reaching conclusions and making recommendations to the 2023 Legislature. Committee discussion ensued.

Chairperson Bowers highlighted the recommendations to the 2023 Legislature:

- Explore federal funding for the light mitigation process; and
- Address the two issues of prospective and retroactive requirements for light mitigating technology in two separate bills.

### **Adjourn**

There being no further business to come before the Committee, Chairperson Bowers adjourned the meeting at 3:48 p.m.

Prepared by Randi Walters

Edited by Lindsay Archer and Heather O’Hara

Approved by the Committee on:

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February 3, 2023

(Date)