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WRITTEN REBUTTAL TESTIMONY
OF
JENNIFER CAMPBELL
ON
BEHALF OF
MISSOURI DEPARTMENT OF CONSERVATION

FEBRUARY 4, 2019

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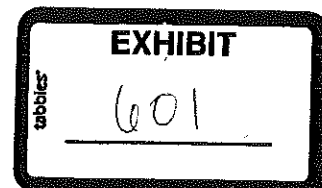


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REBUTTAL TESTIMONY OF JENNIFER CAMPBELL

Missouri Department of Conservation

CASE NO. EA-2019-0010

1 **I. INTRODUCTION**

2 **Q. Please state your name, title, and business address.**

3 A. Jennifer Campbell, Policy Coordinator, Missouri Department of
4 Conservation, P.O. Box 180, Jefferson City, MO 65102.

5 **Q. Please describe your current position, education,
6 background, and training.**

7 A. I have worked for the Missouri Department of Conservation
8 (“MDC”) as a Policy Coordinator since 2011. My role on development projects
9 is to work with project proponents and regulators to suggest ways to
10 accomplish the project while reducing potential impacts to fish, forest, and
11 wildlife. Apart from utility scale wind projects, other types of development
12 projects have included: pipelines; transmission lines; roads; shopping centers;
13 subdivisions; nuclear, hydropower, and coal facilities. I encourage project
14 proponents to consider fish and wildlife resources during project planning,
15 siting, construction, and operation so that their project will balance the
16 interests of the developer with Missouri’s interests in conservation. I am
17 Missouri’s representative on the Association of Fish and Wildlife Agencies’

1 Energy and Wildlife Policy Committee. I earned a Master of Science degree
2 in Environmental Science/Applied Ecology from the School for Public and
3 Environmental Affairs at Indiana University-Bloomington. Prior to that, I
4 earned a Bachelor of Arts in Earth and Planetary Sciences from Washington
5 University in St. Louis.

6 **Q. Have you testified previously before the Missouri Public**
7 **Service Commission?**

8 A. Yes. I have provided testimony in Case No. EA-2018-0202 and
9 EA-2019-0021. Both of those cases involve wind projects proposed by Ameren
10 Missouri.

11 **Q. What is the purpose of your testimony?**

12 A. The purpose of my testimony is to respond to the Application for
13 a Certificate of Convenience and Necessity filed by Empire District Electric
14 (“Empire”). Specifically, I intend to describe MDC’s interests related to the
15 issuance of the Certificate of Convenience and Necessity (“CCN”) for the
16 proposed North Fork Ridge and Kings Point wind farms (the “Projects”), the
17 public interest in conservation and wildlife issues in Missouri, and MDC’s
18 concerns as the owner of public land in close proximity to the Projects.

1 II. MDC INTERESTS

2 A. GENERAL INTERESTS

3 Q. Why is the MDC intervening in this case?

4 A. MDC has a constitutional mandate to conserve fish, forest, and
5 wildlife in the state for Missourians to enjoy now and in the future. MDC
6 was formed through an initiative petition approved by voters in 1936 to
7 create a non-partisan Conservation Commission. The initiative was a result
8 of concerns by sportsmen that fees from hunting permit sales were used for
9 projects other than wildlife preservation and management, and the fact that
10 the statewide wildlife populations were low (deer population not more than
11 2,000 animals and approximately 3,500 turkeys scattered across 45 counties).
12 Missouri citizens approved another ballot initiative (“Design for
13 Conservation”) in 1976 to fund increased research into forestry and all
14 species of wildlife, and to expand recreational opportunities in Missouri.

15 As described in the rebuttal testimony of Drs. Bulliner and Haslerig,
16 MDC has invested significant resources to recover species that could be
17 impacted by the Projects, particularly federally protected raptors (e.g., the
18 bald eagle) and bats (e.g., the gray bat). In addition, as described in the
19 testimony of Dr. Bulliner, *** _____

20 _____ *** MDC has an
21 interest in protecting the investment made by Missourians (through the

1 Conservation Sales Tax) in conserving species that are rare or were once rare
2 in the state. MDC also has interest in conserving other species, so they do not
3 decline to the point of becoming federally listed.

4 Through this case, MDC's expertise in conservation and wildlife issues
5 will aid the Public Service Commission ("Commission") as the Commission
6 attempts to balance the interests of the Company in renewable energy and
7 the interests of the public and the state in conserving fish, forest, and wildlife
8 for Missourians to enjoy now and in the future.

9 **Q. Describe the role of "conservation plans" and "take**
10 **permits" generally as they relate to wildlife mortality.**

11 A. There is potential for wildlife mortality at wind energy facilities
12 when animals occupy the same airspace as turbine blades.¹ Certain species
13 are federally protected, in this instance, the gray bat and bald eagle, and
14 cannot be lawfully killed or injured without a federal permit.

15 Wind companies and utilities protect themselves from the liability of
16 killing a federally protected species (a form of "take") by seeking an
17 "incidental take permit" under Endangered Species Act ("ESA"), 16 U.S.C.

¹ National Wind Coordinating Collaborative Comprehensive Guide to Studying Wind Energy/Wildlife Interactions, June 2011. p. 22, available at: <https://www.batcon.org/pdfs/wind/National%20Wind%20Coordinating%20Collaborative%202011%20Comprehensive%20Guide%20to%20Studying%20Wind%20Energy%20and%20Wildlife%20Interactions.pdf>.

1 §1531 *et seq.*, or an “Eagle Take Permit” under Bald and Golden Eagle
2 Protection Act (BGEA), 16 U.S.C. §668-668d.

3 Under the ESA, Habitat Conservation Plans describe the potential
4 impact of the project on federally listed species and offer measures to
5 mitigate impacts of the project on those species. By operating within the
6 guidelines set forth in the habitat conservation plan and the incidental take
7 permit, the wind energy facility is protected from enforcement under the ESA
8 by the United States Fish & Wildlife Service (“Service”) for killing protected
9 species.

10 The Service is responsible for reviewing Habitat Conservation Plans
11 and Eagle Conservation Plans and issuing Incidental Take Permits and
12 Eagle Take Permits.

13 **Q. What do state laws, especially the Missouri Wildlife Code,
14 say about taking wildlife without a permit?**

15 A. The Missouri Wildlife Code is found at 3 CSR Chapter 10. It has
16 been adopted by the Missouri Conservation Commission pursuant to its
17 constitutional authority found in Article IV, Section 40(a), which states that
18 the “control, management, restoration, conservation and regulation of the
19 bird, fish, game, forestry and all wildlife resources of the state . . . shall be
20 vested in a conservation commission[.]” The Wildlife Code specifically
21 prohibits the molesting, pursuing, taking, hunting, killing, or possession of

1 any wildlife species without express authority granted by the Commission in
2 the Wildlife Code. 3 CSR 10-4.110. Furthermore, with respect to state
3 endangered species, the Code prohibits the taking of any endangered species
4 of wildlife. 3 CSR 10-4.111; *see also* Section 252.240, RSMo. State
5 endangered species which are relevant in this case include the gray bat and
6 bald eagle. Any person violating this provision of the Wildlife Code is guilty
7 of a class B misdemeanor. Section 252.240.6, RSMo.

8 **Q. Why are federal permit processes insufficient to address**
9 **MDC's interests in wildlife conservation at wind facilities?**

10 A. First, Eagle Conservation Plans and Habitat Conservation Plans
11 are developed by the wind energy developer and reviewed by the Service
12 under the authority of the ESA, 16 U.S.C. §1531 *et seq.*, and the BGEA, 16
13 U.S.C. §668-668d. These federal authorities are not required to protect State
14 Species of Conservation Concern ("SOCC") unless they are also federally
15 protected, nor do these authorities ensure that a declining species is
16 protected from further impacts that could result in their listing or federal
17 protection under these laws.

18 Second, take permits and conservation plans approved by the USFWS
19 in most cases will be finalized *after* the Public Service Commission issues an
20 order in the CCN case. Third, through action of the Commission, SOCC could
21 be included in the terms of take permits and conservation plans.

1 The Commission is the only entity with regulatory authority over the
2 siting of wind farms in Missouri. The Commission has previously issued
3 orders in cases where other agencies or entities have overlapping or
4 concurrent jurisdiction on an issue. The Commission has previously
5 considered environmental, wildlife and conservation concerns in its analysis
6 of "public interest" in a certificate of convenience and necessity case.

7 **Q. What is MDC asking the Commission to do in this case?**

8 A. It is MDC's understanding that the Commission's role is to
9 balance a number of interests when reviewing an application for CCN – one
10 interest being the "public interest." As described below, Missourians have
11 significant interests in conservation and wildlife issues. In addition, to the
12 extent that public funds have been and will continue to be invested in bat and
13 eagle research and conservation and MDC-owned Conservation Areas in close
14 proximity to these Projects, the Projects have the potential to negatively
15 impact those investments.

16 MDC is asking the Commission to consider these investments and
17 impacts in this case and impose conditions within the CCN, as recommended
18 herein and in the testimony of Drs. Bulliner and Haslerig to address these
19 issues.

20 **Q. Does MDC oppose wind energy?**

1 A. The Conservation Commission and MDC do not oppose wind
2 energy. MDC is interested in building understanding with respect to wildlife
3 impacts and other issues associated the siting and operation of wind energy
4 projects in Missouri. It is MDC's position that consideration of fish and
5 wildlife resources during project planning, siting, construction, and operation
6 can produce a renewable energy project that balances all of the state's
7 interests. Unfortunately, because of a lack of wildlife mortality monitoring
8 reports shared with state or federal wildlife agencies, and because wind
9 projects are relatively new in Missouri, MDC is still learning about the actual
10 impacts of wind projects on certain wildlife species. Monitoring at Missouri
11 wind projects is critical to understanding and protecting wildlife.

12 **B. PROTECTED SPECIES**

13 **Q. What concerns does MDC have with the proposed Neosho**
14 **Ridge wind farm project with respect to protected species?**

15 A. The Neosho Ridge project is located in Kansas. Any concerns
16 related to that project seem within the jurisdiction of Kansas Department of
17 Wildlife and Parks.

18 **Q. What concerns does MDC have with the proposed North**
19 **Fork Ridge and Kings Point Wind Farm Projects with respect to**
20 **protected species?**

1 A. The Proposed Projects in Missouri pose a risk for the federally
2 protected bald eagle, as is discussed in detail in the testimony of Dr. Haslerig.
3 Additionally, North Fork Ridge wind farm poses a risk for the federally
4 endangered gray bat, as discussed in detail in the testimony of Dr. Bulliner.

5 **C. CONSERVATION AREAS**

6 **Q. What concerns does MDC have with the proposed North**
7 **Fork Ridge and Kings Point Wind Farm Projects with respect to**
8 **Conservation Areas?**

9 A. Numerous MDC-owned conservation areas are located near the
10 Proposed Projects. These public lands are managed to attract wildlife and
11 provide for public recreation. From Data Request Responses provided by the
12 Company, *** _____ *** Kings Point and North Fork Ridge wind
13 turbines are located within three miles of MDC Conservation Areas. Some
14 risks to wildlife and user experience from this proximity might be avoidable
15 or manageable with conditions on the Projects.

16 **Q. Describe the North Fork Ridge Wind Project's proximity**
17 **to MDC Conservation Areas.**

18 A. The North Fork Ridge project is located near the Missouri-
19 Kansas state line in Barton County. Turbines locations provided in response
20 to MDC Data Requests (Figures 1 and 2) show numerous turbines within
21 *** _____ *** of the following Conservation Areas: Shawnee Trail

1 Conservation Area; Bethel Prairie Conservation Area; and Mon-Shon Prairie
2 Conservation Area. In fact, the Shawnee Trail Conservation Area would be
3 surrounded on two sides, with a few turbines less than *** _____ *** from
4 the Conservation Area boundary. There are *** _____
5 _____ *** of Shawnee Trail (Figure 1), *** _____
6 _____ *** of Mon-Shon Prairie, and *** _____
7 _____ *** of Bethel Prairie.

FIGURE 1: PROPOSED NORTH FORK RIDGE TURBINES (WHITE AND RED MAROON) SHOWN WITH RESPECT TO CONSERVATION AREAS (GREEN).

SOLID GREEN LINE IS A 1-MILE BUFFER. DASHED GREEN LINE IS A 3-MILE BUFFER.

FIGURE 2: PROPOSED KINGS POINT TURBINES (WHITE AND RED MAROON) SHOWN WITH RESPECT TO CONSERVATION AREAS (GREEN). * _____
_____ SOLID GREEN
LINE IS A 1-MILE BUFFER. DASHED GREEN LINE IS A 3-MILE BUFFER.**

1 **Q. Describe the Kings Point Wind Project’s proximity to MDC**
2 **Conservation Areas.**

3 **A. The Kings Point Wind Farm straddles Barton, Dade, and Jasper**
4 **Counties. The turbine locations provided in response to MDC Data Requests**

1 show *** _____ *** of Providence Prairie
2 Conservation Area and such turbines *** _____
3 _____
4 _____,***

5 **Q. What are the known area uses of MDC's Conservation**
6 **Areas proximate to the Projects?**

7 A. Shawnee Trail Conservation Area is a popular destination for
8 quail, deer, waterfowl, and deer hunting, as well as bird-watching and
9 fishing. This area includes native prairie, reconstructed prairie, and several
10 water features, including the 15-acre Pin Oak Lake, as well as numerous
11 ponds and nine marshes. The area is also becoming popular for dove hunting
12 over the past few years. Shawnee Trail CA is one of the closet large public
13 land areas (3,6535 acres) near Joplin and surrounding cities, making it a
14 special place for many of those residents. Other allowed uses include: turkey,
15 rabbit, and squirrel hunting; camping; field trials; and trapping.

16 Each year, one to two short-eared owl hikes are offered at the area
17 (Figure 3). The Missouri River Bird Observatory surveys grassland birds at
18 Shawnee Trail every other year. The 2018 survey discovered birds,
19 including: Bell's vireo; Dickcissel; Eastern meadowlark; field sparrow;
20 Henslow's sparrow; sedge wren; Bobolink; and bald eagle. The area also

1 hosts a variety of raptors such as red-tailed hawks, red-shouldered hawks,
2 Cooper's hawks and American Kestrels.

3 Prescribed fire is used to manage the area, with about 1,000 acres per
4 year managed in this way to provide early successional habitat. Smoke
5 management can be an issue with transmission lines, further limiting the
6 window of suitable conditions for this type of land management. MDC is
7 unsure how heavy smoke from this type of ongoing land management might
8 impact nearby turbines.



FIGURE 3: A SHORT-EARED OWL HUNTS AT SHAWNEE TRAIL CONSERVATION AREA (2007).

1 Bethel Prairie Conservation Area is a 260-acre native prairie in Barton
2 County. The area is moderately popular for small game hunting, bird
3 watching, deer hunting, and hiking. Other permitted public uses include:
4 deer and waterfowl hunting, and trapping. This prairie is home to many of
5 the same species noted from Shawnee Trail. Like Shawnee Trail, this area is
6 maintained by prescribed fire, with about one-third of the area managed by
7 prescribed fire each year.

8 Mon-Shon Prairie Conservation Area is an 80-acre native prairie area
9 in Barton County. Many of the same grassland species found at Shawnee
10 Trail Conservation Area are also known from Mon-Shon Prairie. Public uses
11 of the area include: bird watching; deer, quail and rabbit hunting; and
12 trapping. Archery deer hunters have a moderate level of use on the area, and
13 small game hunters have a light level of use. Like Shawnee Trail, this area
14 is maintained by prescribed fire, with about one-third of the area managed by
15 prescribed fire each year.

16 Providence Prairie Conservation Area is a 197-acre native prairie in
17 Lawrence county mostly used by hunters, hikers, and wildlife-watchers. The
18 area supports a decent bobwhite quail and rabbit population and has a very
19 showy wildflower display. The area sits very high on the landscape and is
20 attractive to grassland birds (Figure 4). MDC management has focused on

1 maintaining the openness of the prairie and forming better grassland bird
2 habitat, including the use of prescribed fire.

3 The area just west of Providence Prairie supported the southern-most
4 population of native greater prairie chicken in Missouri until about 2012 and
5 is thought to be an important dispersal route for prairie chicken and other
6 grassland birds because of its high, very open landscape character.



FIGURE 4: A QUAIL HUNT AT PROVIDENCE PRAIRIE CONSERVATION AREA, DECEMBER 2018.

7 **Q. Would public uses at MDC Conservation Areas be affected**
8 **by the Projects?**

1 A. Native prairies invoke a sense of openness and vastness of sky
2 that has largely been lost in Missouri. An important part of the wildlife-
3 watching and wildflower viewing experience is the prairie itself.

4 It appears Providence Prairie Conservation Area would be surrounded
5 on two and one-half sides by the Kings Point Project. Also, the Shawnee Trail
6 Conservation Area boundary is less than *** _____ *** from some
7 turbines. At this time, MDC suspects the nearby presence of wind turbines
8 would adversely affect the public’s use and enjoyment of Providence Prairie
9 Conservation Area, Shawnee Trail Conservation Area, Mon-Son Prairie
10 Conservation Area, and Bethel Prairie. However, it is unknown to what
11 degree impacts might be realized by area users. More specifically, it is not
12 known how much of the Projects or individual turbines would be visible or
13 audible from the MDC Conservation Areas.

14 Viewsheds and viewsapes have intrinsic, and in some cases, real
15 property value. A viewer’s eyes are naturally drawn to the skyline or horizon,
16 which may hold value if it conveys a sense of wilderness or occurs in
17 distinctive landforms. Depending on the scale of the turbines with respect to
18 other landforms, there is potential for a wind project to detract from
19 recreational user experience because of viewshed, noise, or other issues.

20 Viewshed analysis can provide information about predicted visibility
21 from relevant landscape features near the proposed project to inform

1 landowners, the public, and decision-makers about these aesthetic
2 considerations from a site-specific perspective. Other states that have more
3 experience in siting wind farms have recognized visual impacts as valid
4 considerations in the siting.²

5 MDC is concerned about the potential for degradation of the rural
6 landscape character which is valued by the users of Conservation Areas.
7 MDC is also concerned that turbine noise, bothersome vibrations, strobe
8 effects of blinking lights, or shadow flicker will affect user experience on
9 MDC lands. For instance, VIDEO 1³ shows beacons (blinking red lights) at
10 the top of Rock Creek wind turbines near Tarkio Prairie Conservation Area
11 in Atchison County at night. As VIDEO 1 pans around the Vantage Point, the
12 distance to nearest turbines is approximately 1.2-1.5 miles (Figure 5).

²See Siting Guidelines for Wind power Projects in Kansas, as approved by the Executive Committee of the Kansas Renewable Energy Working Group, dated January 22, 2003; and the Minnesota Department of Natural Resources, Guidance for Commercial Wind Energy Projects, dated July 2018, https://files.dnr.state.mn.us/publications/ewr/dnr_wind_energy_project_guidance_2011.pdf.

³ Attached hereto.

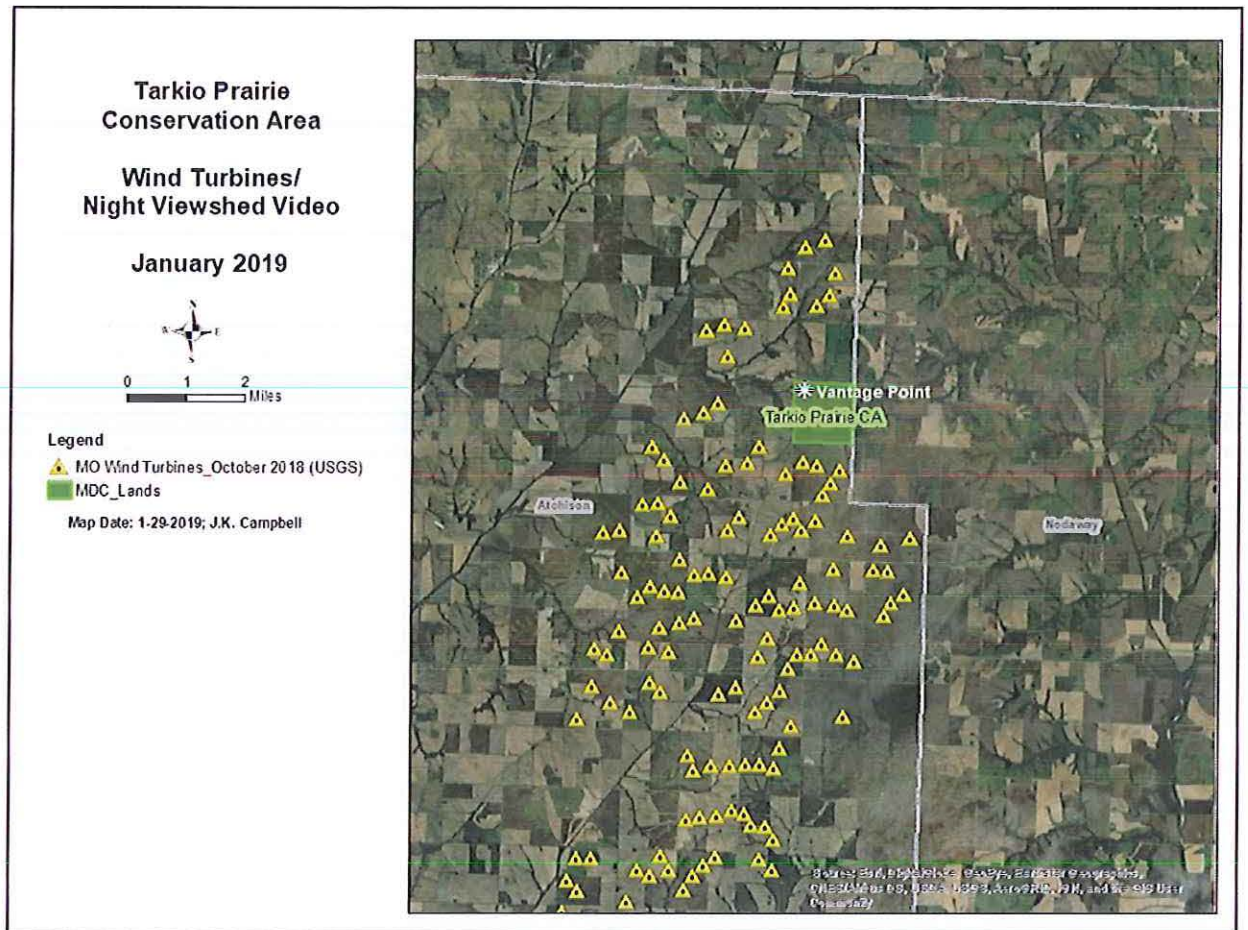


FIGURE 5: VANTAGE POINT OF REFERENCED VIDEO AT TARKIO PRAIRIE CONSERVATION AREA.

- 1 In addition to blinking lights in the dark, when situated close to public lands,
- 2 wind turbines can appear as industrial features on the landscape. Figure 6
- 3 shows turbines seen from the hunting trials area of Pony Express Lake
- 4 Conservation Area, and its vantage point was approximately 1.5 miles away
- 5 as shown in Figure 7.

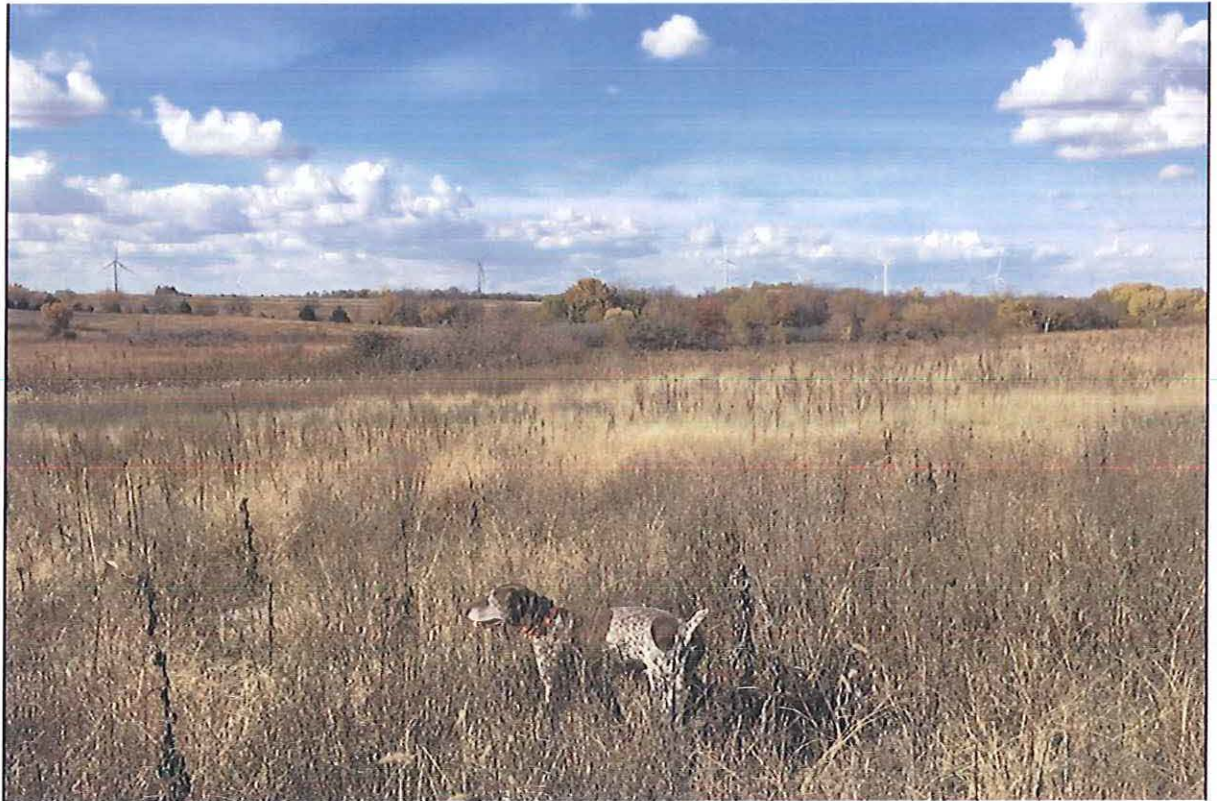


FIGURE 6: HUNTING TRIAL FIELD VIEW OF WIND TURBINES AT PONY EXPRESS LAKE CONSERVATION AREA. TURBINES ARE APPROXIMATELY 1.5 MILES AWAY.

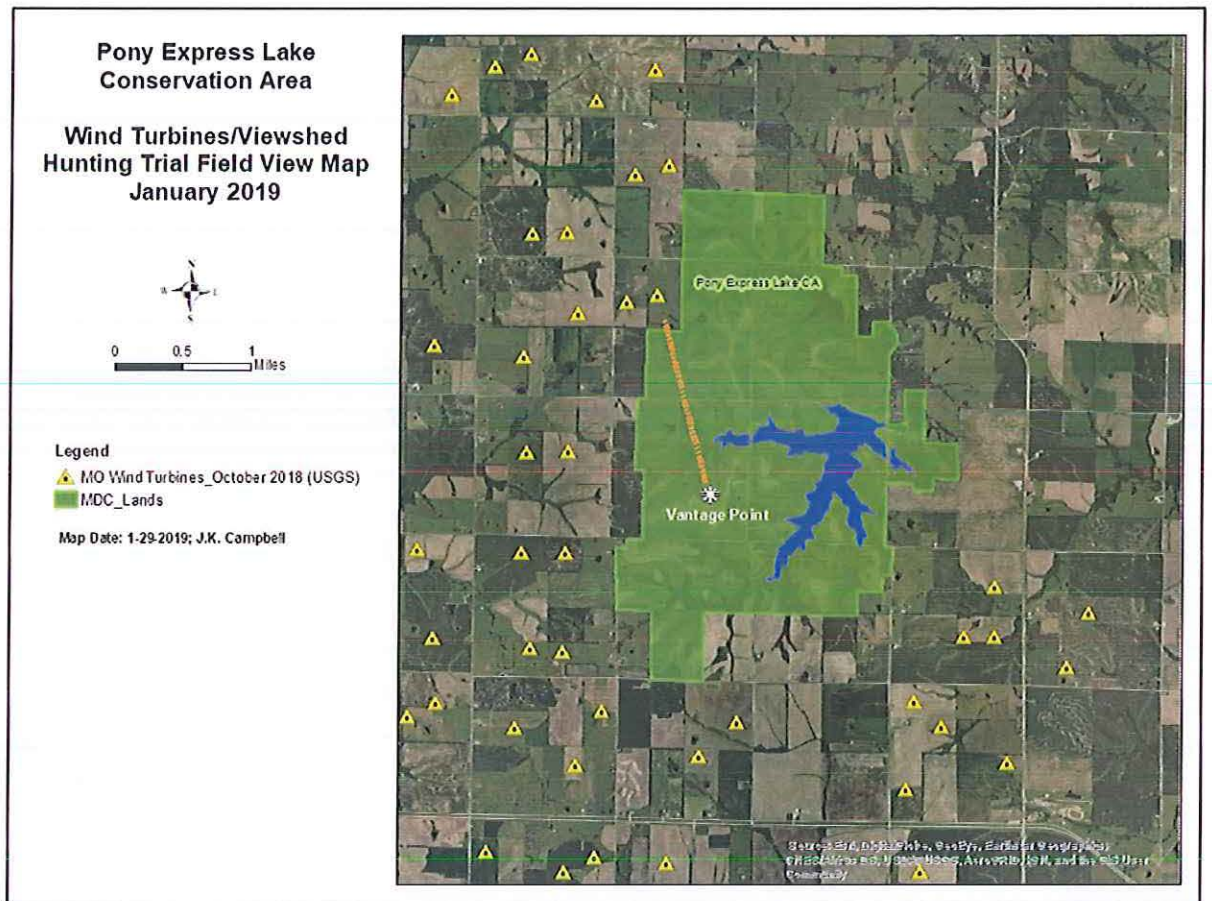


FIGURE 7: VANTAGE POINT OF HUNTING TRIAL FIELD DAYTIME VIEW OF TURBINES.

1 It appears Providence Prairie Conservation Area would be surrounded
 2 on three sides by the Kings Point project, and Shawnee Trail Conservation
 3 Area boundary is less than *** _____ *** from some turbines. Because of
 4 the potential for impacts to the viewshed and users of these Conservation
 5 Areas, there is value to conducting the studies recommended by MDC.

6 In addition, a statistically robust traffic count study before and after
 7 construction of the Projects could be conducted to understand changes in
 8 public visitation at MDC Conservation Areas. MDC has requested other

1 wind project developers conduct these studies to measure the impact of a
2 wind project on Conservation Area use.

3 **Q. Are prairies habitats common in Missouri?**

4 A. The remaining prairies in Missouri are less than 0.01% of what
5 once existed.⁴ This is a rare habitat type with nearly unmatched vegetative
6 diversity. Some prairie remnants have well over 200 plant species, making
7 them one of the most diverse natural communities in the state.

8 **Q. Would MDC recommend a setback or buffer between the**
9 **Proposed Projects and MDC Conservation Areas? If so, what**
10 **distance?**

11 A. Each project is unique in its siting with respect to sensitive
12 wildlife resources, public recreational lands, and terrain. In this instance,
13 MDC recommends a setback of at least three miles, with the caveat that
14 viewshed and traffic count studies should be conducted to better understand
15 recreational user impacts of these conservation areas. An appropriate buffer
16 distance would reduce wildlife mortality risk as well as reduce the potential

⁴ Nelson, P.W. 2010. The terrestrial natural communities of Missouri. Missouri Natural Areas Committee. Jefferson City, MO.

1 for degradation of public land uses. A number of public recreational lands are
2 in the vicinity of the Projects as shown in Figures 1 and 2 above.

3 **Q. Please describe the significance of a three-mile setback.**

4 A. MDC is concerned about recreational user experience at the
5 Conservation Areas in the immediate vicinity of the Projects, including
6 aesthetic impacts such as visual disruptions, sound, and vibrations. Visual
7 disruptions that change the open and vast character of prairies are possible
8 during both day and evening through turbine dominance on the landscape,
9 strobe effects, blinking red lights, among other disruptions.

10 The most significant visual impacts from utility scale wind facilities
11 appear to occur at three miles, depending on the terrain and landscape
12 features.⁵

13 A National Academy of Science committee report discussed how to plan
14 and mitigate for aesthetic impacts of commercial scale wind farms,
15 concluding that “modern wind turbines of 1.5-3 MW can be seen in the
16 landscape for 20 miles away or more....[t]he most significant impacts are

⁵ Ledec, GC et al (2011). *Greening the Wind: Environmental and social considerations for wind power development*. Available at: <http://documents.worldbank.org/curated/en/239851468089382658/Greening-the-wind-environmental-and-social-considerations-for-wind-power-development> [accessed 1 February 2019].

1 likely or occur within 3 miles of the project, with impacts possible from
2 sensitive viewing areas up to 8 miles of the project.”⁶ The report also
3 suggested that viewshed analysis is appropriate within 10 miles of a wind
4 energy project.

5 In Minnesota, the state will consider recommending viewshed analysis
6 if wind energy facility infrastructure is within five miles of a property with
7 outstanding recreational, cultural, or historical attributes.⁷

8

9 III. PUBLIC INTERESTS IN CONSERVATION OF WILDLIFE

10 Q. What is known about public attitudes towards wildlife in
11 Missouri?

12 A. A survey conducted in 2013 for MDC, by the University of
13 Missouri, included results that most Missourians report interest in Missouri’s
14 fish, forests, and wildlife (95 percent). Additionally, Missourians were active
15 in a variety of outdoor recreation pursuits in the 12 months before the survey:

⁶ Committee on Environmental Impacts of Wind Energy Projects, National Research Council, ‘Environmental Impacts of Wind-Energy Project,’ 2007, ISBN: 978-0-309-10834-8, p. 101.

⁷ Minnesota Department of Natural Resources, Guidance for Commercial Wind Energy Projects, dated July 2018, https://files.dnr.state.mn.us/publications/ewr/dnr_wind_energy_project_guidance_2011.pdf, p. 7.

1 74 percent watching birds or wildlife; 60 percent hiking in the outdoors; 56
2 percent feeding birds or other wildlife near their homes; 52 percent
3 photographing wildlife, wildflowers, or other natural things; 45 percent
4 fishing; and 24 percent hunting. Furthermore, 55 percent of Missourians
5 reported using used MDC Conservation Areas within the last 12
6 months. Over three-quarters of Missourians agree that “The Missouri
7 Department of Conservation is a name I can trust” (76 percent).⁸

8 Missourians support conservation activities and agree that MDC
9 should assist landowners and communities with conservation and
10 management efforts. Most Missourians agree that “It is important for outdoor
11 places to be protected even if you don’t plan to visit the area” (89 percent);
12 and “The Missouri Department of Conservation should designate “natural
13 areas” to protect Missouri’s best examples of forests, prairies, marshes and
14 glades” (82 percent). Over three-quarters agree that “The Missouri
15 Department of Conservation should help private landowners who want to
16 restore native communities of plants and animals (77 percent); “The Missouri
17 Department of Conservation should conserve and restore rare and

⁸ Rikoon, S. *et al.*, University of Missouri-Columbia (January 2014), “Your Ideas Count!: Report of Results of the 2013 Conservation Opinion Survey for the Missouri Department of Conservation.”

1 endangered plants (77 percent); “The Missouri Department of Conservation
2 should assist communities that want to include trees and green spaces in
3 housing, business, and shopping developments” (77 percent); and “The
4 Missouri Department of Conservation should make an effort to restore
5 animals that once lived or currently are very rare in Missouri” (76 percent).”
6 Almost three-quarters agree that “Land should be acquired in Missouri for
7 fish, forest, and wildlife conservation” (71 percent).⁹

8 **Q. Describe the survey methods for the 2013 Conservation**
9 **Opinion Survey.**

10 A. The 2013 Conservation Opinion Survey was conducted for MDC
11 by the University of Missouri. Survey questionnaires were mailed to a
12 random sample of Missouri households with 16,173 forms successfully
13 delivered and 4,743 useable responses. The survey had an overall response
14 rate of 29.3 percent. A stratified sampling methodology was used to ensure
15 representation across all counties and the city of St. Louis, including
16 metropolitan, micropolitan, and rural areas as defined by the U.S. Census
17 Bureau. The survey used a standard mailing methodology with five mailings.
18 Survey respondents could respond by mail or through an online form with

⁹ *Id.*

1 unique identification. Results were weighted by age, sex, and geographic
2 region to appropriately represent the Missouri population. A complete
3 description of the methodology is available in the report of results.¹⁰

4 **Q. Why should s attitudes of Missourians about wildlife**
5 **inform the Commission in this case?**

6 A. Missourians value the wildlife around their homes and where
7 they hunt and recreate. They value the boost to local economy from wildlife
8 recreation, as well as quality of life benefits. The citizens of Missouri expect
9 MDC to make efforts to recover species that are rare in the state, and protect
10 species they hunt, and protect species they enjoy watching at the birdfeeder
11 and elsewhere. Missourians have invested millions of dollars through the
12 Conservation Sales Tax in the recovery of threatened species (including, but
13 not limited to, bats and bald eagles) and any effects on that investment of
14 public funds is appropriate to consider in reviewing a CCN application.

15 The PSC has previously considered environmental, wildlife and
16 conservation concerns in its analysis of "public interest" in CCN cases. In
17 fact, the Commission made a specific finding regarding the Indiana bat. *See*
18 *Report and Order, In the Matter of the Application of Ameren Transmission*
19 *Company of Illinois for Other Relief or, in the Alternative, a Certificate of*

¹⁰ *Id.*

1 Public Convenience and Necessity Authorizing it to Construct, Install, Own,
2 Operate, Maintain and Otherwise Control and Manage a 345,000-volt
3 Electric Transmission Line from Palmyra, Missouri, to the Iowa Border and
4 Associated Substation Near Kirksville, Missouri (April 27, 2016), 26-27. The
5 Commission also recently approved the “Third Stipulation and Agreement” in
6 EA-2018-02020, which addressed wildlife and conservation concerns in that
7 case.

8 **IV. ECONOMIC IMPACT OF PUBLIC INTEREST IN**
9 **CONSERVATION AND WILDLIFE**

10 **Q. Generally, describe the economics associated with the**
11 **public interest in the migratory birds and raptors (including bald**
12 **eagles).**

13 **A.** Hundreds of migratory birds and raptors are of interest to
14 wildlife watchers in our state. There are 1.7 million Missourians and visitors
15 who participate in wildlife viewing on an annual basis.¹¹ There is a \$1.7
16 billion economic impact of wildlife viewing in Missouri, supporting 18,000

¹¹ U.S. Department of the Interior, U.S. Fish and Wildlife Service, and U.S. Department of Commerce, U.S. Census Bureau. 2011 National Survey of Fishing, Hunting, and Wildlife-Associated Recreation.

1 jobs, and generating \$153.7 million in state and local taxes.¹² Some
2 migratory bird species are of interest to waterfowl hunters. More than
3 576,000 Missourians and visitors participate in hunting (including waterfowl
4 and other types) annually.¹³ These hunting activities enrich Missouri's
5 economy and Missourians' quality of life. Hunting has a \$1.7 billion impact
6 on the Missouri economy, supporting more than 23,000 jobs and generating
7 \$164 million in state and local sales taxes.¹⁴

8 **Q. Why is MDC concerned that wind turbines could reduce**
9 **visits to Conservation Areas?**

10 A. Conservation Area lands represent an investment by Missourians
11 in places to recreate. Though few studies have been reported about the
12 impact on tourism and recreation from wind development, there is some
13 information suggesting recreational users could change visitation patterns.
14 For instance, in Delaware, 25 percent of surveyed beachgoers would switch
15 beaches if offshore wind turbines were located 10 kilometers (6.2 miles) from

¹² ENVIRON International Corporation. 2014. The 2011 Economic Impacts of Fishing, Hunting, and Wildlife Viewing in Missouri. Environ International Corporation, Clackamas OR.

¹³*Supra* n.5.

¹⁴*Supra* n.6.

1 the beach; 95 percent said they would return if wind facilities were located
2 more than twice the distance away.¹⁵ In North Carolina, the number of
3 planned beach trips would be reduced by one per year (14 trips instead of 15)
4 if there were 100 wind turbines located one mile offshore.¹⁶ These particular
5 studies require a greater level of survey effort than a traffic count study,
6 which MDC is recommending to provide some perspective on potential
7 visitation changes.

8

9 V. MDC RECOMMENDATIONS

10 Q. Can you summarize your recommendations?

11 A. MDC, in addition to the recommendations in Drs. Bulliner and
12 Haslerig's testimony, recommends that the Commission:

13 1. Require Empire to conduct a traffic count survey at all
14 Conservation Areas within three miles of the Proposed Projects. These
15 Conservation Areas include: Providence Prairie; Shawnee Trail; Bethel
16 Prairie; and Mon-Shon Prairie.

¹⁵ Lilley, M., J. Firestone, and W. Kempton. 2010. The Effect of Wind Power Installations on Coastal Tourism. *Energies* 3: 1-22.

¹⁶ ICF Incorporated, L.L.C. 2012. Atlantic Region Wind Energy Development: Recreation and Tourism Economic Baseline Development. U.S. Dept. of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Herndon, VA. OCS Study BOEM 2012-085, Appendix A.

1 2. Require Empire to conduct a viewshed study at all Conservation
2 Areas within three miles of the Proposed Projects.

3 3. Prohibit the Company from constructing or operating a wind
4 turbine within three miles of any Conservation Area.

5 **Q. Is it your opinion that these recommendations are**
6 **burdensome on Empire?**

7 A. No, because wind planning resources recommend avoiding areas
8 that concentrate wildlife or provide migration corridors when siting wind
9 projects.^{17, 18} Additionally, the traffic count study and viewshed analysis are
10 low-intensity efforts in terms of evaluating aesthetic and recreational user
11 impacts.^{19 20 21} Empire has represented in coordination meetings and Data

¹⁷ USFWS Land-Based Wind Energy Guidelines (2014), p. 13; Kansas Wind Power Siting Guidelines, p. 4, item i; Greening the Wind (World Bank Study), p. 29

¹⁸ Committee on Environmental Impacts of Wind Energy Projects, National Research Council, 'Environmental Impacts of Wind-Energy Projects,' 2007, ISBN: 978-0-309-10834-8. p.130-131.

¹⁹ Proceedings of the NWCC Siting Technical Meeting. Washington, DC. December 1-2, 2005. Prepared by Susan Savitt Schwartz, ed. March 2006. P 19-27.

²⁰ Committee on Environmental Impacts of Wind Energy Projects, National Research Council, 'Environmental Impacts of Wind-Energy Projects,' 2007, ISBN: 978-0-309-10834-8. p.146-150, 135-155, 157-162, 173-177.

²¹ ICF Incorporated, LLC. 2012 Atlantic Regional Wind Energy Development: Recreation and Tourism Economic Baseline Development. U.S. Department

1 Request responses that a number of alternate turbine locations are
2 available²² in the event certain sites might not be suitable. Finally, I would
3 note that Missourians have made significant investments of their state tax
4 dollars to acquire these public lands for their protection, conservation, and
5 enjoyment, and the balancing of the public interest weighs in favor of
6 prohibiting Empire from degrading such investments.

7 Q. Does this conclude your testimony?

8 A. Yes.

of the Interior, Bureau of Ocean Energy Management, Office of Renewable Energy Programs, Herndon, VA. OCS Study BOEM 2012-085. Appendix A.

²² Response to MDC Data Request 1-30 (December 3, 2018).

