**STATE OF MINNESOTA**
**OFFICE OF ADMINISTRATIVE HEARINGS**
**FOR THE PUBLIC UTILITIES COMMISSION**

**In the Matter of the Applications of Big Bend Wind, LLC for a Certificate of Need, Site Permit, and Route Permit for an up to 308 MW Wind Farm and Associated 161 kV Transmission Line in Cottonwood, Martin, and Watonwan Counties**

**In the Matter of the Applications of Red Rock Solar, LLC for a Certificate of Need and Site Permit for the up to 60 MW Solar Project in Cottonwood County**

MPUC Docket Nos. IP-7013/CN-19-408, WS-19-619, and TL-19-621

MPUC Docket Nos. IP-7014/CN-19-486 and GS-19-620

OAH Docket No. 60-2500-37376

**APPLICANTS' PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATIONS**

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| **In the Matter of the Applications of Red Rock Solar, LLC for a Certificate of Need and Site Permit for the up to 60 MW Solar Project in Cottonwood County** | **APPLICANTS' PROPOSED FINDINGS OF FACT, CONCLUSIONS OF LAW, AND RECOMMENDATIONS** |

This matter was assigned to Administrative Law Judge James E. LaFave and involves the Certificate of Need (MPUC Docket No. 19-408), Site Permit (MPUC Docket No. 19-620), and Route Permit (MPUC Docket No. 19-621) Applications of Big Bend Wind, LLC ("Big Bend Wind") for an up to 300 megawatt ("MW") large wind energy conversion system ("LWECS") and 161 kilovolt ("kV") transmission line ("Transmission Line") in Cottonwood, Watonwan, and Martin Counties, Minnesota (the "Wind Project").

This matter also involves the Certificate of Need (MPUC Docket No. 19-486), and Site Permit (MPUC Docket No. 19-620) Applications of Red Rock Solar, LLC ("Red Rock Solar", and, together with Big Bend Wind, the "Applicants") for the Red Rock Solar Project (the "Solar Project" and, together with the Transmission Line and Wind Project, the "Projects"), solar energy conversion facility with an up to 60 MW alternating current ("AC") nameplate capacity and associated facilities, in Midway Township, Cottonwood County, Minnesota.

The Minnesota Public Utilities Commission (the "Commission") referred this matter to the Office of Administrative Hearings for assignment of an administrative law judge to conduct public and contested cases hearings. The Administrative Law Judge was charged with preparing a report containing findings of fact, conclusions of law, and a recommendation on the merits of the proposed Projects, applying the certificate of need, siting, and routing criteria established in statute and rule, and providing comments and recommendations, if any, on the conditions and provisions of certificates of need, site permits, and route permit.

The Administrative Law Judge held joint public hearings in-person and by video conference and telephone on the Applications for the Projects on February 1 and 2, 2022, respectively. The evidentiary hearing was held on February 1, 2022. The record remained open for the receipt of written public comments until February 22, 2022. The parties filed final post-hearing submissions on March 18, 2022.

Christina Brusven and Haley Waller Pitts, Fredrikson & Byron, P.A., appeared on behalf of Applicants.

Peter J. Rademacher, Hogan Adams, PLLC, appeared on behalf of the Lower Sioux Indian Community in the State of Minnesota ("Lower Sioux").

Leif Rasmussen appeared on behalf of the Upper Sioux Community ("Upper Sioux").

Valerie T. Herring, Taft, Stettinius, & Hollister, LLP, appeared on behalf of the Minnesota Historical Society ("MNHS").

Kevin Pranis appeared on behalf of the Laborers District Council of Minnesota and North Dakota ("LIUNA").

Richard Dornfeld, Assistant Attorney General, appeared on behalf of the Minnesota Department of Commerce, Energy Environmental Review and Analysis Unit ("DOC-EERA") and Division of Energy Resources ("DOC-DER").

Cezar Panait and Charley Bruce appeared on behalf of Commission staff.

## STATEMENT OF THE ISSUES

Has Big Bend Wind satisfied the criteria established in Minn. Stat. ch. 216B and Minn. R. ch. 7849 for a certificate of need for its proposed up-to-300 MW large wind energy conversion system and 161 kV transmission line in Cottonwood, Watonwan, and Martin Counties, Minnesota?

Has Big Bend Wind satisfied the criteria established in Minn. Stat. ch. 216F and section 216E.03, subd. 7 and Minn. R. ch. 7854 for a site permit for its proposed 300 MW large wind energy conversion system in Cottonwood and Watonwan Counties, Minnesota?

Has Big Bend Wind satisfied the criteria established in Minn. Stat. ch. 216E and Minn. R. ch. 7850 for a route permit for its proposed 161 kV Transmission Line in Cottonwood, Watonwan, and Martin Counties, Minnesota?

Has Red Rock Solar satisfied the criteria established in Minn. Stat. ch. 216B and Minn. R. ch. 7849 for a certificate of need for its proposed 60 MW solar energy conversion system in Cottonwood County, Minnesota?

Has Red Rock Solar satisfied the criteria established in Minn. Stat. ch. 216E and Minn. R. ch. 7850 for a site permit for its proposed 60 MW solar energy conversion system in Cottonwood County, Minnesota?

## SUMMARY OF RECOMMENDATIONS

The Administrative Law Judge concludes that Big Bend Wind has satisfied the applicable legal requirements and, accordingly, recommends that the Commission grant Big Bend Wind a Certificate of Need, Site Permit, and Route Permit, subject to the conditions discussed below.

The Administrative Law Judge further concludes that Red Rock Solar has satisfied the applicable legal requirements and, accordingly, recommends that the Commission grant Red Rock Solar a Certificate of Need and Site Permit, subject to the conditions discussed below.

Based on the evidence in the hearing record, the Administrative Law Judge makes the following:

## FINDINGS OF FACT

### I. APPLICANTS

1. Big Bend Wind will develop, design, permit, and operate the Wind Project and Transmission Line.[1]

2. Red Rock Solar will develop, design, permit, and operate the Solar Project.[2]

3. Applicants are affiliates of Apex Clean Energy Holdings, LLC ("Apex").[3]

4. Apex has developed many operating wind farms and solar facilities throughout the United States and currently has a development portfolio of approximately 20 GW of wind, solar and storage projects. [4]

### II. APPLICATIONS AND RELATED PROCEDURAL BACKGROUND

5. On June 19, 2019, Applicants submitted a request for exemptions from certain certificate of need application content requirements and the High Voltage Transmission Line ("HVTL") Notice Plan found in Minn. R. 7829.2550.[5] Following a comment period, on September 24, 2019, the Commission issued an order granting exemptions from certain certificate of need application content requirements requested by the Applicants and taking no action as to Minn. R. 7829.2550.[6]

6. On October 10, 2019, Big Bend Wind submitted the Certificate of Need Notice Plan Approval Request, detailing Big Bend Wind's plan to provide notice to landowners or others with property within or adjacent to the proposed Transmission Line corridor associated with the Wind Project.[7] On December 4, 2019, the Commission issued an order approving the Notice Plan.[8]

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[1] Ex. 314 at 1-2 (Big Bend Wind Certificate of Need Application ("BB-CN Application")).

[2] Ex. 317 at 1-2 (Red Rock Solar Certificate of Need Application ("RR-CN Application")).

[3] Ex. 332 at 1 (Supplemental and Amended Site Permit Application, Figures and Exhibits ("BB-Amended Site Application")).

[4] Ex. 332 at 1 (BB-Amended Site Application).

[5] Ex. 300 (Request for Exemption from Certain Application Content Requirements and Rule 7829.2550 HVTL Notice Plan).

[6] Ex. 201 (Order Approving Exemptions to Certain Filing Requirements)

[7] Ex. 307 (Certificate of Need Notice Plan Approval Request).

[8] Ex. 218 (Order).

On January 27, 2020, Big Bend Wind filed a letter attesting to its compliance with the requirements of the Notice Plan.[9]

7. On May 15, 2020, Governor Walz signed, and the Executive Council approved, Emergency Executive Order 20-58, which permitted the Commission to hold remote meetings and hearings.[10]

8. On August 27, 2020, Red Rock Solar filed a letter stating its intent to file a site permit application under the alternative permitting process.[11]

9. On August 28, 2020, Big Bend Wind filed a letter stating its intent to file a route permit application under the alternative permitting process.[12]

10. On November 9, 2020, Big Bend Wind filed with the Commission a Certificate of Need Application (the "Wind CN Application") (Docket No. IP-7013/CN-19-408), Site Permit Application (the "Wind Site Permit Application") (Docket No. IP-7013/WS-19-619), and Route Permit Application (collectively, the "Wind Applications") (Docket No. IP-7013/TL-19-621).[13]

11. On November 9, 2020, Red Rock Solar filed with the Commission a Certificate of Need Application (the "Solar CN Application") (Docket No. IP-7014/CN-19-486) and Site Permit Application (the "Solar Site Permit Application" and, together, the "Solar Applications") (together with the Wind Applications, the "Applications") (Docket No. IP-7014/GS-19-620) for its proposed solar energy conversion facility with an up to 60 MW AC nameplate capacity, in Midway Township, Cottonwood County, Minnesota.[14]

12. On November 23, 2020, the Commission issued a notice soliciting comments concerning application completeness and procedural treatment.

13. On December 18, 2020, MNHS filed a request to intervene.[15]

14. By December 21, 2020, the Commission received comments on the applications from the following:

- DOC-DER;
- DOC-EERA;
- LIUNA and International Union of Operating Engineers, Local 49 ("Local 49");

[9] Ex. 310 (Compliance Filing - Notice Plan).
[10] https://mn.gov/governor/assets/EO%2020-58%20Final_tcm1055-434649.pdf
[11] Ex. 311 (Notice of Intent to Submit a Site Permit Application under Alternative Permitting Process).
[12] Ex. 313 (Notice of Intent to Submit a Route Permit Application Under Alternative Permitting Process).
[13] Ex. 314 (BB-CN Application); Ex. 315 (BB-Site Application); Ex. 316 (Route Permit Application).
[14] Ex. 317 (RR-CN Application); Ex. 319 (RR-Site Application).
[15] Ex. 503 (MNHS Intervention).

- the MNHS;
- the Minnesota Pollution Control Agency ("MPCA");
- the Southwest Regional Development Commission;
- Lower Sioux; and
- several members of the public.

15. By December 24, 2020, the Commission received reply comments from the Applicants and DOC-EERA.[16]

16. On December 30, 2020, the Applicants submitted a corrected Notice of Filing of Certificate of Need, Site Permit, and Route Permit Applications for the Wind Project and Certificate of Need and Site Permit Applications for the Solar Project.[17]

17. On January 14, 2021, the Applicants submitted updated public versions of their "Phase 1a Literature Review and Natural Heritage Information System Request" as recommended by DOC-EERA.[18]

18. On March 11, 2021, the Commission issued an Order accepting the Applications as substantially complete; approving joint public meetings and hearings and combined environmental review on the applications to the extent practical; requesting that DOC-EERA prepare an environmental assessment ("EA") in lieu of an environmental report; referring the Big Bend Site Permit Application to the Office of Administrative Hearings ("OAH") for a contested case hearing limited to the potential impact of the Project on the Jeffers Site; referring the other applications to OAH for review using the informal review process; and granting certain timing variances.[19]

19. On March 17, 2021, the Commission issued a Notice of Public Information and Environmental Review Scoping Meeting, scheduling a remote-access meeting for April 1, 2021 and announcing that written comments would be accepted through April 30, 2021.[20]

20. On March 31, 2021, the Lower Sioux filed a Notice of Appearance.[21]

21. On April 1, 2021, Upper Sioux filed a request to intervene.[22]

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[16] Ex. 322 (Reply Comments – Notice of Comment Period/Completeness; Ex. 323 (Reply Comments – Notice of Comment Period/Completeness).

[17] Ex. 324 (Corrected Compliance Filing – Notice of Filing Applications).

[18] Ex. 325 (Site Permit Application - Appendix F Phase 1a Literature Review and Natural Heritage Information System Request).

[19] Ex. 209 (Order Accepting Applications as Complete, Establishing Review Procedures, Granting Variances, and Notice of And Order for Hearing).

[20] Ex. 210 (Notice of Public Information and Environmental Review Scoping Meeting).

[21] Ex. 600 (Notice of Appearance).

[22] Request to Intervene (April 1, 2021) (eDocket No.20214-172506-03).

22. The remote-access Public Information and Environmental Review Scoping Meeting was held on April 1, 2021.[23] The commend period closed on April 30, 2021.[24]

23. DOC-EERA submitted an Energy Environmental Review and Analysis Scoping Summary and Recommendation on May 24, 2021.[25] DOC-EERA recommended including four alternatives in the EA: a 335 MW solar facility with no wind component; a 335 MW hybrid project with no proposed turbines placed within eight miles of the Jeffers Site; a 335 MW hybrid project with no proposed turbines placed within 10 miles of the Jeffers Site; and a 335 MW hybrid project with no proposed turbines placed within 11 miles of the Jeffers Site.[26]

24. On May 24, 2021, the Minnesota Department of Transportation ("MnDOT") Office of Aeronautics also provided comments regarding the impact of a proposed turbine on a private airstrip after the owner reached out to the Department. MnDOT also notified DOC-EERA that all objects constructed in excess of 500 feet above ground level are considered to be obstructions to the safety of flight and that a MnDOT permit is now required to construct them.[27]

25. On June 3, 2021, DOC-EERA filed its comments and recommendations on the draft site permit. It offered a several proposed technical amendments to the permit and then recommended that the Commission issue a Draft Site Permit.[28]

26. On June 17, 2021, the Commission met to consider the draft wind site permit and determine the transmission line routes to be analyzed in the EA.[29]

27. On July 1, 2021, the Administrative Law Judge ordered that a prehearing conference be held on July 9, 2021.[30]

28. The Commission filed its Order approving a draft wind site permit for the Project on July 22, 2021 and requested that, in addition to the transmission line route alternatives that DOC-EERA had identified, that DOC-EERA include in the scope of the EA the route segment alternative described in the public comment filed by Kent Scholl on June 14, 2021.[31]

29. On July 27, 2021, the Commission issued a Notice of Commission Planning Meeting for August 10, 2021, for the purpose of touring the Jeffers Site.

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[23] Ex. 210 (Notice of Public Information and Environmental Review Scoping Meeting) at 1.
[24] Ex. 210 (Notice of Public Information and Environmental Review Scoping Meeting) at 3.
[25] EA Scoping Summary and Recommendations (May 24, 2021) (eDocket No. 20215-174407-01).
[26] EA Scoping Summary and Recommendations (May 24, 2021) (eDocket No. 20215-174407-01).
[27] MnDOT Aeronautics Comments (May 24, 20221) (eDocket No. 20215-174410-04).
[28] Comments, Recommendations, and Preliminary Draft Site Permit (June 3, 2021) (eDocket No. 20216-174802-02).
[29] Ex. 242 (Briefing Papers – June 17, 2021 Agenda).
[30] First Pre-Hearing Order (June 1, 2021) (eDocket No. 20217-175769-03).

[31] Public Comments Received by EERA on PDSP and EA Scoping (June 3, 2021) (eDocket No. 20216-175099-01).

30. On July 30, 2021, the Laborers District Council of Minnesota and North Dakota ("LDC") filed a Petition for Intervention.[32]

31. On August 13, 2021, the Administrative Law Judge admitted Upper Sioux and Lower Sioux as full parties to the proceeding.[33]

32. On August 16, 2021, the Administrative Law Judge ordered that a prehearing conference be held on August 19, 2021.[34]

33. On August 18, 2021, the Administrative Law Judge admitted LDC as a full party to the proceeding.[35]

34. On August 24, 2021, DOC-EERA issued the Environmental Assessment Scoping Decision.[36]

35. On August 24, 2021, the Administrative Law Judge ordered that a prehearing conference be held on September 13, 2021.[37]

36. On September 10, 2021, the Commission issued a Notice of Commission Planning Meeting for September 20, 2021, for the purpose of touring the Jeffers Site.

37. On September 14, 2021, the Applicants filed a settlement agreement between the Applicants, and Intervenors MNHS, Upper Sioux, and Lower Sioux.[38]

38. On September 17, 2021, the Administrative Law Judge ordered that a prehearing conference be held on October 8, 2021.[39]

39. On September 20, 2021, Big Bend Wind filed its Supplemental and Amended Site Permit Application.[40]

40. On October 1, 2021, Applicants filed the direct testimony of Dylan Ikkala.[41]

41. On October 11, 2021, the Administrative Law Judge ordered that a prehearing conference be held on October 15, 2021.[42]

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[32] Petition for Intervention (July 30, 2021) (eDocket No. 20217-176628-08).

[33] Order on Petitions to Intervene by Upper Sioux Community Tribal Historic Preservation Office and the Lower Sioux Community (August 13, 2021) (eDocket No. 20218-177118-05).

[34] Second Pre-Hearing Order (August 16, 2021) (eDocket No. 20218-177153-04).

[35] Order on Petition to Intervene by the Laborers District Council of Minnesota and North Dakota (August 18, 2021) (eDocket No. 20218-177217-02).

[36] Ex. 104 (Initial Environmental Assessment Scoping Decision).

[37] Third Pre-Hearing Order (August 24, 2021) (eDocket No. 20218-177410-01).

[38] Ex. 331 (Settlement Agreement).

[39] Fourth Pre-Hearing Order (September 17,2021) (eDocket No. 20219-178060-01).

[40] Ex. 332 (BB-Amended Site Application).

[41] Ex. 334 (Direct Testimony of Dylan Ikkala ("Ikkala Direct")).

[42] Fifth Pre-Hearing Order (October 11, 2021) (eDocket No. 202110-178687-04).

42. On October 15, 2021, DOC-EERA issued a Notice of Substantial Changes and Substantial New Information and Comment Period on Re-Evaluation of the Environmental Assessment Scope. The Notice announced that DOC-EERA was seeking additional comments regarding the scope of the EA as a result of the settlement agreement and that the comment period would close on November 1, 2021.[43]

43. On November 1, 2021, Applicants submitted comments in response to the Notice of Substantial Changes.[44]

44. On November 5, 2021, DOC-EERA issued a Revised Environmental Assessment Scoping Decision.[45]

45. On November 10, 2021, Lower Sioux filed the direct testimony of Robert L. Larsen.[46]

46. On November 10, 2021, MHS filed the direct testimony of Kevin Maijala.[47]

47. On November 10, 2021, Upper Sioux filed the direct testimony of Adam Savariego.[48]

48. On November 12, 2021, LIUNA filed the direct testimony of Lucas Franco, PhD.[49]

49. On January 14, 2022, the Notice of Environmental Assessment Availability, Public Hearings, and Comment Period was filed. The Notice announced in-person public hearings would take place on February 1, 2022 at 2:00 p.m. and 6:00 p.m. The Notice also announced that a remote-access hearing would take place on February 2, 2022 at 6:00 p.m. Finally, the Notice announced that the written-comment period would run from January 14, 2022 through February 22, 2022 at 4:30 p.m.[50]

50. DOC-EERA filed the Final EA on January 18, 2022.[51]

51. On January 26, 2022, DOC-DER staff filed written comments recommending that the Commission issue a CN for the Wind Project and the Solar Project.[52]

52. On January 31, 2022, Applicants filed the Surrebuttal Testimony of Dylan Ikkala, with schedules.[53]

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[43] Notice (October 15, 2021) (eDocket No. 202110-178883-03).
[44] Ex. 336 (Scoping Comments).
[45] Revised EA Scoping Decision (November 5, 2021) (eDocket No. 202111-179554-05).
[46] Ex. 603 (Direct Testimony of Robert L. Larsen ("Larsen Direct")).
[47] Ex. 500 (Direct Testimony of Kevin Maijala ("Maijala Direct")).
[48] Ex. 700 (Direct Testimony of Adam Savariego ("Savariego Direct")).
[49] Ex. 401 (Direct Testimony of Lucas Franco, PhD).
[50] Ex. 238 (Notice of EA Availability, Public Hearings, and Comment Period).
[51] Ex. 107 (Environmental Assessment ("EA")).
[52] Ex. 805 (Comments re Environmental Report (Big Bend)).
[53] Ex. 337 (Surrebuttal Testimony of Dylan Ikkala ("Ikkala Surrebuttal")).

53. The public hearings were held on February 1 and 2, 2022.[54]

54. At the evidentiary hearing, the ALJ received the parties' exhibits into the record.[55] The parties waived cross examination of witnesses.[56]

55. At the public hearings, Commission staff, DOC-EERA, and Applicants provided an overview of the Solar and Wind Projects, including the regulatory procedure to date, and the remaining process. Members of the public were provided an opportunity to comment.

56. The Commission accepted written comments on the applications through 4:30 p.m. on February 22, 2022.[57]

57. On February 22, 2022 DOC-EERA filed written comments recommending that the Commission approve the revised draft site permit, discussing consultation with the Minnesota State Historic Preservation Office ("SHPO"), and noting errata.[58]

58. On March 18, 2022, Applicants filed their Proposed Findings of Fact and Conclusions of Law, as well as Applicants' Post-Hearing Brief. In Applicants' Post-Hearing Brief, Big Bend Wind provided an update concerning its interconnection request at the Crandall Switching Station. Specifically, Big Bend Wind explained that its prior interconnection request at the Crandall Switching Station had been withdrawn from the MISO queue because of significant upgrade costs and that, after undertaking further analysis, Big Bend Wind intends to re-submit an interconnection request for the Projects, again with a POI at the Crandall Switching Station. Applicants anticipate that the Projects would be in-service as early as 2024.[59]

## III. WIND PROJECT

### A. Wind Project description

59. Big Bend Wind proposes: (a) a LWECS, as defined in the Wind Siting Act, Minn. Stat. ch. 216F, with a project boundary of 43,523 acres in Cottonwood and Watonwan Counties, Minnesota ("Wind Project Area"); and (b) the proposed Transmission Line, which is a 161 kV high-voltage transmission line, as defined by Minn. Stat. § 216E.01, subd. 4, approximately 18 miles in length in Cottonwood, Watonwan Counties, and Martin Counties, Minnesota.[60]

60. The Wind Project would be an up to a 300 MW nameplate capacity wind farm and associated facilities within Cottonwood and Watonwan Counties, Minnesota, consisting of up to 52 wind turbines. [61]

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[54] Ex. 216 at (Notice of Environmental Assessment Availability, Public Hearings and Comment Period).
[55] *See* Evidentiary Hearing Transcript (February 1, 2022, 1:00pm).]
[56] *See* Evidentiary Hearing Transcript (February 1, 2022, 1:00pm).
[57] Ex. 216 at 3 (Notice of Environmental Assessment Availability, Public Hearings and Comment Period).
[58] DOC-EERA Public Hearing Comments (February 22, 2022) (eDocket No. 20222-183059-01).
[59] Applicants' Post-Hearing Brief (Mar. 18, 2022).
[60] Ex. 332 at 12 (BB-Amended Site Application).
[61] Ex. 332 at 13 (BB-Amended Site Application).

61. Big Bend Wind proposes to use one of three turbine model types: the Nordex N-163 5.9 MW turbine, the Vestas V162 6.0 MW turbine, and the GE-158 5.8 MW turbine.[62]

62. The three turbines under consideration consist of a nacelle, blades, tower, and foundation. The nacelle houses the generator, gearboxes, controller, generator cabling, hoist, generator cooling, and other associated equipment. An anemometer and weathervane located on the top of the turbine nacelle continuously monitor wind speed and direction. The hub supports the blades and connecting rotor, yaw motors, mechanical braking system and a power supply for emergency braking. The hub also contains an emergency power supply to allow the mechanical brakes to work if electric power from the grid is lost. Each turbine has three blades composed of carbon fiber, fiberglass, and internal supports to provide a lightweight but strong component. The tip of each blade is equipped with a lightning receptor to safely conduct lighting strikes to ground.[63] The two turbine models under consideration have active yaw and pitch regulation and asynchronous generations and are capable of operating with adjusted cut-in speed and full blade feathering. [64]

63. The foundation and the tower support the hub, blades, and nacelle. Tower foundations are anticipated to be a spread-foundation design. The tubular towers will be painted with a non-glare white or off-white. The tower houses electrical, control, and communication cables and a control system located at the base of the tower.[65]

64. All proposed turbine models have Supervisory Control and Data Acquisition ("SCADA") communication technology to control and monitor the Project. [66] The SCADA communications systems permit automatic, independent operation and remote supervision, allowing the simultaneous control of the wind turbines. [67]

65. In addition to the wind turbines and associated equipment, the Wind Project will include the following permanent and temporary associated facilities:

(a) Gravel access road and improvements to existing roads;

(b) Underground and aboveground electric collection and communication lines;

(c) Operation and maintenance ("O&M") facility;

(d) One substation;

(e) One permanent meteorological tower;

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[62] Ex. 332 at 14-16, 19 (BB-Amended Site Application).
[63] Ex. 332 at 18-19 (BB-Amended Site Application).
[64] Ex. 332 at 20-21 (BB-Amended Site Application).
[65] Ex. 332 at 18 (BB-Amended Site Application).
[66] Ex. 332 at 20 (BB-Amended Site Application).
[67] Ex. 332 at 20 (BB-Amended Site Application).

(f) Sonic Detection and Ranging ("SoDAR") or Light Detection and Ranging ("LiDAR") unit;

(g) One 15.3 acre laydown area;

(h) Aboveground electrical feeder lines;

(i) Up to four Aircraft Detection Lighting Systems ("ADLS") radars; and

(j) One temporary batch plant area, if needed, for construction of the Project.[68]

66. The Wind Project will include a wind buffer of five rotor diameters ("RD") in the prevailing wind direction and three RDs in the non-prevailing wind directions; at a noise setback meeting the MPCA's Noise Standards found in Minn. R. ch. 7030 (2019 Noise Standards); and a minimum setback of 1,000 feet from residences and 1.1 times total height from public roads and trails.[69]

67. The Wind Project includes one collector substation that will require approximately five acres of land within the Wind Project Area.[70]

68. For the Transmission Line, Big Bend Wind seeks to construct approximately 18 miles of a new single circuit 161 kV transmission line needed to interconnect the proposed Wind Project to a step-up substation before connection to the existing Xcel Energy Crandall 345 kV switching station in Martin County, Minnesota. [71]

69. The Transmission Line will originate at the proposed collector substation.[72]

**B. <u>Site location and characteristics</u>**

70. The Wind Project will be located in Delton, Selma, and Midway Townships in Cottonwood and Butterfield Township Watonwan Counites, Minnesota.[73]

71. The Wind Project will be located in a rural area. The population densities within five miles of the Wind Project Area are between 18.3 and 42.4 people per square mile.[74]

72. The Wind Project Area consists of approximately 92.5 percent cropland, 3.6 percent developed, 1.0 percent hay/pasture, 0.9 percent emergent herbaceous wetlands, 0.8 percent

[68] Ex. 332 at 13 (BB-Amended Site Application).
[69] Ex. 332 at 15 (BB-Amended Site Application).
[70] Ex. 332 at 130 (BB-Amended Site Application).
[71] Ex. 332 at 21 (BB-Amended Site Application).
[72] Ex. 332 at 21 (BB-Amended Site Application).
[73] Ex. 332 at 1 (BB-Amended Site Application).
[74] Ex. 332 at 29-30 (BB-Amended Site Application).

open water, 0.6 percent herbaceous, 0.5 percent deciduous/mixed forest, 0.1 percent barren land, and less than 0.1 percent woody wetlands and shrub/scrub.[75]

### C. Wind resource considerations

73. Big Bend Wind has conducted detailed site wind characterization studies and analysis and had 10 temporary meteorological towers monitoring weather data in the Wind Project Area.

74. The prevailing wind direction in the Wind Project Area is from the northwest. [76]

75. Big Bend Wind estimates the Wind Project will have a net capacity factor of between 41.5 to 43.5 percent and an average annual output of between 1129 to 1225 gigawatt hours. [77] Annual energy production output will depend on final design, site specific features, and annual variability in the wind resource.

### D. Wind rights and easement/lease agreements

76. Big Bend Wind worked with landowners to secure sufficient land lease and wind easements/setback easement agreements to build the Wind Project. Land rights secured from each landowner vary, and may include, but are not limited to the rights to construct wind turbines and Wind Project facilities, including access roads, rights to wind and buffer easements, authorization to construct transmission feeder lines in public right-of-way, and rights to additional land, if any, required to mitigate environmental impacts. Big Bend Wind currently leases 34,185 acres of the 43,523 acres within the Wind Project Area.[78] All Wind Project facilities will be sited on leased land and the current leasehold is sufficient to accommodate the proposed facilities, required buffers, and turbine placement flexibility needed to avoid natural resources, homes, and other sensitive features. [79]

77. Except as specifically noted herein, the Wind Project's layout follows the wind energy conversion facility siting criteria outline in the Commission's Order Establishing General Wind Permit Standards, Docket No. E,G999/M-07-1102 (Jan. 11, 2008), applicable local government ordinances, and Big Bend Wind's best practices. In instances where the setbacks differ for the same feature, the most stringent setback distance is used.[80]

78. Big Bend Wind is requesting that the Commission waive the wind access buffer setback for turbine locations A01 and A02.[81] The request arises out of the Settlement Agreement among Applicants, MNHS, Upper Sioux, and Lower Sioux. Big Bend Wind explained that a small portion of the five rotor diameter wind access buffer overlaps these parcels and, in light of the unique circumstances of the Settlement Agreement, the important balancing of interests at stake,

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[75] Ex. 332 at 98-99 (BB-Amended Site Application).
[76] Ex. 332 at 124 (BB-Amended Site Application).
[77] Ex. 332 at 135 (BB-Amended Site Application).
[78] Ex. 332 at 12 (BB-Amended Site Application).
[79] Ex. 332 at 17 (BB-Amended Site Application).
[80] Ex. 332 at 14 (BB-Amended Site Application).
[81] Ex. 337 at 2-3 (Ikkala Surrebuttal).

and the fact that the alternative turbine locations result in only small impacts to the 3 by 5 RD setback, a waiver of the wind access buffer is warranted in this case.[82] Testimony submitted by Intervenors supported this request. A witness for Upper Sioux explained:

> It is a reasonable compromise that balances competing considerations. Specifically, in the Settlement Agreement, Big Bend agreed to remove all turbine locations within seven miles of the Jeffers Site. To replace those lost turbine locations, Big Bend identified alternative locations, but several of these locations will require the Commission to modify its wind access buffer setback. As I understand it, the setback is not a statute or rule, but instead a policy implemented by the Commission. Here, it is appropriate to modify that policy because of competing considerations—notably, Upper Sioux's (and the other intervening parties') interest in minimizing impacts to the viewshed at Jeffers Site. In our view, recognizing Tribal interests and minimizing those viewshed impacts outweighs the strict application of the wind access buffer setback.[83]

## IV. TRANSMISSION LINE

79. Big Bend Wind's proposed Transmission Line would be located in Cottonwood, Martin, and Watonwan Counties, Minnesota ("Proposed Route").[84] The Proposed Route would begin at the Wind Project and Solar Project substations and extend generally to the southeast to the point of interconnection ("POI") at the Crandall Switching Station. The EA also studied two alternative routes that were presented in the Route Permit Application: (1) the Crandall Alternate Route; and (2) the Peaking Plant Alternate Route.[85]

80. Big Bend Wind determined that 161 kV was the appropriate voltage based on the size and location of the Wind Project. [86]

### A. Routes evaluated

#### 1. Proposed Route

81. The Proposed Route begins at the collocated Big Bend Wind Project and Red Rock Solar Project Substations at the northwest corner of the intersection of 590th Avenue and 360th Street in Cottonwood County. The Proposed Route travels south on the west side of 590th Avenue for 1.2 miles before turning east on the north side of 370th Street for one mile. The Proposed Route turns south along the west side of 600th Avenue for two miles before turning east along the north side of 390th Street for one mile and turning south again along 610th Avenue. The Proposed Route follows the west side of 610th Avenue for a half mile before crossing to the east side of 610th

[82] Ex. 334 at 7 (Ikkala Direct).
[83] Ex. 700 at 2 (Savariego Direct).
[84] Ex. 316 at 1 (Route Permit Application).
[85] Ex. 107 at 255 (EA).
[86] Ex. 107 at 13 (EA).

Avenue for an additional half mile before crossing back to the west side of 610th Avenue and continuing for an additional 0.9 mile. The Proposed Route crosses a parcel line to the east and continues south for 0.15 mile before turning southeast to parallel the Watonwan River for 0.55 mile and then travels east along the parcel line for 0.65 mile to County State Aid Highway ("CSAH") 2 (620th Avenue). The Proposed Route then turns south along the west side of CSAH 2 for half mile before turning east along the south side of CSAH 22 (420th Street) for one mile and then turning south again on the west side of County Road 128. The Proposed Route travels south along County Road 128 for three-quarters of a mile before crossing to the east side of the road and paralleling the north side of the Watonwan River through agricultural land for 0.4-mile to the north side of County Road 134 (430th Street). This 0.4-mile segment is proposed to be buried to avoid impacts to a landing strip (see Section 5.1.12). The Proposed Route continues east on the north side of County Road 134 for three-quarters of a mile before crossing County Road 134 and continuing east for an additional 0.35 mile. The Proposed Route then travels southeast through agricultural land for approximately 0.5 mile before turning east for 0.1 mile. The Proposed Route then turns south along a parcel line through agricultural field for 0.5 mile to 250th Street before turning east along the south side of the road for 0.6 mile to the west side of CSAH 9. The Proposed Route follows CSAH 9 south along the west side for 1.5 miles before turning west for 1.8 miles along agricultural field edges. The Proposed Route turns south for 0.5 mile to the Step-up Substation along 230th Street.[87]

82. The Proposed Route represents Big Bend Wind's effort to identify a route that follows existing roads and parcel lines, avoids residences, minimizes impacts on the environment and affected landowners, and for which Big Bend Wind has voluntary easements.[88]

### 2. Other routes evaluated

83. Big Bend Wind evaluated routes other than the Proposed Route. Specifically, many parcels in northwestern Martin County are under lease with different developers as part of the Odell and Trimont Wind Farms. Additionally, this area already includes wind turbines, gen-tie transmission lines, and an existing 345 kV transmission line. From the intersection of CSAH 2 and CSAH 22 along the Proposed Route, Big Bend has signed voluntary transmission easements for a route south along CSAH 2 for two miles to the Martin County border. At the Martin County border, easement constraints have challenged route development. The applicant nonetheless has identified two alternate routes through this area. The Alternate Crandall Route also ends at the Crandall Switching Station POI. The Alternate Peaking Plant Route ends at the Lakefield Junction POI. [89]

84. With respect to the Alternate Peaking Plant Route, Big Bend Wind explained that it has not yet been able to communicate with landowners along that route because landowners in that area are already under agreement with a competitor, and that company has not provided its consent for Big Bend Wind to communicate with those landowners.[90]

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[87] Ex. 107 at 255-56 (EA).
[88] Ex. 107 at 316 (EA).
[89] Ex. 107 at 258 (EA).
[90] Feb. 1, 2022, 2:00 p.m. Pub. Hrg. Tr. at 43-44.

85. Big Bend Wind also proposed three alternate route segments as part of the Proposed Route for consideration, which are identified in the EA as Alternate Red Route Segment, Alternate Yellow Route Segment, and Alternate Purple Route Segment. An additional route segment was added during the scoping process to provide an alternative to a portion of the Peaking Plant Alternate Route, referred to as the Alternate Blue Route Segment in the EA.[91]

86. *Alternate Red Route Segment*. The Alternate Red Segment begins at the intersection of 610th Avenue and CSAH 10 on the border of Cottonwood and Watonwan Counties. The Alternate Red Segment follows the north side of CSAH 10 for 0.25 mile before turning south through agricultural field edge for half mile. The Alternate Red Segment then turns east for 0.7-mile to the west side of CSAH 2 and travels south paralleling CSAH 2 for one mile before rejoining the Proposed Route. The Alternate Red Segment is approximately 2.5 miles in length, approximately 0.15 mile longer than the comparative segment on the Proposed Route.[92]

87. *Alternate Yellow Route Segment*. The Alternate Yellow Segment begins at the intersection of 420th Street and a township minimum maintenance road that runs north to south along the half-section line between CSAH 2 and County Road 128. The Alternate Yellow Segment follows the township road south for 0.35 mile before turning east and following a parcel line/field edge 0.5 mile east to Country Road 128 and the Proposed Route. The Alternate Yellow Segment is the same length as its comparative segment on the Proposed Route. The landowner that resides on the west side of County Road 128 along the Proposed Route has indicated a concern about aesthetics. The Alternate Yellow Segment would cross the property on the west side of the residence, which has existing vegetative screening (i.e., trees).[93]

88. *Alternate Purple Route Segment*. The Alternate Purple Segment begins at the intersection of 420th Street and County Road 128 and follows the south side of 420th east for mile before turning south along a township minimum maintenance road for one mile and rejoining the Proposed Route. The Alternate Purple Segment addresses the same aesthetic concerns as the Yellow Segment. Additionally, the Alternate Purple Segment would eliminate the need to bury approximately 0.4 mile of the Proposed Route due to an existing landing strip located on the east side of County Road 128, north of the Watonwan River and south of the farmstead driveway.[94]

89. *Alternate Blue Route Segment*. Alternate Blue Route Segment leaves the Peaking Plant Alternate Route along 20th Avenue along the east side of Section 18, extends south to the intersection of 20th Avenue and 220th Street, and then extends west along 220th Street to the proposed step-up substation adjacent to the Lakefield Junction Station. The Peaking Plant Alternate Route and Peaking Plant Alternate Route – Alternate Route Segment are essentially the same length, but the Peaking Plant Alternate Route would extend through, and place pole structures, in approximately a half mile of agricultural crop field where no fence lines or other ROWs currently exist.[95]

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[91] Ex. 107 at 260 (EA).
[92] Ex. 107 at 260 (EA).
[93] Ex. 107 at 262 (EA).
[94] Ex. 107 at 264 (EA).
[95] Ex. 107 at 266 (EA).

### B. Transmission Line structure types and spans

90. Big Bend Wind proposes either wood or steel monopole structures that generally range in height from 70 feet to 120 feet tall. Big Bend Wind will use four structures that range from 170 feet to 190 feet to facilitate the two crossings above the existing 345 kV transmission line.

91. Big Bend Wind will use three types of monopole structures: tangent, angle, and dead end. These structures are typically used in the following situations: (a) tangent - for in-line (straight) segments; (b) angle - to be used in locations where the alignment turns; and (c) dead end - to be used within the Wind Project Substation and Step-up Substation.[96]

92. Transmission line structures are generally designed for installation at existing grades. Sites with more than 10 percent slope will have working areas graded level or fill brought in for working pads.[97]

93. Tangent and angle structures may be placed on poured concrete foundations or direct embedded. Direct embedding involves digging a hole for each pole, filling it partially with crushed rock, and then setting the pole on top of the rock base. The area around the pole is then backfilled with crushed rock and/or soil once the pole is set. Any excess soil from the excavation will be spread and leveled near the structure or removed from the site, if requested by the property owner or regulatory agency. Big Bend Wind anticipates the majority of structures to be direct embed.[98]

### C. Transmission Line conductors

94. The three, single-conductor phase wires will be 795 Aluminum Conductor Steel-Reinforced or a conduct of similar capacity. Optical Ground Wire will be installed above the conductors for lightning protection and communications.[99]

### D. Transmission Line route widths

95. Big Bend Wind proposes a route width of 500 feet on each side of the proposed Transmission Line route centerline (1,000 feet total width) for a majority of the route. [100]

96. Big Bend requests a route width of up to one mile in northwestern Martin County to provide routing flexibility on parcels that are currently under easement with other entities and for which Big Bend Wind has been unable to initiate the easement process.[101]

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[96] Ex. 107 at 6 (EA).
[97] Ex. 107 at 18 (EA).
[98] Ex. 107 at 19 (EA).
[99] Ex. 337 at Sch. 5, § 2.4 (Ikkala Surrebuttal).
[100] Ex. 107 at 4 (EA-Appendix A).
[101] Ex. 107 at 4 (EA-Appendix A).

### E. Transmission Line right-of-way

97. A 100-foot right-of-way is necessary for the Transmission Line, but a 150-foot-wide right-of-way will be utilized where the proposed Transmission Line parallels existing roads. The right-of-way paralleling existing roads will be 50 feet wide on the roadside of the line, and 100 feet wide on the non-road side of the line. The Transmission Line pole structures will be located on private property adjacent to the road right-of-way, and the poles will be within approximately 15 feet of the road right-of-way, allowing for the sharing of road and other transmission line rights-of-way. Three locations along the Transmission Line right-of-way, not parallel to existing roads, will maintain a 150 foot width versus the general 100 foot width, which is being maintained to better facilitate current farming practices.[102]

### F. Step-up Substation

98. Big Bend Wind will build a Step-up Substation on a five-acre parcel near the intersection of 230th Street and 30th Avenue in Martin County that Big Bend Wind has an option to purchase. The Step-up Substation location is on the opposite side of 230th Street from the Crandall Switching Station. A less-than 1,500 foot 345 kV segment will connect the Step-up Substation to the existing transmission grid via the Crandall Switching Station. The Step-up Substation components will be mounted on concrete pads. For electrical and fire safety, the Step-up Substation will be graveled to maintain the area free of vegetation. The area will be fenced to prevent unauthorized entry by individuals and wildlife.[103]

### G. Transmission Line costs

99. The total estimated cost of the Transmission Line along the Proposed Route is approximately $12-14 million. Final costs are dependent on a variety of factors, including the approved route, timing of construction, cost of materials, and labor.[104]

## V. SOLAR PROJECT

### A. Solar Project description

100. Red Rock Solar is proposing to construct an up to 60 MW AC solar photovoltaic ("PV") facility located in Midway Township, Cottonwood County.[105]

101. Together, the Wind Project and Solar Project represent Minnesota's first potential wind/solar hybrid renewable-energy project.[106]

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[102] Ex. 107 at 268 (EA).
[103] Ex. 107 at 269 (EA).
[104] Ex. 107 at 7 (EA).
[105] Ex. 317 at 18 (RR-CN Application).
[106] Ex. 318 at 6 (RR-Site Application).

102. Power generated by the Solar Project will reach the electric grid by traveling through approximately three 34.5 kV feeder lines to the Solar Project Substation. The Solar Project will then interconnect via the Transmission Line to the grid.[107]

103. The Solar Project will include the following permanent and temporary associated facilities:

(a) PV panels affixed to linear ground-mounted single-axis tracking systems;

(b) inverters and transformers housed in electrical cabinets;

(c) electrical collection system;

(d) a solar project substation;

(e) inverters and transformers housed together on a skid;

(f) SCADA systems;

(g) a step-up substation with metering and switching equipment; and

(h) an O&M facility to be shared with the Big Bend Wind Project, if needed.[108]

104. The Solar Project will convert sunlight into direct current electrical energy within PV modules (also referred to as panels). The tempered-glass PV panels will be approximately three feet long by seven feet wide, and between one and two inches thick. The panels will be installed on a tracking-rack system that utilizes galvanized steel and aluminum for the foundations and frame with a motor that allows the tracking-rack system to rotate from east to west throughout the day. Each tracking rack will contain multiple panels. On the tracking-rack system, panels, based on manufacturer, topography, and vegetation constraints could be up to 20 feet in height from the ground to the top of the panels when at a 45-degree angle. Depending on the technology selected, the PV panels may have an aluminum frame, silicon, and weatherized plastic backing or a side-mount or under-mount aluminum frame, heat strengthened front glass, and laminate material encapsulation for weather protection.[109]

105. A linear axis tracking-rack system allows the PV panels to track the solar resource throughout the day. The panels and tracking-rack system are generally aligned in rows north and south with the PV panels facing east toward the rising sun in the morning, parallel to the ground during mid-day, and then west toward the setting sun in the afternoon. The tracking-rack system allows the Project to optimize the angle of the panels in relation to the sun throughout the day, thereby maximizing production of electricity and the capacity value of the Solar Project.[110]

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[107] Ex. 317 at 20 (RR-CN Application).
[108] Ex. 107 at 9 (EA).
[109] Ex. 317 at 18 (RR-CN Application).
[110] Ex. 317 at 19 (RR-CN Application).

106. The tracking-rack system is mounted on top of steel piers that are typically driven into the ground, without a need for excavation or concrete to install the piers.[111]

107. Direct current ("DC") electrical wiring will connect the panels to inverters, which will convert the power from DC to AC. The AC will be stepped up through a transformer from the inverter output voltage to 34.5 kV and brought via collection cables to the Solar Project Substation. The DC cabling will be mounted underneath the panels in a hanging-harness system. Use of this system minimizes soil disturbance and trenching along every row of panels. The AC-collection system between the inverters and Solar Project Substation will be located in a below-ground approximately four-feet-deep and one- or two-feet-wide trench. Below-ground AC-collection systems from the inverter skids to the Solar Project Substation will be installed in trenches or plowed into place at a depth of at least four feet below grade. During all trench excavations the topsoil and subsoil will be removed and stockpiled separately in accordance with the Red Rock Solar's Agricultural Impact Mitigation Plan ("AIMP"). Once the cables are laid in the trench, the area will be backfilled with subsoil followed by topsoil.[112]

108. The Solar Project will use a SCADA system, which allows remote control and monitoring.[113]

109. The Solar Project Substation will be a 34.5/161 kV step-up substation with metering and switching equipment. The Substation's area will be approximately 300 feet by 200 feet once construction is complete. The Wind Project and Solar Project have separate but collocated project substations.[114]

110. If needed, the O&M facility may be a shared facility with the Wind Project. As such, this facility is permitted with the Wind Project.[115]

### B. Site location and characteristics

111. The Solar Project is proposed to be located in Sections 1, 2, 11, 12, 14, 22, and 23, Township 106 North, Range 34 West, Cottonwood County, Minnesota, approximately four miles north of the City of Mountain Lake. Red Rock Solar selected this site based on significant landowner interest, optimal solar resource, and minimal impact on environmental resources.[116]

112. Red Rock Solar has obtained leases for 846.2 acres of privately owned land. Five acres of the Solar Project boundary has a purchase option for the Solar Project Substation. Based on preliminary design, Solar Project facilities will cover approximately 483 acres of the Solar Project boundary (the "Solar Project Footprint").[117]

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[111] Ex. 317 at 19 (RR-CN Application).
[112] Ex. 317 at 19 (RR CN Application).
[113] Ex. 317 at 19 (RR-CN Application).
[114] Ex. 317 at 19-20 (RR-CN Application).
[115] Ex. 317 at 20 (RR-CN Application).
[116] Ex. 318 at 6 (RR-Site Application).
[117] Ex. 318 at 6 (RR-Site Application).

113. Red Rock Solar has entered into lease agreements with landowners for all of the parcels on which the Solar Project would be constructed.[118]

### C. Solar resource considerations

114. Southwestern Minnesota, including Cottonwood County, contains the best solar resource in the state. This portion of the state is also well known for the excellent wind resource, as characterized by a rich history of wind development.[119]

115. Red Rock Solar explored southwest Minnesota to identify a suitable area for a solar project based on several factors including the high solar resource in this portion of the state, nearby access to the 345 kV transmission grid, and limited environmental constraints, as compared to other regions. Additionally, the Red Rock Solar Project will be developed with the Wind Project, together creating Minnesota's first wind/solar hybrid renewable-energy project. Therefore, wind resource and land availability to support the Wind Project also played a role in siting the Solar Project.[120]

## VI. PROJECTS' SCHEDULE

116. The Projects' commercial operation date is dependent on the completion of the interconnection process, permitting, and any other development actives. Currently, the Applicants expect the Projects to be in-service as early as 2024.[121]

## VII. SUMMARY OF PUBLIC COMMENTS

117. At the public hearing sessions, members of the public offered comments/questions. The comments and questions included a broad range of topics, including: agriculture; noise; property values; wildlife and their habitats; decommissioning; routing; effects of construction on roadways; intermittency of renewable generation; and economic development.

118. Wayne Hesse of Tyler, Minnesota, submitted a written comment in favor of the Projects, stating that they were environmentally sound, would bring tax revenue to counties, nonfarm revenue to landowners, and encourage "high paid personel [sic]" to settle in the area.[122]

119. Cindy Johnson of Mountain Lake, Minnesota, submitted a written comment in favor of the Projects, noting that she believes that energy demand will increase and that the increased demand should be met with wind and solar generation.[123]

120. Richard Flohrs of Ormsby, Minnesota, submitted a written comment opposing the Projects, objecting to the proposed Transmission Line route because of its proximity to St. Olaf

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[118] Ex. 318 at 7 (RR-Site Application).
[119] Ex. 318 at 10 (RR-Site Application).
[120] Ex. 318 at 8 (RR-Site Application).
[121] Applicants' Post-Hearing Brief (Mar. 18, 2022).
[122] Public Comment – W Hesse (February 2, 2022) (eDocket No. 20222-182475-02).
[123] Public Comment - Cindy Johnson (February 9, 2022) (eDocket No. 20222-182626-01).

Church and cemetery, its intersection with other Transmission Lines, and it crosses tillable agricultural land.[124]

121. Local 49 submitted written comments reaffirming its support for the Projects, stating that they "will further Minnesota's goals of increasing renewable energy output while minimizing the intermittency of that supply" and encouraging the use of local labor for construction of the Projects.[125]

122. The North Central States Regional Council of Carpenters submitted written comments in favor of the Projects, noting that the Projects will have "significant local benefits to construction workers and their families in Cottonwood County and the surrounding areas" and will "contribute towards Minnesota's goal of reducing greenhouse gas emissions within the energy sector, along with ensuring that Minnesota's energy system remains reliable and affordable for ratepayers."[126]

123. On February 22, 2022, the Commission filed written comments/questions that had been submitted by members of the public. The comments and questions included a broad range of topics, including: property values, routing, construction process, renewable-generation technology, and economic development.[127]

124. On February 22, 2022, the Applicants submitted comments in response to the public comments offered during the comment period through February 20, 2022.[128]

## BIG BEND WIND CERTIFICATE OF NEED

## I. CERTIFICATE OF NEED CRITERIA

125. A "large energy facility" is defined by Minn. Stat. § 216B.2421, subd. 2(1) as "any electric power generating plant or combination of plants at a single site with a combined capacity of 50,000 kilowatts or more and transmission lines directly associated with the plant that are necessary to interconnect the plant to the transmission system." No large energy facility may be cited or constructed in Minnesota without a certificate of need. Minn. Stat. § 216B.243. Minn. Stat. § 216B.243 and Minnesota R. Ch. 7849 set forth the criteria for issuance of a certificate of need.

126. The Commission considers whether the applicant has showed that "demand for electricity cannot be met more cost effectively through energy conservation and load-management measures" or has "justified its need." Minn. Stat. § 216B.243, subd. 3, in relevant part, provides for consideration of the following factors in assessing need:

> (1) the accuracy of the long-range energy demand forecasts on which the necessity for the facility is based;

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[124] Public Comment – Michael Flohrs_1 (February 9, 2022) (eDocket No. 20222-182622-05).
[125] Comments (February 11, 2022) (eDocket No. 20222-182731-01).
[126] Comments (February 22, 2022) (eDocket No. 20222-183025-01).
[127] Public Comments – Batch 1 (February 23, 2022) (eDocket No. 20222-183074-01).
[128] Comments—Post-Hearing Comments (eDocket No. 20222-183052-01).

(2) the effect of existing or possible energy conservation programs under sections 216C.05 to 216C.30 and this section or other federal or state legislation on long-term energy demand;

(3) the relationship of the proposed facility to overall state energy needs, as described in the most recent state energy policy and conservation report prepared under section 216C.18, or, in the case of a high-voltage Transmission Line, the relationship of the proposed line to regional energy needs, as presented in the transmission plan submitted under section 216B.2425;

(4) promotional activities that may have given rise to the demand for this facility;

(5) benefits of this facility, including its uses to protect or enhance environmental quality, and to increase reliability of energy supply in Minnesota and the region;

(6) possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation;

(7) the policies, rules, and regulations of other state and federal agencies and local governments;

(8) any feasible combination of energy conservation improvements, required under section 216B.241, that can (i) replace part or all of the energy to be provided by the proposed facility, and (ii) compete with it economically;

(9) with respect to a high-voltage Transmission Line, the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota;

(10) whether the applicant or applicants are in compliance with applicable provisions of sections 216B.1691 and 216B.2425, subdivision 7, and have filed or will file by a date certain an application for certificate of need under this section or for certification as a priority electric transmission project under section 216B.2425 for any transmission facilities or upgrades identified under section 216B.2425, subdivision 7;

(11) ***

(12) ***

127. Minnesota rules further require an application to explain the relationship of the proposed facility to each of three "socioeconomic considerations:" socially beneficial uses of the output of the facility, including its uses to protect or enhance environmental quality; promotional activities that may have given rise to the demand for the facility; and the effects of the facility in inducing future development.[129]

128. A certificate of need must be granted if the Commission determines that:

> A. the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states, considering:
>
> > (1) the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility;
> >
> > (2) the effects of the applicant's existing or expected conservation programs and state and federal conservation programs;
> >
> > (3) the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974;
> >
> > (4) the ability of current facilities and planned facilities not requiring certificates of need to meet the future demand; and
> >
> > (5) the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources;
>
> B. a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record, considering:
>
> > (1) the appropriateness of the size, the type, and the timing of the proposed facility compared to those of reasonable alternatives;
> >
> > (2) the cost of the proposed facility and the cost of energy to be supplied by the proposed facility compared to

[129] Minn. R. 7849.0240, subp. 2.

the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives;

(3) the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives; and

(4) the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives;

C. by a preponderance of the evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health, considering:

(1) the relationship of the proposed facility, or a suitable modification thereof, to overall state energy needs;

(2) the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility;

(3) the effects of the proposed facility, or a suitable modification thereof, in inducing future development; and

(4) the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality; and

D. the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments.[130]

129. The factors listed under each of the criteria set forth in Minn. R. 7849.0120 must be evaluated to the extent that the Commission considers them applicable and pertinent to a

[130] Minn. R. 7849.0120.

proposed facility.[131] The Commission must also consider whether the applicant has complied with all applicable procedural requirements.[132]

## II. APPLICATION OF CERTIFICATE OF NEED CRITERIA TO THE WIND PROJECT

### A. Probable result of denial (Minn. R. 7849.0120(A))

130. The Commission must examine whether "the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states."[133] To do so it considers multiple factors, including the forecasted need, available energy resources, and the advantages and disadvantages of utilizing alternative resources.[134]

131. The Wind Project will provide up to 300 MW of nameplate capacity to meet the electricity needs of Minnesota and the region. Denying the CN Application would result in the loss of a significant amount of electricity needed to satisfy state and regional demand, and would deny utilities and other customers the opportunity to purchase clean, low-cost energy that will count toward satisfying renewable energy standards and goals. There is a significant body of state legislative policy requiring utilities to obtain a certain percentage of their total energy resources from renewable energy, which supports the need for reliable, efficient renewable resources, like the wind energy produced by the Project. Likewise, the generation fleet in the MISO region is in transition, and MISO is engaged in active analysis and planning to enable the transition to lower carbon resources. The Project is only one part of the transition to less carbon intensive energy, and this shift to new generation technology will continue, even absent the Project. The Project layout has been designed to efficiently utilize this wind resource while minimizing potential human and environmental impacts.[135]

#### 1. Accuracy of Applicant's forecast of demand (Minn. R. 7849.0120(A)(1))

132. Minnesota Rule 7849.0120(A)(1) requires consideration of "the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility" when determining if denial of a Certificate of Need application would have an adverse effect.

133. Because Big Bend Wind is an independent power producer ("IPP") and does not have a utility "system" as defined in Minn. R. 7849.0010, subp. 29, Big Bend Wind requested an

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[131] Minn. R. 7849.0100.

[132] Minn. R. 7854.1000, subp. 3.

[133] Minn. R. 7849.0120(A).

[134] *In re Northern States Power Co*., No. A10-397, 2010 WL 4608342, at *4-5 (Minn. App. Nov. 15, 2020); *see also In re Great River Energy*, Nos. A09-1646, A09-1652, No. 2010 WL 2266138, at *3-4 (Jun. 8, 2010) (affirming grant of certificate, even when evidence showed general decreases in energy needs over the next decade because, among other things, "forecasts were only one of the factors the MPUC considered in its decision to grant the certificates of need.")

[135] Ex. 314 at 9 (BB-CN Application).

exemption from the forecast requirements in Minn. R. 7849.0270 and instead offered to submit "regional demand, consumption, and capacity data from credible sources to demonstrate the need for the independently produced renewable energy that will be generated by the Project."[136]

134. Consistent with DOC-DER's recommendation, the Commission granted this exemption and use of alternative data for demonstrating demand for the energy supplied by the Project.[137]

135. Analyzing this requirement, DOC-DER concluded that Big Bend Wind has met this factor. Relying on the Commission's September 23, 2021 Order Granting Certificate of Need and Issuing Site Permit and Route Permit ("Plum Creek Order") in Docket Nos. IP6697/CN-18-699, IP6697/WS18-700, and IP6697/TL-18-701, DOC-DER explained that the Commission previously found that there is no requirement that an applicant "present a PPA, IRP, biennial transmission project report, or any other specific data to demonstrate demand. The Legislature contemplated that independent power producers would construct such projects and did not require them to enter into power purchase agreements before obtaining a certificate of need. Rather, the Commission may evaluate demand using any data it finds persuasive, on a case-by-case basis."[138] In the Plum Creek Order, the Commission concluded that the applicant had "showed that utilities and commercial and industrial customers have reported strong clean energy goals above and beyond RES requirements, and additional renewable energy sources will be needed to meet that demand. Furthermore, utilities plan to retire coal-based generating units across the region in the coming years, and renewable energy sources are expected to fill some of the resulting capacity needs. These established goals and plans are strong evidence of a utility's intention for future energy development and can be used to demonstrate demand, especially when consistent with stated public policy goals."[139]

136. DOC-DER noted that, as in the Plum Creek Order, Big Bend Wind was granted an exemption to Minnesota Rules, part 7849.0270, which requires an applicant to provide information regarding its system peak demand and annual energy consumption. Instead, in the Wind CN Application, Big Bend Wind cited several sources that create a need for the Project. First, Big Bend Wind cited the integrated resource plans, renewable energy goals, and carbon dioxide emissions reduction goals of Xcel Energy, Otter Tail Power Company, Minnesota Power, and Southern Minnesota Municipal Power Agency. Second, Big Bend Wind cited to Minnesota Statutes §§ 216C.055 and 216H.026 as supporting the need for renewable energy. Third, Big Bend Wind cited corporations turning to renewable energy to save money and meet sustainability goals. Commercial and industrial customers either purchase renewable energy directly or obtain renewable benefits and cost savings through financially settled contracts [also known as virtual power purchase agreements]. Fourth, Big Bend Wind stated that retirements of coal-based generating units are expected across the MISO region, and renewable generation resources are expected to fill the resulting capacity needs. Therefore, DOC-DER concluded that Big Bend

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[136] Ex. 314 at 30-31 (BB-CN Application).

[137] Ex. 314 at 30 (BB-CN Application).

[138] *See In the Matter of Applications of Plum Creek Wind Farm, LLC for a Certificate of Need, Site Permit, and Route Permit for an up to 414 MW Large Wind Energy Conversion System and 345 kV Transmission Line in Cottonwood, Murray, and Redwood Counties,* Docket No. IP-6997/CN-18-699.

[139] Ex. 805 at 4-5 (DOC-DER Comments).

Wind's forecast of the need for the renewable energy expected to be produced by the Wind Project is reasonable.[140]

137. Given the undisputed accuracy of the demand data provided, Big Bend Wind has satisfied Minn. R. 7849.0120(A)(1).

### 2. Effects of the Applicant's existing or expected conservation programs (Minnesota Rule 7849.0120(A)(2))

138. Minnesota Rule 7849.0120(A)(2) requires consideration of "the effects of the applicant's existing or expected conservation programs and state and federal conservation programs."

139. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3, which states that "no proposed large energy facility shall be certified for construction unless the applicant can show that demand for electricity cannot be met more cost effectively through energy conservation and load management."

140. Big Bend Wind is not a utility and does not have a system or retail customers to implement conservation projects. In its Completeness Order, the Commission granted Big Bend Wind an exemption from these requirements. Thus, Big Bend Wind does not need to satisfy Minn. R. 7849.0120(A)(2), Minn. R. 7849.0290, and Minn. Stat. § 216B.243, subd. 3, 3(2), and 3(8).

141. Further, DOC-DER concluded that it is unlikely that the regional needs for wind energy at the scale indicated by Big Bend Wind could be met through conservation programs.[141]

### 3. Promotional practices (Minn. R. 7849.0120(A)(3))

142. Minnesota Rule 7849.0120(A)(3) requires consideration of the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand.

143. Big Bend Wind did not engage in promotional activities to give rise to the Project. In its Completeness Order, the Commission granted Big Bend Wind an exemption from these requirements. Thus, Big Bend Wind does not need to satisfy Minn. R. 7849.0120(A)(3), Minn. R. 7849.0290, and Minn. Stat. § 216B.243, subd. 3(4).[142]

### 4. Ability of facilities not requiring a CN to meet future demand (Minn. R. 7849.0120(A)(4))

144. Minnesota Rule 7849.0120(A)(4) requires consideration of "the ability of current facilities and planned facilities not requiring Certificates of Need to meet the future demand."

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[140] Ex. 805 at 4-5 (DOC-DER Comments).
[141] Ex. 805 at Attachment 1 (DOC-DER Comments).
[142] Ex. 805 at 15 (DOC-DER Comments).

145. This sub-factor relates, in part, to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission, in assessing need, to consider "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation."

146. The primary alternatives to the proposed facilities are purchases from renewable facilities outside Minnesota or construction of renewable Minnesota facilities that are small enough not to require certificates of need (less than 50 MW). As an IPP, Big Bend Wind is a producer or seller, rather than purchaser, of electric generation. A renewable facility of less than 50 MW would not contribute as substantial an amount of renewable energy towards the Minnesota RES and would not benefit as much from economies of scale as the proposed Project. In addition, as an IPP Big Bend Wind has the incentive to site generation in an economically efficient manner inside or outside Minnesota. Further, DOC-DER noted that any party wishing to do so may propose an alternative to the proposed Wind Project, but that one had not been proposed. Therefore, DOC-DER concluded that current and planned facilities not requiring a CN have not been demonstrated to be more reasonable than the proposed Project.[143] The record supports DOC-DER's conclusion.

#### 5. Effect of facility in making efficient use of resources (Minn. R. 7849.0120(A)(5))

147. Minnesota Rule 7849.0120(A)(5) requires consideration of "the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources."

148. The area in which the Wind Project is proposed has a strong wind resource. The Project layout has been designed to efficiently utilize this wind resource while minimizing potential human and environmental impacts. The Project is estimated to have a net capacity factor of approximately 41.5 to 43.5 percent based on its planned design.[144]

149. The Transmission Line also meets the criteria in this rule as, if the Transmission Line is not built, the generation from the Wind and Solar Projects has no outlet, and the Projects would not be constructed as proposed.

150. As discussed above, Big Bend Wind has satisfied each of the five sub-factors of Minn. R. 7849.0120(A).

### B. A more reasonable and prudent alternative to the facility has not been demonstrated (Minn. R. 7849.0120(B))

151. Minnesota Rule 7849.0120(B) requires that "a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record."

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[143] Ex. 805 at 10 (DOC-DER Comments).
[144] Ex. 332 at 135 (BB-Amended Site Application).

152. This factor relates to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission, in assessing need, to consider "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation."

153. Consistent with state requirements, Big Bend Wind analyzed multiple alternatives, as did the EA.

154. In the CN Application, Big Bend Wind analyzed, among others, upgrades to existing resources, new transmission, solar power, hydropower, biomass, and emerging technologies.[145] Big Bend Wind concluded that the Wind Project is the best alternative for meeting the renewable energy needs in Minnesota and the region in the near term. All other potential alternatives reviewed by Big Bend Wind fall short in one or more categories. Moreover, as an IPP, Big Bend Wind does not have the right to sell its electricity to anyone. Instead, Big Bend Wind will compete with alternative sources of energy to obtain a purchase agreement. In this manner, the Project will have at least one other comparison to alternatives prior to its construction and operation.[146] The CN Application also reflects an analysis of consideration of alternatives to the Transmission Line, and the record reflects no more reasonable and prudent alternative to the Transmission Line.[147]

155. The EA analyzed the Wind Project as proposed, a 335 MW solar facility, a 335 MW wind energy and solar facility hybrid located elsewhere in the state, a 335 MW solar facility with battery storage located elsewhere in the state, and the no-build alternative.[148] The EA did not conclude that any of these alternatives were more reasonable and prudent that the Projects as proposed.

#### 1. Size, type, and timing of proposed facility compared to reasonable alternatives (Minn. R. 7849.0120(B)(1))

156. Minnesota Rule 7849.0120(B)(1) requires consideration of "the appropriateness of the size, type, and timing of the proposed facilities relative to reasonable alternatives." Each of these three categories of alternatives is discussed below.

157. Size. Regarding size of the Wind Project (up to 300 MW), DOC-DER noted that, although collective information submitted by the utilities subject to the Minnesota RES indicates that there is sufficient energy in aggregate to meet the RES, this does not consider the potential need for additional renewable resources from individual utilities with insufficient energy to meet RES. Additional renewable energy may also be required as power purchase agreements involving renewable resources expire. Additionally, utilities in neighboring states may have a need for renewable energy. Furthermore, the Wind Project is sized to take advantage of economies of scale while also making efficient use of existing transmission capacity. Thus, DOC-DER concluded that

[145] Ex. 314 at 20-22 (BB-CN Application).
[146] Ex. 314 at 25 (BB-CN Application).
[147] Ex. 314 at 27-28 (BB-CN Application).
[148] Ex. 107 at 69-73 (EA).

the proposed Project's size is not excessive and therefore is reasonable, and the record supports this conclusion.[149]

158. Type. The Commission's Exemption Order granted Big Bend Wind an exemption to Minnesota Rules, part 7849.0250 (B) (1) – (3), and (5) and a partial exemption to data requirement (4), to the extent that the Rule requires discussion of non-renewable alternatives. The goal of the Wind Project is to provide renewable energy that will help utilities satisfy Minnesota's RES or SES, information regarding nonrenewable alternatives would be irrelevant. Thus, DOC-DER concluded that the Wind Project's type is reasonable.[150]

159. Timing. The timing of the Wind Project generally coincides or precedes the anticipated need for wind additions of multiple utilities in their IRPs as discussed in the forecast section above. As DOC-DER noted, current IRPs address through 2034. Thus, the Wind Project is timed so as to be available to meet the IRP needs. DOC-DER explained that: there will likely not be a one-to-one match between CN applications based on the regional need for renewable generation and Minnesota utilities' RES compliance level; additional renewable resources may be needed for certain Minnesota utilities to meet future RES requirements due to capacity expirations; and capacity additions are typically added in "chunks" due to the benefits of economies of scale. In summary, DOC-DER concluded that the timing of the Wind Project is reasonable, and the record supports this conclusion.[151]

160. As summarized above, the record reflects that Big Bend Wind has appropriately considered the size, type, and timing of the Wind Project compared to those of the reasonable alternatives and found that the Project is superior in all respects.

### 2. Cost of the facility and the energy to be supplied compared to reasonable alternatives (Minn. R. 7849.0120(B)(2))

161. Minnesota Rule 7849.0120(B)(2) requires consideration of "the cost of the proposed facility and the cost of the energy to be supplied by the proposed facility as compared to the costs of the reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives."

162. In the Exemption Order the Commission granted Big Bend Wind an exemption from providing a description of alternatives that could provide electric power at the asserted level of need, and only details regarding renewable alternatives were required. Big Bend Wind intends to sell the power produced from the proposed Project to a potential buyer, one possibly being an investor-owned utility within Minnesota. In the event a PPA is reached with a Minnesota utility, the Commission will have the opportunity to review the terms and costs associated with the PPA in its own proceeding. The Wind CN Application also included a discussion of alternatives to the proposed Project, including, but not limited to hydropower, biomass, solar, and emerging technologies. Big Bend Wind concluded that wind energy resources are cost effective when compared with other renewable resources. DOC-DER concluded that the data provided by Big

[149] Ex. 805 at 7 (DOC-DER Comments).
[150] Ex. 805 at 7-8 (DOC-DER Comments).
[151] Ex. 805 at 6, 8 (DOC-DER Comments).

Bend Wind is reasonable and demonstrates wind energy's cost advantages and disadvantages relative to other new, renewable sources, and the record supports this conclusion.[152]

163. Further, because the Wind Project would not be subject to fluctuations in fuel costs, the Wind Project could help stabilize or lower electricity prices in the state and region. DOC-DER concluded that the cost of the Wind Project and the cost of energy to be supplied by the proposed Project is reasonable compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives, and the record supports this conclusion.[153]

164. Thus, Big Bend Wind has satisfied Minn. R. 7849.0120(B)(2).

**3. Effects of facility on natural and socioeconomic environments compared to reasonable alternatives (Minn. R. 7849.0120(B)(3))**

165. Minnesota Rule 7849.0120(B)(3) requires consideration of "the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives."

166. The Wind Project will have relatively minor pollution impacts. Only approximately 49.5 acres of agricultural land would be permanently impacted by construction and installation of the proposed Project. As an emission-free fuel, wind does not result in releases of CO2, NOx, etc. Therefore, the DOC-DER concluded that this sub-criterion has been met.[154]

167. Likewise, the EA and the Wind CN Application contain analysis concerning the human and environmental effects of the Wind Project and demonstrate that the Wind Project compares favorably with other alternatives in the record with respect to this factor.[155]

168. Thus, Big Bend Wind has satisfied Minn. R. 7849.0120(B)(3).

**4. Reliability of facility compared to reasonable alternatives (Minn. R. 7849.0120(B)(4))**

169. Minnesota Rule 7849.0120(B)(4) requires consideration of "the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives."

170. This sub-factor relates, in part, to Minn. Stat. § 216B.243, subd. 3(9), which requires consideration of "the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota."

171. Big Bend Wind estimated that the Wind Project will have an availability of about 97 percent, which it stated is consistent with industry standards.[156] In addition, Big Bend Wind

[152] Ex. 805 at 10 (DOC-DER Comments).
[153] Ex. 805 at 11 (DOC-DER Comments).
[154] Ex. 805 at 11 (DOC-DER Comments).
[155] Ex. 107 at 79 (EA) and; Ex. 314 at 9-11 (BB-CN Application).
[156] Ex. 805 at 11 (DOC-DER Comments).

estimated a net capacity factor of between approximately 41.5 and 43.5 percent, which is within the National Renewable Energy Laboratory's Utility-Scale Energy Technology Capacity Factors range.[157]

172. Thus, Big Bend Wind has satisfied Minn. R. 7849.0120(B)(4).

#### 5. Conclusion regarding Minn. R. 7849.0120(B)

173. As discussed above, the Applicant has satisfied each of the four sub-factors of Minn. R. 7849.0120(B).

174. No other party submitted a more reasonable and prudent alternative to the proposed Project that satisfies the requirements of Minn. R. 7849.0110 and 7849.0120.

### C. The facility will provide benefits compatible with protecting the natural and socioeconomic environments

175. Minnesota Rule 7849.0120(C) requires that "by a preponderance of evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health."

176. Applying the factors set forth in Minn. R. 7849.0120(C), the energy produced by the Project will provide significant, numerous, and varied societal benefits, with minimal negative impacts.[158]

#### 1. Relationship of facility to overall state energy needs (Minn. R. 7849.0120(C)(1))

177. Minnesota Rule 7849.0120(C)(1) requires consideration of "the relationship of the Project, or a suitable modification thereof, to overall state energy needs."

178. A review of the most recently filed IRPs indicates that Minnesotans are expected to have little change in their electricity requirements. However, all three utilities are proposing retirements of large baseload coal units. As a result, over time these and other utilities are planning on adding wind generating capacity. The Wind Project could help Minnesota meet its energy needs while supporting the state's renewable energy and GHG reduction goals (see Minnesota Statutes §§ 216B.1691 and 216H.02). DOC-DER concluded that the Wind Project fits the state's overall energy needs, and the record supports this conclusion.[159]

179. Further, Minn. Stat. § 216B.243, subd. 2(3) requires that the Commission consider the relationship of the proposed facility to other state energy needs as described in the most recent state energy policy and conservation report prepared under Minn. Stat. § 216C.18 (the

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[157] Ex. 805 at 12 (DOC-DER Comments); Ex. 332 at 135 (BB-Amended Site Application).
[158] Ex. 314 at 11 (BB-CN Application).
[159] Ex. 805 at 6 (DOC-DER Comments).

"Quadrennial Report").[160] The Quadrennial Report discusses not only utility efforts to meet RES requirements, but also voluntary green pricing programs. Green pricing programs provide Minnesota ratepayers the option to voluntarily purchase energy from renewable sources to meet all or a portion of their energy requirements. The Quadrennial Report also describes the GHG reduction goals in Minn. Stat. § 216H.02 and the role renewable energy has and continues to play in driving down the carbon intensity of electricity generated in Minnesota. Thus, as a source of competitively priced, no emission, wind energy, the Wind Project is compatible with Minnesota's energy needs.[161]

### 2. Effect of facility on natural and socioeconomic environments (Minn. R. 7849.0120(C)(2))

180. Minnesota Rule 7849.0120(C)(2) requires consideration of "the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility."

181. Negative impacts to socioeconomic resources will be relatively minor. Only approximately 49.5 acres of agricultural land will be permanently removed from production, and the areas surrounding each turbine will still be able to be farmed. Wind Project construction will not negatively impact leading industries, and there is no indication that any minority or low-income population is concentrated in any one area of the Wind Project. The Wind Project will not release carbon dioxide, sulfur dioxide, nitrogen oxides, mercury, or particulate matter. It will not require water for power generation and will not discharge wastewater containing any heat or chemicals during operation. It will produce energy without the extraction, processing, transportation, or combustion of fossil fuels.[162]

182. The Wind Project will permanently impact less than one percent of the total acreage within the Project's boundaries, and will be sited so as to minimize environmental impacts. The development of wind energy has been and will continue to be important in diversifying and strengthening the economic base of Cottonwood and Watonwan Counties and the region. Local contractors and suppliers will be used for portions of construction. Wages and salaries paid to contractors and workers in Cottonwood and Watonwan Counties and the region will contribute to the total personal income of the region. At least part of the wages paid to temporary and permanent Project workers will be circulated and recirculated within the county and the state. Expenditures made by Big Bend Wind for equipment, fuel, operating supplies, and other products and services will benefit businesses in the county and the state.[163]

183. Landowners with turbines or other Wind Project facilities on their land will receive annual lease payments anticipated to total approximately $70 million over the life of the Project, and these payments will diversify and strengthen the local economy. Long-term benefits to the county's tax base as a result of the construction and operation of the Project will contribute to improving the local economy. For example, the Project will pay a Wind Energy Production Tax to

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[160] Ex. 314 at 11 (BB-CN Application).
[161] Ex. 314 at 12 (BB-CN Application).
[162] Ex. 314 at 12 (BB-CN Application).
[163] Ex. 314 at 12 (BB-CN Application).

the local units of government of $0.0012 per kWh of electricity produced, resulting in an annual Wind Energy Production Tax of approximately $35.7 million over the life of the Wind Project. Not building an electrical generation facility would result in no physical impact to the environment in Cottonwood and Watonwan Counties. However, not building the Wind Project would also not provide an additional source of tax revenues to the county, an increase in the income stream to residences and businesses, or an increase in the amount of low-cost, clean, reliable renewable energy available to state or regional utilities and their customers. In sum, the Wind Project will have a minimal impact on the physical environment, while simultaneously providing significant benefits.[164]

### 3. Effects of facility in inducing future development (Minn. R. 7849.0120C(3))

184. Minnesota Rule 7849.0120(C)(3) requires consideration of "the effects of the proposed facility, or a suitable modification thereof, in inducing future development."

185. The Wind Project is not expected to directly affect development in Cottonwood or Watonwan Counties. The area is largely rural, with small communities such as Butterfield, Mountain Lake, Bingham Lake, Windom, Jeffers, Comfrey, Darfur, and others. However, additional wind energy infrastructure in the Project area may nonetheless provide significant benefits to the local economy and local landowners. As discussed previously, landowners and local governments will experience economic benefits from the Wind Project. In addition, the Wind Project will provide significant income opportunities for local residents not affiliated with Wind Project ownership. The Wind Project is anticipated to generate approximately 316 construction jobs and up to 14 permanent O&M positions. In addition, the development of wind energy in Minnesota reduces dependence on turbulent fossil fuel markets and helps keep energy dollars in Minnesota.[165]

### 4. Socially beneficial uses of facility output (Minn. R. 7849.0120(C)(4))

186. Minnesota Rule 7849.0120(C)(4) requires consideration of "the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality."

187. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(5), which, in relevant part, requires the Commission to consider "the benefits of this facility, including its uses to protect or enhance environmental quality…."

188. The record demonstrates that energy produced by the Wind Project will provide significant, numerous, and varied societal benefits, as discussed previously herein, including: renewable energy with minimal environmental impact; enhancement of regional and national energy security and reliability; supplementary source of income for landowners.[166]

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[164] Ex. 314 at 12-13 (BB-CN Application).
[165] Ex. 314 at 7-8 (BB-CN Application).
[166] Ex. 314 at 7 (BB-CN Application).

189. Thus, Big Bend Wind has satisfied Minn. R. 7849.0120(C)(4).

### D. Whether the facility will comply with relevant policies, rules, and regulations (Minn. R. 7849.0120(D))

190. Minnesota Rule 7849.0120(D) requires that "the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments."

191. This factor relates to Minn. Stat. § 216B.243, subd. 3(7), which requires the Commission, in assessing need, to consider "the policies, rules, and regulations of other state and federal agencies and local governments."

192. The Wind Project would meet or exceed the requirements of all federal, state, and local environmental laws and regulations. Big Bend Wind provided a table listing the potential permits and approvals needed for the Wind Project. DOC-DER indicated that it has no reason to believe that Big Bend Wind will fail to comply with the requirements of the listed federal, state, and local governmental agencies. DOC-DER concluded that the record does not demonstrate that the design, construction, or operation of the Wind Project, or a suitable modification of the facilities, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments, and the record supports this conclusion.[167]

193. Based on the foregoing, Big Bend Wind has satisfied Minn. R. 7849.0120(D)

194. As discussed in detail above, Big Bend Wind has satisfied each of the relevant factors and sub-factors set forth in Minn. R. 7849.0120(A) through (D) necessary to determine that a Certificate of Need must be granted.

## III. OTHER APPLICABLE STATUTORY CONSIDERATIONS

195. As explained by DOC-DER in its comments, there are two applicable Minnesota statutes which provide a preference for renewable resources in resource planning and acquisition decisions.[168] Minnesota law indicates a clear preference for renewable facilities, and the proposed Project is consistent with that preference.[169]

196. Further, Minn. Stat. §§ 216B.2426 and 216B.169 provide for the consideration of distributed generation. As noted by DOC-DER, no proposals for distributed generation as an alternative to the Solar Project have been filed in this proceeding, and DOC-DER stated that the requirement to consider distributed generation had been met.[170]

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[167] Ex. 805 at 14 (DOC-DER Comments).
[168] Minn. Stat. §§ 216B.243, subd. 3a; 216B.2422, subd. 4.
[169] Ex. 805 at 8-9 (DOC-DER Comments).
[170] Ex. 805 at 12 (DOC-DER Comments).

## BIG BEND WIND SITE PERMIT

## I. WIND SITE PERMIT CRITERIA

197. Wind energy projects are governed by Minn. Stat. Ch. 216F and Minn. R. Ch. 7854. Minn. Stat. § 216F.01, subd. 2, defines a "large wind energy conversion system" as a combination of wind energy conversion systems with a combined nameplate capacity of five MW or more. Minn. Stat. § 216F.03 requires that a LWECS be sited in an orderly manner compatible with environmental preservation, sustainable development, and the efficient use of resources. Similarly, the Commission must determine that an LWECS is "compatible with environmental preservation, sustainable development, and the efficient use of resources."[171]

198. In addition, when deciding whether to issue a site permit for a LWECS, the Commission considers the factors set forth in Minn. Stat. § 216E.03, subd. 7, which specifies, in relevant part, that the Commission "shall be guided by, but not limited to, the following considerations:

> (i) evaluation and research and investigations relating to the effects on land, water, and air resources or large electric power generating plants and high-voltage Transmission Lines and the effects of water and air discharges and electric and magnetic field resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;
>
> (ii) environmental evaluation of sites . . . proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;
>
> (iii) evaluation of the effects of new electric power generation . . . systems related to power plants designed to minimize adverse environmental effects;
>
> (iv) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;
>
> (v) analysis of the direct and indirect economic impact of proposed sites . . . including, but not limited to, productive agricultural land lost or impaired;

[171] Minn. R. 7854.1000, subp. 3.

(vi) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site . . . be accepted;

(vii) evaluation of alternatives to the applicant's proposed site . . . ;

(viii) ***

(ix) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

(x) ***

(xi) evaluation of irreversible and irretrievable commitments of resources should the proposed site . . . be approved; and

(xii) when appropriate, consideration of problems raised by other state and federal agencies and local entities."[172]

199. The Commission must also consider whether the applicant has complied with all applicable procedural requirements.[173]

200. The Commission's rules require the applicant to provide information regarding any potential impacts of the proposed Project, potential mitigation measures, and any adverse effects that cannot be avoided as part of the application process.[174] No separate environmental review document is required for a LWECS project.[175]

## II. APPLICATION OF WIND SITE PERMIT CRITERIA TO THE WIND PROJECT

201. DOC-EERA determined that "with use of mitigation measures outlined in its site permit application and site permit conditions the Big Bend Wind Farm is compatible with environmental preservation, sustainable development, and the efficient use of natural resources."[176]

### A. Demographics

202. The Wind Project is located in southwestern Minnesota in a rural agricultural region in Cottonwood and Watonwan Counties. These two counties in the Project Area have very

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[172] Minn. Stat. § 216E.03, subd. 7. Considerations (8) and (10) are omitted because they pertain only to proposed routes of high voltage transmission lines.

[173] Minn. R. 7854.1000, subp. 3.

[174] Minn. R. 7854.0500, subp. 7.

[175] Minn. R. 7854.0500, subp. 7 ("The analysis of the environmental impacts required by this subpart satisfies the environmental review requirements of chapter 4410, parts 7849.1000 to 7849.2100, and Minnesota Statutes, chapter 116D. No environmental assessment worksheet or environmental impact statement shall be required on a proposed LWECS project.")

[176] Ex. 107 at 367-81 (EA).

small populations compared to the State of Minnesota as a whole, compromising less than one percent of the state's total population.[177]

203. The top three industries of employment in the counties and townships within the Project Area vary slightly from the state level, with manufacturing playing a larger role in both Cottonwood and Watonwan Counties (20.0 percent and 22.7 percent, respectively). Employment in the retail trade industry in Cottonwood and Watonwan Counties is similar to the state level.[178]

204. The Wind Project and its construction will not displace residents or buildings, and is expected to have minimal, temporary to long-term impact on the demographics of the Project Area. In Watonwan County the percentage of total minority residents is higher than the state level of 20.9 percent at 29.6 percent. There is no indication that the wind turbines will be place in an area occupied primarily by any minority or low-income population. [179]

## B. Noise

205. Large electric generation facilities produce sound. Sound has multiple characteristics which determine whether a sound is too loud or otherwise inappropriate. Sound travels in a wave motion and produces a sound pressure level. This sound pressure level is commonly measured in decibels ("dB") on a logarithmic scale. It may be made up of a variety of sounds of different magnitudes, across the entire frequency spectrum. The human ear is not equally sensitive to sound at all frequencies and magnitudes. Some frequencies, despite being the same dB level (that is magnitude), seem louder than others. For example, a 500 hertz ("Hz") tone at 80 dB will sound louder than a 63 Hz tone at the same level. In addition, the relative loudness of these tones will change with magnitude. For example, the perceived difference in loudness between those two tones is less when both are at 110 dB than when they are at 40 dB.[180]

206. To account for the difference in the perceived loudness of a sound by frequency and magnitude, acousticians apply frequency weightings to sound levels. The most common weighting scale used in environmental noise analysis is the "A-weighting," which represents the sensitivity of the human ear at low to moderate sound pressure levels. The A-weighting is the most appropriate weighting when overall sound pressure levels are relatively low (up to about 70 dBA). The A-weighting de-emphasizes sounds at lower and very high frequencies, since the human ear is less sensitive to sound at these frequencies at low magnitude.

207. The A-weighting is the most appropriate weighting for wind turbine sound for two reasons. The first is that sound pressure levels due to wind turbine sound are typically in the appropriate range for the A-weighting at typical receiver distances (50 dBA or less). The second is that various studies of wind turbine acoustics have shown that the potential effects of wind turbine noise on people are correlated with A-weighted sound level as well as to the perceived loudness of wind turbine sound.

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[177] Ex. 332 at 30 (BB-Amended Site Application).
[178] Ex. 332 at 28 (BB-Amended Site Application).
[179] Ex. 332 at 28-30 (BB-Amended Site Application).
[180] Ex. 332 at 36 (BB-Amended Site Application).

208. Under Minn. Stat. § 116.07, subd, 2, noise standards are promulgated by the MPCA are designed to ensure public health and minimize citizen exposure to inappropriate sounds. The MPCA's Noise Standards are found in Minn. R. ch. 7030. The MPCA standards require A-weighted noise measurements. Different standards are specified for daytime (7:00 AM – 10:00 PM) and nighttime (10:00 – 7:00 AM) hours. The noise standards specify the maximum allowable sound levels that may not be exceeded for more than 10 percent of an hour (L10) and 50 percent of an hour (L50), respectively. Household units, including farmhouses, are included in Land Use Noise Are Classification NAC 1.[181]

209. Big Bend Wind proposes siting turbines at least 1,200 feet from residences plus the distance required to comply with the MPCA limit of a 50 dBA nighttime L50 noise level, if necessary (L50 is the median noise level or the level exceeded 50 percent of the time) (MPCA, 2015). The closest turbine to a non-participant residence is 2,380 feet, and the closest turbine to a participating residence is 1,367 feet.[182]

210. Big Bend Wind conducted background sound level monitoring throughout the Wind Project Area to quantify the existing sound levels and to identify existing sources of sound.[183] Daytime sound levels throughout the Wind Project Area generally ranged from 36 to 40 dBA for 50 percent of the daytime (L50), while nighttime sound levels were generally between 31 and 36 dBA (L50). The average daytime L50 across the Wind Project Area was 38 dBA, and the average nighttime L50 across the Wind Project Area was 33 dBA.

211. Big Bend Wind incorporated the monitoring data with turbine sound modeling using the Computer Aided Design for Noise Abatement ("Cadna-A") software program to determine the sound levels at receptors within one mile of the Wind Project Area.[184] The analysis accounted for all noise generating elements associated with the proposed wind turbine models and layout for the Wind Project. All proposed wind turbines were modeled in Cadna-A and Wind Project-related noise levels were calculated at 970 noise-sensitive receptors within the Wind Project Area and a buffer of approximately one mile. [185]

212. Maximum calculated sound levels at all residential receptors for all turbine models are below the nighttime L50 noise limit of 50 dBA. The maximum calculated sound level, based on assumptions incorporated into the Cadna-A model and the turbine layout, results in a 47 dBA L50 at the nearest noise-sensitive receptor (maximum Project-related L50 range from 45 to 47 dBA). All turbine models and layouts comply with MPCA noise guidelines at residential receptors.[186] Likewise, the Draft Site Permit contains a condition requiring the Project to comply with MPCA noise standards.[187]

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[181] Ex. 332 at 36 (BB-Amended Site Application).
[182] Ex. 332 at 38 (BB-Amended Site Application).
[183] Ex. 332 at 36 (BB-Amended Site Application).
[184] Ex. 332 at 38 (BB-Amended Site Application).
[185] Ex. 332 at 38 (BB-Amended Site Application).
[186] Ex. 332 at 39 (BB-Amended Site Application).
[187] Ex. 107 at Appx. B § 4.3 (EA).

### C. Visual impacts

213. The Wind Project will introduce wind turbines and associated facilities to the landscape and have the potential to alter the existing visual resources. Additionally, during construction, visual resources may be interrupted by construction equipment and increased vehicle traffic. Big Bend Wind analyzed potential impacts to visual resources, including public resources, private land, and shadow flicker.[188]

214. Viewsheds in this area are generally broad and uninterrupted, with only small, scattered areas where they are interrupted by trees or topography. The settlements in the vicinity are residences and farm buildings (inhabited and uninhabited farmsteads) scattered along rural county roads. The area is also shaped by a built environment. Vertical elements such as wind turbines are visible from considerable distances and are the tallest and often the most dominant visual feature on the landscape. Additionally, numerous electrical distribution lines parallel some unpaved and paved roads that contribute to the existing visual elements.[189]

215. The Project will be located within the viewshed of MNDNR-managed Wildlife Management Areas ("WMAs"), USFWS Waterfowl Production Areas, lands owned by The Nature Conservancy, and the Jeffers Site, as well as other natural areas and may be visible by people using those areas. [190]

216. Visual impacts on public resources during construction will be dependent on the construction activity and proximity to the public resource. For example, site clearing, and grading would be visible from public resources adjacent to the Wind Project Area or within one to two miles of the Project's footprint. Other activities, such as turbine erection, would be visible from longer distances due to the height of the crane and towers.[191]

217. During operation, the wind turbines will impact the visual surroundings of the Project Area and vicinity, but the degree of the visual and unavoidable impact on public resources will vary based upon the distance from the Project, obstructions such as trees between the public resource and Project, a viewer's orientation to the Project (i.e., facing towards or away), and the viewer's personal preferences.[192]

218. Impacts to the Jeffers Site have been mitigated through modifications to the Wind Project's layout, as described in Section II(E) herein.

219. Residences with turbines and associated infrastructure closest to their homes are those that are participating in the Wind Project by signing easements. The closest turbine to a non-participant residence is 2,380, and the closest turbine to a participating residence is 1,367 feet.[193]

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[188] Ex. 332 at 40 (BB-Amended Site Application).
[189] Ex. 332 at 40 (BB-Amended Site Application).
[190] Ex. 332 at 43 (BB-Amended Site Application).
[191] Ex. 332 at 43 (BB-Amended Site Application).
[192] Ex. 332 at 43 (BB-Amended Site Application).
[193] Ex. 332 at 44 (BB-Amended Site Application).

220. Big Bend Wind also plans to use ADLS for the Wind Project, in coordination with the FAA and in compliance with applicable requirements. The use of ADLS lighting will further minimize potential visual impacts from the Wind Project.[194]

221. The Wind Project Substation may be visible to those residents that live within one mile of this facility. The Wind Project Substation will be lower profile than the wind turbines. Access roads have been designed to provide direct access from the public road to the turbine and minimize impacts to the agricultural fields. Where possible, the access roads follow field edges. To the extent possible, Big Bend Wind has collocated linear facilities (access roads, crane paths, and collection lines) to minimize visual impacts.[195]

### 1. Shadow flicker

222. Shadow flicker caused by wind turbines is defined as alternating changes in light intensity at a given stationary location (or "receptor"), such as the window of a home. In order for shadow flicker to occur, three conditions must be met: (1) the sun must be shining with no clouds to obscure it; (2) the rotor blades must be spinning and must be located between the receptor and the sun; and (3) the receptor must be sufficiently close to the turbine to be able to distinguish a shadow created by it (generally 1500 feet because the shadow, at this distance, is sufficiently diffused that it's not seen as a solid obstruction).[196]

223. Currently, shadow flicker impacts are not regulated by state and federal law.[197]

224. Shadow flicker frequency calculations for the Wind Project were modeled for 970 residences (receptors) with WindPRO based on all turbines in each layout. These receptors are those within the Wind Project Area and one-mile buffer that could receive shadow flicker.

225. All non-participating residences are expected to experience below 30 hours per year of shadow flicker.[198] Twenty participating residences are anticipated to experience more than 30 hours per year of shadow flicker, and Big Bend Wind has conducted outreach to these landowners to obtain shadow flicker agreements. Big Bend Wind has obtained 15 agreements and is continuing to coordinate with the remaining five landowners.[199]

226. Based on the results of the Wind Project's shadow flicker modeling, no specific mitigation is currently proposed. To the extent that a residence experiences inordinately more flicker than anticipated by modeling during Wind Project operation, mitigation would be addressed at that time.[200]

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[194] Ex. 332 at 45 (BB-Amended Site Application).
[195] Ex. 332 at 44 (BB-Amended Site Application).
[196] Ex. 332 at 45 (BB-Amended Site Application).
[197] Ex. 332 at 46 (BB-Amended Site Application).
[198] Ex. 332 at 46 (BB-Amended Site Application).
[199] Ex. 337 at 2 (Ikkala Surrebuttal).
[200] Ex. 332 at 49 (BB-Amended Site Application).

### D. Public service and infrastructure

227. The Wind Project is located in a sparsely populated and predominantly rural and agricultural area in south-central Minnesota. Public service in the area include emergency services, utilities, roads and railroads, communication systems, television service, cell towers, and broadband services.[201]

228. Emergency services**.** Construction and operation of the Wind Project is not expected to impact the availability of emergency services. Big Bend Wind will coordinate with emergency services providers to determine appropriate safety precautions and standards and develop measures to address these precautions and standards.[202]

229. Utility infrastructure. The Wind Project is sited to avoid impacts to existing utility infrastructure. All turbines are sited at least 1.1x the turbine tip height from existing utilities and public infrastructure to avoid potential impacts to existing infrastructure.[203]

230. Roads and railroads**.** An established network of county and township roads exists in the Wind Project Area. Construction activities will increase the amount of traffic using local roadways, and may temporarily affect traffic numbers in the area, but such use is not anticipated to result in adverse traffic impacts. Big Bend Wind is currently coordinating with Cottonwood and Watonwan Counties and the townships within the Wind Project Area on the development and execution of a single, cooperative Development, Road Use, and Drainage Agreement to minimize and mitigate impacts on existing roadways.[204]

231. Communication systems**.** Because of their height, modern wind turbines have the potential to interfere with existing communications systems licensed to operate in the United States. The required separation distance based on the characteristics of the communication systems varies depending on the type of communication antennas that are installed on the tower. Wind Project turbines are sited at least 535 meters (1,755 feet) from a communication tower. With this distance, impacts to communication systems are not anticipated.[205] Specifically, Big Bend Wind has determined that there are no impacts, or sufficient mitigation, as to the following:

- AM and FM radio;
- Microwave beam paths;
- Telephone service;
- GPS; and

[201] Ex. 332 at 49 (BB-Amended Site Application).
[202] Ex. 107 at 281 (EA).
[203] Ex. 107 at 317-318 (EA).
[204] Ex. 332 at 51-53 (BB-Amended Site Application).
[205] Ex. 332 at 54 (BB-Amended Site Application).

- Wireless broadband internet.[206]

232. Big Bend Wind will address any post-construction television interference concerns on a case-by-case basis.[207] Further, Section 5.3.17 of the Draft Site Permit provides that a project may not be operated "so as to cause microwave, television, radio, telecommunications, or navigation interference in violation of Federal Communications Commission regulations or other law. In the event the project or its operations cause such interference, the Permittee shall take timely measures necessary to correct the problem."

## E. Cultural and archaeological resources

### 1. Jeffers Site

233. The Wind Project layout also considers the input of Tribes and MNHS provided during early and ongoing consultation and includes a 6.5-mile turbine buffer from the Jeffers Site.[208]

234. The Jeffers Site is a historic site within Minnesota's Historic Site Network that is managed by MNHS. The Jeffers Site is home to about 5,000 sacred rock carvings, also called petroglyphs, made by the ancestors of today's Native Americans approximately 7,000 years ago. The 160- acre Jeffers Site is characterized by rock outcrops on which the petroglyphs are located, surrounded by native prairie. Surrounding the Jeffers Site is the Red Rock Ridge, which is a discontinuous ridge of Sioux quartzite outcrops.[209] The Jeffers Site is an important space for spiritual and cultural practices for Tribes in Minnesota and beyond.[210]

235. Specifically, based on feedback received during initial consultation with SHPO, Big Bend Wind conducted additional voluntary coordination with the MNHS, interested Tribes, and other stakeholders concerning the proximity of the Wind Project to the Jeffers Site. Over the course of multiple years, Big Bend Wind modified the design and layout of the Wind Project trying to resolve concerns about potential impacts on the Jeffers Site. A detailed history of this coordination is provided in Section 8.7.2 of the Amended Site Permit Application. At the time the initial applications were filed, here remained disagreement and concern regarding potential impacts to the Jeffers Site, particularly from MNHS, Upper Sioux, and Lower Sioux.[211]

236. On August 10, 2021, Big Bend Wind representatives were invited to meet with representatives of Intervenors MNHS, the Upper Sioux, and Lower Sioux at the Jeffers Site to discuss modifications to the Wind Project layout that would address concerns regarding potential impacts to the Jeffers Site. The outcome of this consultation was a Settlement Agreement pursuant to which Big Bend Wind revised the permit application layout, removing the eight turbines located in the zone between five and 6.5 miles from the Jeffers Site and replacing some of the lost

[206] Ex. 332 at 54, 56 (BB-Amended Site Application).
[207] Ex. 332 at 55 (BB-Amended Site Application).
[208] Ex. 332 at 65 (BB-Amended Site Application).
[209] Ex. 332 at 8-9 (BB-Amended Site Application).
[210] Ex. 603 at 2 (Larsen Direct).
[211] Ex. 332 at 59 (BB-Amended Site Application).

generation by siting five alternatives at new locations within the Wind Project Area that are farther than seven miles from viewpoints on the Jeffers Site. Big Bend Wind also created a variant of this layout that removes not only the eight turbines in the five to 6.5 mile zone, but also Turbines T19 and T20 located in the zone between 6.5 to seven miles, which were also identified by the agency and tribes as additional locations they would prefer to be removed, if Big Bend Wind's proposed alternate locations are approved by the Commission.[212]

237. The Parties each filed written testimony in support of the Settlement Agreement, explaining that the revised layout reflected in the Settlement Agreement "significantly reduces the impact to the viewshed" from the Jeffers Site.[213]

238. Thus, Big Bend Wind has mitigated long-term visual impacts on the Jeffers Site through reducing the numbers of turbines from 64 to 52, increasing the buffer between Wind Project turbines and the Jeffers Site from approximately 2.4 miles to at least 6.5 miles, and proposing the use of ADLS to reduce visual impacts on the night sky. In addition, in response to comments received through early coordination, Big Bend Wind has eliminated potential shadow flicker, noise and vibration impacts to the Jeffers Site.[214]

### 2. Other cultural and archaeological resources

239. In addition to analysis and coordination regarding the Jeffers Site, Big Bend Wind undertook further analysis and survey concerning archaeological and historic resources. A Phase 1a literature review was conducted, and a Phase I survey was later conducted in coordination with SHPO and interested Tribes.[215]

240. During the literature review, one previously recorded archaeological site, eight previously recorded historic architectural resources, and one historic railroad were identified within the Wind Project Area. Of the eight previously recorded historic architectural resources within the Wind Project Area, seven are bridges and one is a farmstead. Six of the seven historic bridges have undergone NRHP evaluation and were determined to be not eligible for listing. The remaining bridge and the previously recorded farmstead have not been evaluated for listing in the NRHP.[216] The historic railroad is the St. Paul & North Pacific Railroad; this railroad is listed in the NRHP.[217] The archaeological site has not been evaluated for listing on the NRHP.

241. The background literature review also identified 91 previously recorded historic architectural resources and three archaeological sites within 1.5 miles of the Wind Project Area. These include 21 farmsteads, 44 residences, two banks, one bandshell, two bridges, five churches, seven commercial buildings, one gazebo, one grain elevator, one highway, one hotel, two

[212] Ex. 332 at 63 (BB-Amended Site Application).
[213] Ex. 603 at 5 (Larsen Direct); *see also* Exs. 700 (Savariego Direct) and 500 (Maijala Direct).
[214] Ex. 332 at 67 (BB-Amended Site Application).
[215] Ex. 332 at 58 (BB-Amended Site Application).
[216] Ex. 332 at 58-59 (BB-Amended Site Application).
[217] Ex. 332 at 58-59 (BB-Amended Site Application).

municipal buildings, two schools, and Heritage Village. Most of the historic architectural resources are within the cities of Mountain Lake and Delft.[218]

242. Field surveys were conducted in 2019, with additional surveys conducted in 2020 and 2021 for the Wind Project layout identified in the Amended Application.[219]

243. Information regarding the location of previously documented cultural resources sites was taken into consideration during initial Wind Project design. Big Bend Wind has designed the Wind Project to avoid directly impacting all previously recorded NRHP listed, eligible, or unevaluated archaeological and historic architectural resources either by Project alteration or structure placement. Therefore, no direct impacts on previously documented archaeological or historic architectural resources would occur as a result of the Project.[220]

244. In addition, Section 5.3.16 of the Draft Site Permit requires Big Bend Wind to "make every effort to avoid impacts to identified archaeological and historic resources." Big Bend Wind also developed an Unanticipated Discoveries Plan in coordination with interested Tribes.

### F. Recreational resources

245. Recreational opportunities near the Wind Project Area include hiking, biking, boating, fishing, camping, swimming, snowmobiling, hunting, golfing, and nature viewing.[221]

246. There are no National Wildlife Refuges or state parks Areas within 10 miles of the Wind Project Area.[222]

247. While there are several recreation lands within 10 miles of the Wind Project Area, only the Long Lake AMA is within the Wind Project Area and the access road to the Mountain Lake WMA is partially within the Wind Project Area. Big Bend Wind has sited turbines at least 3 RD by 5 RD from the AMA and WMA. The nearest turbine to the AMA is approximately 0.9 miles to the west; therefore, no impacts on public use of the AMA would occur. A collection line and crane path would cross the access road to the Mountain Lake WMA, just south of County Road 9. Temporary interruptions to public access to the WMA may occur during the period of active construction; however, such interruptions would be temporary and would resolve after construction is complete.[223]

248. There are three public water access sites within the Wind Project Area: two associated with Butterfield Lake and one associated with Eagle Lake.[224] There are no state trails within 10 miles of the Wind Project Area.[225]

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[218] Ex. 332 at 58-59 (BB-Amended Site Application).
[219] Ex. 332 at 62 (BB-Amended Site Application).
[220] Ex. 332 at 65 (BB-Amended Site Application).
[221] Ex. 332 at 66 (BB-Amended Site Application).
[222] Ex. 332 at 68 (BB-Amended Site Application).
[223] Ex. 332 at 71-72 (BB-Amended Site Application).
[224] Ex. 332 at 71 (BB-Amended Site Application).
[225] Ex. 332 at 71 (BB-Amended Site Application).

249. There are two snowmobile trails within the Wind Project Area: The Cottonwood and Jackson County Snowmobile Trail, and the Riverside Trail.[226]

250. The Mountain Lake Golf Course is immediately adjacent to the southern Wind Project boundary, on the southwest side of Mountain Lake.[227]

251. Construction and operation of the Wind Project is not anticipated to affect public access to or enjoyment of nearby recreational opportunities. Impacts to recreation would mostly be related to Wind Project construction, which will be minimal, temporary, and isolated to specific areas throughout the Wind Project Area.[228]

## G. Public health and safety

### 1. Air traffic

252. There is one public airport and one private heliport within 10 miles of the Wind Project Area. The nearest airport is the Windom Municipal Airport, located approximately 4.6 miles southwest of the Wind Project. The St. James Medical Center, located approximately 7.8 miles east of the Wind Project Area, has a private heliport for patient transport. Air traffic may also be present near the Wind Project Area for crop dusting of agricultural fields. Crop dusting is typically carried out during the day by highly maneuverable airplanes or helicopters. In addition to public and private airports and crop dusting, air space is also used by the military. Big Bend Wind coordinated with the Air National Guard and U.S. Air Force on the presence of military training routes in the Project vicinity.[229]

253. Turbines have been sited to avoid any impacts to restricted airspace. Big Bend Wind will also notify local airports about the Wind Project including locations of new towers in the area to minimize impacts and reduce potential risks to crop dusters.[230]

254. In a written comment, Elvin Thiessen identified a private airstrip outside of the Wind Project boundary in section 19 of Butterfield Township. Big Bend Wind stated that it has coordinated with Mr. Thiessen regarding his airstrip, and the location of the airstrip informed the siting of turbines in the vicinity. Big Bend Wind has had additional coordination with Mr. Thiessen to identify specific turbine locations in relation to his airstrip to confirm that the turbine locations with respect to the orientation of the airstrip will allow for its continued use.[231]

255. Turbines over 500 feet tall have a lengthier review timeline, but regardless of turbine height, the FAA approval is a "Determination of No Hazard." Further, Big Bend Wind will appropriately mark and light the turbines to comply with FAA requirements and is coordinating with the FAA on implementing an ADLS. The permanent and performance testing meteorological towers will be freestanding with no guy wires. The existing temporary meteorological towers have

[226] Ex. 332 at 71 (BB-Amended Site Application).
[227] Ex. 332 at 71 (BB-Amended Site Application).
[228] Ex. 332 at 71 (BB-Amended Site Application).
[229] Ex. 332 at 75 (BB-Amended Site Application).
[230] Ex. 332 at 75-76 (BB-Amended Site Application).
[231] Ex. 329 at 4 (Scoping Reply Comments, Certificate of Service and Service Lists).

supporting guy wires which are marked with alternating red and white paint at the top and colored marking balls on guy wires for increased visibility.[232]

256. In 2020, the Air National Guard Readiness Center initially identified an issue with this turbine A06 because of a military training route. However, in October 2021, after further inquiry, and in coordination with Lower Sioux, Big Bend Wind was informed that the military training route had been deleted in 2015.[233]

### 2. Electromagnetic fields

257. The term electromagnetic field ("EMF") refers to electric and magnetic fields that are present around any electrical device. Electric fields arise from the voltage or electrical charges, and magnetic fields arise from the flow of electricity or current that travels along transmission lines, power collection (feeder) lines, substation transformers, house wiring, and electrical appliances.[234]

### 3. Security and traffic

258. During the construction phase, temporary impacts are anticipated on some public roads within the Wind Project Area. Roads will be affected by the transportation of equipment to and from the Wind Project Area between Wind Project facilities. Some roads may also be expanded along specific routes as necessary to facilitate the movement of equipment.[235]

259. Big Bend Wind is currently coordinating with Cottonwood and Watonwan Counties and the townships within the Wind Project Area on the development and execution of a single, cooperative Development, Road Use, and Drainage Agreement to minimize and mitigate impacts on existing roadways. Big Bend Wind will ensure that the general contractor communicates with the road authorities throughout the construction process, particularly regarding the movement of equipment on roads and the terms of the development agreement. If roadways are impacted by the use of heavy construction equipment (e.g., potholes, rutting), they will be restored per the Development, Road Use, and Drainage Agreement. Additional operating permits will be obtained for over-sized truck movements. Further, Big Bend Wind has mitigated impacts to existing roadways from operation of the Project by siting wind turbines with a setback of at least 1.1x the total turbine height from all public roads, which exceeds the Commission standard of a 250-foot setback.[236]

## H. Hazardous materials

260. The Wind Project was designed to avoid known contaminated sites and will therefore not impact them during construction. To avoid spill-related impacts during construction, Big Bend Wind will develop a Spill Prevention, Control, and Countermeasures Plan that will

[232] Ex. 332 at 76 (BB-Amended Site Application).
[233] Ex. 337 at 2 (Ikkala Surrebuttal).
[234] Ex. 332 at 73 (BB-Amended Site Application).
[235] Ex. 332 at 52 (BB-Amended Site Application).
[236] Ex. 332 at 53 (BB-Amended Site Application).

outline measures to be implemented to prevent accidental releases of fuels and other hazardous substances and describe the required response, containment, and cleanup procedures to be used in the event of a spill.[237]

## I. Land-based economics

261. Big Bend Wind has also analyzed the potential for the Wind Project to affect land-based economies of agriculture, forestry, and mining operations.[238]

### 1. Agriculture

262. The majority of the Wind Project Area is in agricultural use. Cultivated land comprises approximately 40,235.2 acres (approximately 92.5 percent) of the Project Area. Pasture/hay lands comprise approximately 435.6 acres (one percent) of the Project Area.[239]

263. Agricultural land will be taken out of production where the turbines and access roads are sited (approximately 0.5 to 1 acre per turbine). Additionally, land will also be removed from agricultural production for the collector substations and O&M facility, which together will cover approximately 8.3 acres. Landowners may continue to plant crops near and up to the turbine pads and access roads. In some instances, agricultural practices will be impacted by requiring new maneuvering routes around the turbine structures for agricultural equipment. The collector substations and O&M facility will be fenced, but agricultural production will be allowed to continue beyond the fenced area. Agricultural land taken out of production for access roads will be a permanent loss and agricultural production will not be allowed to continue within the footprint of access roads. Access roads are designed so that they do not unnecessarily impede agricultural production beyond the footprint of the access road.[240]

264. Less than one half of one percent of the Wind Project Area will be converted to non-agricultural land use (i.e., wind turbines, access roads, collector substations, and O&M facility). This represents an unavoidable, yet minimal, impact to agricultural land in the Wind Project Area boundary but will not significantly alter agricultural production in the Wind Project Area. [241]

265. The Draft Site Permit includes multiple provisions related to agriculture. First, Section 5.3.5 requires Big Bend Wind to implement measures to protect and segregate topsoil from subsoil on all lands unless otherwise negotiated with landowners. Second, Section 5.3.18 requires Big Bend Wind to take precautions to protect livestock during all phases of the Project's life. Third, Section 5.3.20 requires Big Bend Wind to take into account, avoid, and promptly repair or replace all drainage tiles broken or damaged during all phases of the Project's life unless otherwise negotiated with affected landowners.[242]

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[237] Ex. 332 at 77 (BB-Amended Site Application).
[238] Ex. 332 at 78 (BB-Amended Site Application).
[239] Ex. 332 at 78 (BB-Amended Site Application).
[240] Ex. 332 at 79-80 (BB-Amended Site Application).
[241] Ex. 332 at 79-80 (BB-Amended Site Application).
[242] Ex. 213 at 8-13 (Order – Identifying Additional Route Segment and Issuing Draft Site Permit).

266. The presence of the Wind Project will not significantly impact the agricultural land use or general character of the area. As demonstrated by other wind energy projects in the Midwest, agricultural practices continue during construction and operations.[243]

267. Further, the Draft Site Permit contains requirements related to livestock, fencing, and drainage tiles to avoid and minimize potential impacts to agriculture.[244]

#### 2. Forestry

268. No impacts to forestry resources would occur from construction or operation of the Wind Project.[245]

#### 3. Mining

269. There are no mining operations within the Wind Project Area and, as such, impacts to these resources would not occur.[246]

### J. Tourism and community benefits

270. Tourism in the Wind Project Area centers around various festivals and activities hosted by the cities, such as Butterfield and Mountain Lake, which are near the Wind Project Area.[247]

271. The Jeffers Site is another tourist attraction in this area of southwestern Minnesota. About 5,000 prehistoric rock carvings are found at this site and visitors can choose between guided or solo tours; field trips for school groups are also available. In addition, 1.2 miles of maintained trails run through the site and are available for public use. The Visitor Center has interpretive displays and a short video presentation that provides information about Native American culture and prairie ecology, as well as a museum store.[248]

272. Construction and operation of the Project will have minimal impact to tourism opportunities in the Wind Project vicinity. Construction impacts would mostly be related to increased traffic due to construction activities that may be perceptible to persons traveling through the Wind Project Area to visit tourist destinations in Mountain Lake or nearby recreation lands. These impacts will be minimal, temporary, and isolated to specific areas throughout the Wind Project Area.[249]

273. Big Bend Wind has mitigated potential Wind Project effects on tourism opportunities in Cottonwood and Watonwan Counties by siting Wind Project facilities to avoid recreation areas and municipalities where tourism opportunities are available. Additionally, with

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[243] Ex. 332 at 79-83 (BB-Amended Site Application).
[244] Ex. 107 at Appx. B §§ 5.3.18, 5.3.19, 5.3.20 (EA).
[245] Ex. 332 at 81 (BB-Amended Site Application).
[246] Ex. 332 at 82 (BB-Amended Site Application).
[247] Ex. 332 at 82 (BB-Amended Site Application).
[248] Ex. 332 at 83 (BB-Amended Site Application).
[249] Ex. 332 at 83 (BB-Amended Site Application).

the Settlement Agreement, Big Bend Wind has revised the layout to remove turbines within at least 6.5 miles of the Jeffers Site.[250]

274. Further, as indicated in the record and supported by most of the comments from the local community, the Wind Project will positively impact the region by adding infrastructure, creating temporary and permanent jobs, increasing the counties' tax base, and providing lease payments to Wind Project participants.[251]Approximately 316 construction personnel will be required for construction and approximately 14 permanent personnel will be needed for operation and maintenance of the Wind Project.[252]

### K. Topography

275. Impacts to topography will be minimal because the Wind Project Area has gently rolling terrain that is currently used for agricultural activities, including large machinery similar to that of which will be required for construction. Wind turbines and access roads will not require significant excavation or fill beyond that which will be required for turbine foundations or road bases.[253]

### L. Soils

276. Construction activities such as clearing, grading, foundation excavation, and backfilling, as well as the movement of construction equipment within the construction workspace, may result in impacts to soil resources. Potential impacts to soil resources include soil erosion, soil compaction, reduction of soil fertility, and changes to other soil characteristics. Grading and equipment traffic may compact soil, reducing porosity and percolation rates, which could result in increased runoff potential. These impacts will be temporary and localized to the footprint of facilities.[254]

277. The Wind Project layout would impact 47.7 acres of prime farmland, which is less than one percent of the prime farmland in the Project Area.[255]

278. Big Bend Wind will obtain a NPDES permit to discharge stormwater from construction facilities from the MPCA. Under this permit, Big Bend Wind will use best management practices ("BMPs") during construction of the Project to protect topsoil and adjacent resources and to minimize soil erosion.[256]

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[250] Ex. 332 at 83 (BB-Amended Site Application).
[251] Ex. 332 at 83 (BB-Amended Site Application).
[252] Ex. 332 at 30,84 (BB-Amended Site Application).
[253] Ex. 332 at 86 (BB-Amended Site Application).
[254] Ex. 332 at 88 (BB-Amended Site Application).
[255] Ex. 332 at 88 (BB-Amended Site Application).
[256] Ex. 332 at 89 (BB-Amended Site Application).

279. Once construction is complete, Big Bend will backfill graded and excavated areas with the stored native material and reestablish the original grade and drainage pattern of the construction workspace to the extent practicable.[257]

280. The Draft Site Permit contains several conditions requiring a permittee to avoid, minimize, and restore potential soil impacts.[258]

### M. Geological and groundwater resources

281. Big Bend Wind does not anticipate any impacts to bedrock during construction or operation of the Wind Project as bedrock within the Wind Project Area is at depths greater than proposed foundation depths of four-to-six feet deep. Similarly, Big Bend Wind does not expect any impacts to groundwater resources as the aquifers are also at depths deeper than the excavation for the turbine foundations and permanent Project facilities are not located near previously identified wells.[259]

282. One temporary batch plant may be needed to supply concrete for construction of the Project. The batch plant may be able to use rural water service, but is more likely to require well water. The water source will be determined prior to construction when a contractor is selected to construct the Wind Project.[260]

283. The O&M facility will likely require a new private well water supply. The Project will not require the appropriation of surface water or permanent dewatering. Temporary dewatering may be required during construction for specific turbine foundations and/or electrical trenches.[261]

284. There is one turbine within the Mountain Lake Wellhead Protection Area. Construction and operation of the wind turbine within the Wellhead Protection Area will not introduce contaminates because excavation depth is four to six feet, well above the depth to the aquifer (100-400 feet). As such, no impacts to the Mountain Lake Wellhead Protection Area are anticipated.[262]

### N. Surface waters and floodplain resources

285. Named streams within the Wind Project Area include Watonwan River and Butterfield Creek.[263]

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[257] Ex. 332 at 90 (BB-Amended Site Application).
[258] Ex. 107 at Appx. B §§ 5.3.5, 5.3.6, 5.3.7 (EA).
[259] Ex. 332 at 91 (BB-Amended Site Application).
[260] Ex. 332 at 92 (BB-Amended Site Application).
[261] Ex. 332 at 92 (BB-Amended Site Application).
[262] Ex. 332 at 92 (BB-Amended Site Application).
[263] Ex. 332 at 92 (BB-Amended Site Application).

286. There are no trout streams within the Wind Project Area. Similarly, none of the waterbodies within the Wind Project Area are identified as Outstanding Resource Value Waters under Minn. R. 7050.0335, subp. 3.[264]

287. There are 16 PWI watercourses and five PWI basins in the Wind Project Area that are listed as MNDNR PWI public waters. There are no PWI wetlands in the Wind Project Area.[265]

288. According to the 2018 Impaired Waters List, there are eight 303(d) impaired waters within the Wind Project Area, three basins and five watercourses.[266]

289. There are approximately 1,578 acres of 100-year floodplains within the Wind Project Area in Cottonwood County that are associated with the Watonwan River and an Unnamed Tributary to the Watonwan River. In Watonwan County, there are approximately 73 acres of 100-year floodplains within the Wind Project Area that are associated with Butterfield Creek.[267]

290. The Wind Project will have minor, mostly short-term effects on surface water resources. Wind Project facilities have been designed to avoid impacts on surface water resources to the extent practicable. Wind turbines will be built on uplands to avoid surface water resources in the lower elevations. Access roads have been designed to avoid crossing streams and other surface waters. Some collection lines and crane paths will cross streams during construction of the Wind Project.[268]

291. The Wind Project layout, which includes turbines, access roads, met towers, the Wind Project Substation, and the O&M facility, will not permanently impact floodplain areas.[269]

### O. Wetlands

292. Wetlands within the Wind Project Area were identified using Minnesota's update to the National Wetlands Inventory ("NWI"). Some of the wetlands are associated with creeks and unnamed intermittent streams within the site and some of the wetlands are isolated basins. [270]

293. There are approximately 1,137.5 acres of NWI-mapped wetlands in the Wind Project Area, which constitutes less than one percent of the Wind Project Area. Additionally, there are a total of 283.0 acres of PWI basins that are located within the Wind Project Area, which may overlap with NWI. There are no known calcareous fens, a rare and unique wetland type, within the Wind Project Area.[271]

294. Turbines and meteorological towers will be constructed on higher ground within the Wind Project Area to maximize the wind resource, and as such, will not permanently impact

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[264] Ex. 332 at 92 (BB-Amended Site Application).
[265] Ex. 332 at 93 (BB-Amended Site Application).
[266] Ex. 332 at 93, 94 (BB-Amended Site Application).
[267] Ex. 332 at 95 (BB-Amended Site Application).
[268] Ex. 332 at 95 (BB-Amended Site Application).
[269] Ex. 332 at 95 (BB-Amended Site Application).
[270] Ex. 332 at 96 (BB-Amended Site Application).
[271] Ex. 332 at 97 (BB-Amended Site Application).

wetlands. Based on preliminary design, access roads, the O&M facility, and Wind Project Substation are also designed to avoid permanent impacts on wetlands. Based on review of the NWI data, temporary impacts on wetlands may occur from the use of access roads and crane paths, installation of collection lines, and workspaces used during turbine construction. None of the wetlands that would be temporarily impacted during construction are MNDNR-designated PWI wetlands.[272]

295. Big Bend will minimize impacts to wetlands during construction by protecting topsoil, reducing soil erosion, and protecting adjacent wetland resources. Practices may include containing excavated material, use of silt fences, protecting exposed soil, stabilizing restored material, and revegetating disturbed areas with non-invasive species.[273]

## P. Vegetation

296. The majority of the land within the Wind Project Area is cultivated cropland (approximately 92.5 percent) and developed areas (approximately 3.6 percent).[274]

297. Forested areas in the Wind Project Area are primarily surrounding residences as windbreaks and riparian areas along the Watonwan River and associated tributaries. Hay/Pasture and herbaceous lands are present primarily in areas near the margin of waterbodies in the Wind Project Area. The hay/pasture and herbaceous areas at the site may contain potential remnant native prairie areas.[275]

298. The primary impact from construction of the Wind Project would be the cutting, clearing, and removal of existing vegetation within the construction workspace.[276] Vegetation will be permanently removed and replaced by wind turbines, access roads, and substation and O&M Facility components. The turbines and access roads are sited to avoid forests and groves to maximize turbine output and avoid tree removal. Less than one percent of the Wind Project Area will be permanently converted to sites for wind turbines, access roads, and facilities.[277]

299. Temporary vegetation impacts will be associated with crane walkways, the installation of underground collection lines, workspace around turbines, wider access roads, and contractor staging and laydown areas. Big Bend Wind will restore areas of disturbed soil in non-cropped areas using weed-free native grasses, forbs, and shrubs. In cropped areas, a temporary cover crop may be planted to stabilize soils depending on the timing of construction completion and the next growing season.[278]

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[272] Ex. 332 at 97 (BB-Amended Site Application).
[273] Ex. 332 at 99 (BB-Amended Site Application).
[274] Ex. 332 at 99 (BB-Amended Site Application).
[275] Ex. 332 at 99 (BB-Amended Site Application).
[276] Ex. 332 at 99 (BB-Amended Site Application).
[277] Ex. 332 at 99 (BB-Amended Site Application).
[278] Ex. 332 at 99, 100 (BB-Amended Site Application).

300. The Draft Site Permit also contains conditions to avoid and minimize impacts from noxious weeds and invasive species.[279]

## Q. Wildlife

301. Wildlife in the Wind Project Area consists of birds, mammals, fish, reptiles, amphibians, and insects, both resident and migratory, which use Wind Project Area habitat for forage, breeding, and/or shelter. The resident species are representative of Minnesota game and non-game fauna that are associated with upland grass, farmlands, and wetland and forested areas. The majority of the migratory wildlife species are birds, including waterfowl, raptors, and songbirds.[280]

302. Development of the Wind Project, including the construction and operation, is expected to produce a minimal impact to wildlife. Based on studies of existing wind power projects in the United States and Europe, the impact to wildlife would primarily occur to avian and bat populations. It can be expected that, similar to other wind developments, there is a high likelihood that individual bird and bat fatalities will occur at the Wind Project. However, it is unlikely that Big Bend Wind will affect species at the population level. Wind Project survey results indicate that development of the Wind Project Area is unlikely to adversely impact small or large bird populations, including diurnal raptors or species of concern. Most species observed are prevalent and abundant, and their populations are therefore at low risk of adverse impacts from the Wind Project.[281]

303. Big Bend Wind has committed to implementing a number of measures to the extent practicable to minimize and/or avoid potential impacts to wildlife in the Project Area during Wind Project design, construction, and operation, and these measures are identified in the Amended Wind Site Permit Application.[282]

304. Further, consistent with MDNR and DOC-EERA recommendations, Big Bend Wind has agreed to a minimum of two years of post-construction avian fatality monitoring for the Wind Project, and this is reflected in Wind Project's updated Bird and Bat Conservation Strategy.[283] Related requirements are reflected in Sections 7.5.1 and 7.5.2 of the Draft Site Permit.

## R. Rare and unique natural resources

305. Big Bend Wind reviewed the USFWS's Information for Planning and Conservation website for federally listed species, candidate species, and designated or proposed critical habitat that may be present within the proposed Wind Project Area. Big Bend Wind also reviewed the MNDNR's NHIS for documented occurrences of federally listed species, state listed species, and state species of concern within one mile of the Wind Project Area.[284]

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[279] Ex. 107 at Appx. B § 5.3.12 (EA).
[280] Ex. 332 at 101-11 (BB-Amended Site Application).
[281] Ex. 332 at 107 (BB-Amended Site Application).
[282] Ex. 332 at 110-11 (BB-Amended Site Application).
[283] Ex. 337 at 6 (Ikkala Surrebuttal).
[284] Ex. 332 at 113 (BB-Amended Site Application).

306. Further, acoustic surveys to evaluate bat species group composition were conducted in the Wind Project Area during April to October 2018. The results indicated a lack of northern long-eared bat ("NLEB") presence. Thus, NLEB is considered not likely to occur within the Project Area or be impacted by the Project.[285]

307. Big Bend Wind will implement best management practices recommended by USFWS and MNDNR to minimize take for all bat species including siting turbines more than 1,000 ft (305 m) from suitable habitat, minimizing tree removal to the greatest extent possible and focusing any necessary tree removal to winter, and locking or feathering blades up to manufacturer's cut-in speed from April 1 to October 31 for the life of the Wind Project. [286]

308. One federally listed species has been documented within the Wind Project Area, a 1974 record of the Poweshiek skipperling. This species is also state endangered. Based on the age of the record and the absence of the Poweshiek skipperling on the USFWS species list for the Wind Project Area, the Poweshiek skipperling is not likely to occur in the Wind Project Area.[287] Big Bend has, however, designed the Project to avoid any impacts to MNDNR-mapped native prairie, Native Plant Communities ("NPCs"), and Minnesota Biological Survey ("MBS") Site of Biological Significance ("SOBS"), which may provide suitable habitat for this species.[288]

309. One state listed endangered bird, Henslow's sparrow, was observed during Wind Project-specific avian surveys. This species is grassland-dependent. Wind Project design avoids permanent impacts to areas classified as herbaceous and has 0.2 acre of temporary impact to herbaceous areas. As such, impacts to this species are not anticipated.[289]

310. In addition, there are records of one state listed special status mammal (plains pocket mouse) and one state listed special status insect (abbreviated underwing) historically occurring within the Wind Project Area. Additionally, there is one state-threatened insect (a caddisfly), two state-threatened plants (Sullivan's milkweed and hair-like beak rush) and one state listed special status plant (buffalo grass) within one mile of the Wind Project Area.[290]

311. Big Bend Wind has committed to implementing a number of measures to the extent practicable to avoid potential impacts to federal and state-listed species and rare and sensitive habitat in the Wind Project Area, which are described in the Amended Wind Site Permit Application.[291]

312. Bald eagles were observed during the Wind Project's avian use surveys. Overall bald eagle use was not concentrated in a specific portion of the current Wind Project area, although higher use was generally associated with areas in close proximity to rivers and lakes. A bald eagle nest was discovered within the Wind Project Area during 2020 aerial nest surveys. This bald eagle

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[285] Ex. 332 at 114 (BB-Amended Site Application).
[286] Ex. 332 at 115 (BB-Amended Site Application).
[287] Ex. 332 at 114 (BB-Amended Site Application).
[288] Ex. 332 at 115 (BB-Amended Site Application).
[289] Ex. 332 at 115 (BB-Amended Site Application).
[290] Ex. 332 at 114-15 (BB-Amended Site Application).
[291] Ex. 332 at 116 (BB-Amended Site Application).

nest is located 0.6-mile from the nearest turbine.[292] In 2021, this bald eagle nest was inactive, and therefore, no additional monitoring was conducted. No golden eagles were observed during site-specific surveys. Golden eagles may occur at the Wind Project occasionally; however, the Wind Project is expected to be low risk to golden eagles as described in the ECPG.[293]

313. Big Bend Wind has prepared an Eagle Management Plan to proactively address potential eagle impacts resulting from construction and operation of the Project. In addition, Big Bend Wind has prepared a Bird and Bat Conservation Strategy ("BBCS"), which includes standards for minimizing avian and bat impacts during construction and operation of the Wind Project. The BBCS was developed consistent with USFWS guidelines and includes additional avoidance and minimization measures that may be implemented in consultation with USFWS and/or MDNR if avian and bat mortalities exceed an acceptable level.[294]

314. MNDNR also maps rare and unique plant communities that may include relatively rare habitats (e.g., prairie) or higher quality or good examples of more common plant communities (e.g., wet meadow).[295] Big Bend Wind has sited all turbines in cultivated cropland, and; the layout avoids permanent and temporary impacts from all Project components (e.g., turbines, access roads, permanent met towers, Wind Project Substation, O&M facility, collection lines, and crane paths) on MNDNR-mapped native prairie.[296] Big Bend Wind will prepare a Native Prairie Protection Plan. The plan will be submitted to the DOC-EERA and MNDNR after issuance of the site permit and prior to construction.[297] This requirement is also reflected in the Draft Site Permit.[298]

315. In the EA, DOC-EERA stated that "[a]ny tree removal should avoid the active season (April 1 - September 30) for the Northern long-eared bat. Ensuring construction and operation are consistent with USFWS guidance would minimize impacts to species."[299] In response, Big Bend Wind stated that it did not agree to DOC-EERA's proposed conditions because it is not consistent with current USFWS guidance or recent Commission permits, which provide that "tree clearing shall occur between August 1 and May 31." Big Bend Wind further noted that DOC-EERA had not identified a reason to depart from USFWS guidance or recent Commission permits here.[300]

316. In the EA, DOC-EERA noted that MDNR "recommended that Big Bend complete the necessary field review of all wetlands within 500 feet of construction activities to determine if any of the wetlands are calcareous fens. If any calcareous fens are identified within 500 feet of any proposed construction activities a Calcareous Fen Management Plan will need to be developed in

[292] Ex. 332 at 105 (BB-Amended Site Application).
[293] Ex. 332 at 106 (BB-Amended Site Application).
[294] Ex. 332 at 111 (BB-Amended Site Application).
[295] Ex. 332 at 116 (BB-Amended Site Application).
[296] Ex. 332 at 116 (BB-Amended Site Application).
[297] Ex. 332 at 116 (BB-Amended Site Application).
[298] Ex. 107 at Appx. B § 4.7 (EA).
[299] Ex. 107 at 379 (EA).
[300] Ex. 337 at 5 (Ikkala Surrebuttal).

consultation with the MN DNR." Big Bend Wind has agreed to this recommendation, and it is reflected in Section 5.3.8.1 of the Draft Site Permit.[301]

## S. Land Use and zoning

### 1. Land use

317. For a discussion of land use within the Wind Project Area, see Sections II(F) and (I) above.

### 2. Zoning

318. Under Minn. R. ch. 7854, Minn. Stat. chs. 216E, 216F, and specifically pursuant to Minn. Stat. § 216F.07, a site permit issued by the Commission supersedes and preempts all zoning, building or land use rules, regulations or ordinances adopted by regional, county, local and special purpose governments. Therefore, Big Bend Wind is not required to apply to county zoning authorities for additional permits or approvals for the Wind Project. However, pursuant to Minn. Stat. § 216F.081, "the Commission, in considering a permit application for LWECS in a county that has adopted more stringent standards, shall consider and apply those more stringent standards, unless the Commission finds good cause not to apply the standards."

319. Cottonwood and Watonwan Counties are predominately rural with sparsely scattered rural residences, farmsteads, commercial livestock operations, agricultural support facilities, and commercial business throughout. The Wind Project Area was developed to avoid municipalities to the extent possible. [302]

320. The majority of the Wind Project Area falls within the Agricultural Districts in Cottonwood and Watonwan Counties, and consistent with the purpose of that zoning district, agricultural use of the Wind Project Area will continue after construction of the Project is complete.[303]

321. Additionally, the Project is not expected to affect the future land use planning goals of the counties in the Wind Project Area. Renewable energy development is one of the stated future goals of the in Cottonwood County.[304]

### 3. Conservation easements

322. There are several parcels of agriculture land in the Wind Project Area that are enrolled in the Conservation Reserve Enhancement Program ("CREP"), a federal land conservation program that pays farmers a yearly rental fee for agreeing to take environmentally sensitive land out of agricultural production in an effort to improve environmental health and quality. Minnesota implemented the CREP to target state-identified, high-priority conservation

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[301] Ex. 337 at 5-6 and Schedule F (Ikkala Surrebuttal).
[302] Ex. 332 at 83 (BB-Amended Site Application).
[303] Ex. 332 at 34 (BB-Amended Site Application).
[304] Ex. 332 at 32-34 (BB-Amended Site Application).

resources by offering payments to farmers and agricultural landowners to retire environmentally sensitive land using the Reinvest in Minnesota ("RIM") Reserve Program. Both conservation programs are administered by the Minnesota Board of Water and Soil Resources ("BWSR").[305] Additionally, in 2019, a Permanent Wetland Preserve ("PWP") easement program was adopted into Minnesota Statute § 103F.516.[306]

323. Enrollment in the Conservation Reserve Program and CREP is voluntary. Based on publicly available data, there are approximately 526 Acres (approximately one percent) of the Wind Project Area currently enrolled in CREP, RIM, and PWP easements.[307]

324. Big Bend Wind has designed the Project to avoid most conservation easements identified through review of publicly available data. If additional conservation easements are identified during the title search or in consultation with the NRCS, BWSR, or MNDNR, and impacts to these conservation easements are unavoidable, Big Bend will work with easement holders to obtain all necessary consents to construct and operate the Project. In temporarily disturbed areas, Big Bend will reseed with an appropriate native seed mix free of invasive species; identification and management of invasive species will be detailed in the Invasive Species Management Plan preconstruction filing.[308]

325. A member of the public expressed concern regarding the Wind Project's impact on local conservation efforts, identifying a specific property. The EA discusses this property, which is currently in active agricultural production, and the owner of that property is a participating landowner. More generally, Applicants have obtained voluntary easements from landowners who wish to participate in the Projects, and Applicants stated that no participating landowners have expressed concerns about conservation easements.[309]

### T. Decommissioning and restoration.

326. The anticipated Wind Project life is approximately 30 years beyond the date of first commercial operation.[310]

327. Big Bend Wind prepared a Project decommissioning and restoration plan in accordance with the requirements of Minn. R. 7854.0500, subp. 13. The plan also incorporates the considerations of Cottonwood County Zoning Ordinance Section 25, and Watonwan County Zoning Ordinance Section 12-M.[311]

328. The estimated decommissioning cost in current dollars is expected to be $189,631 per turbine, excluding salvage value. Including resale and salvage values, the estimated

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[305] Ex. 332 at 35 (BB-Amended Site Application).
[306] Ex. 332 at 35 (BB-Amended Site Application).
[307] Ex. 332 at 35 (BB-Amended Site Application).
[308] Ex. 332 at 34-35 (BB-Amended Site Application).
[309] *See*, *e.g.*, Ex. 107 at 38-39 (EA); Applicants' Post-Hearing Brief (Mar. 18, 2022).
[310] Ex. 332 at 136 (BB-Amended Site Application).
[311] Ex. 332 at 136 (BB-Amended Site Application); *see also* Ex. 107 at Appx. B, § 11.1 (EA).

decommissioning cost in current dollars is expected to be around $106,317 per turbine after salvage value, including associated facilities.[312]

329. The Wind Project decommissioning cost will be reassessed every five years and updated if necessary. In year 10 following the Wind Project's commercial operation date, Big Bend Wind will establish a financial surety in the form of escrow, bond, letter of credit, etc. to ensure that decommissioning funds are available at the time of decommissioning. Cottonwood and Watonwan Counties will be the beneficiaries of the financial surety.[313]

330. At the end of commercial operation, Big Bend Wind will be responsible for removing wind facilities and removing the turbine foundations to a depth of four feet below grade.[314] Big Bend Wind will restore and reclaim the site to its pre-Wind Project topography and topsoil quality using BMPs consistent with those outlined by 2012 USFWS Land-Based Wind Energy Guidelines. In non-cropland areas, the goal of decommissioning will be to restore natural hydrology and plant communities to the greatest extent practical while minimizing new disturbance and removal of native vegetation.[315]

## III. WIND SITE PERMIT CONDITIONS

331. The Draft Site Permit includes proposed permit conditions that apply to site preparation, construction, clean-up, restoration, operation, maintenance, abandonment, decommissioning, and other aspects of the Wind Project. Many of the conditions contained in the Draft Site Permit were established as part of the site permit proceedings of other wind turbine projects permitted by the Commission.

332. Big Bend Wind filed testimony concerning revisions to certain provisions and conditions in the Draft Site Permit, as well as issues identified in the EA.[316]

333. Consistent with the Amended Site Permit Application, Settlement Agreement, and related testimony, Big Bend Wind recommended a change to Section 4.1 of the Draft Site Permit to state: "The Commission authorizes a variance of the wind access buffer setback for the following turbine locations: A01 and A02." Big Bend Wind explained that a waiver of the wind access buffer setback was warranted in this case because it aided the Parties in effectuating the Settlement Agreement and did not result in significant incremental impacts on the applicable non-participating landowners. Other parties to this proceeding also support a waiver of the wind access buffer setback. DOC-EERA opposed the waiver, expressing concerns about the wind rights of non-participating landowners and turbine efficiency. Big Bend Wind responded to these concerns and, under the unique circumstances of this case, the record supports a waiver of the wind access buffer setback for turbine locations A01 and A02.[317]

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[312] Ex. 332 at 138 (BB-Amended Site Application).
[313] Ex. 332 at 138 (BB-Amended Site Application).
[314] Ex. 332 at 136 (BB-Amended Site Application).
[315] Ex. 332 at 137 (BB-Amended Site Application).
[316] Ex. 337 at 10 (Ikkala Surrebuttal).
[317] *See* Applicants' Post-Hearing Brief § I (Mar. 18, 2022).

334. In addition, Big Bend Wind did not object to DOC-EERA's recommendation that a condition regarding an independent agency monitor be included in the Site Permit. Big Bend Wind proposed the following language, with which DOC-EERA agreed:

> Section 6.2 Independent Monitor: Prior to any construction, the Permittee shall propose a scope of work and identify one independent third party agency monitor on behalf of the Department of Commerce. The scope of work shall be developed in consultation with and approved by the Department of Commerce. This third-party monitor will report directly to and will be under the control of the Department of Commerce with costs borne by the Permittee. The Permittee shall file with the Commission the scope of work 30 days prior to commencing construction and the name, address, email, phone number, and emergency phone number of the third-party monitor 14 days prior to commencing any construction and upon any change that may occur during the construction of the project and restoration.[318]

335. Although not identified in the Draft Site Permit, in the EA, DOC-EERA recommended a condition regarding tree removal timetables that would require any tree clearing to be conducted between October 1 and March 30 to mitigate impacts to northern long-eared bats. Big Bend Wind did not agree to this condition as proposed by DOC-EERA because it is not consistent with current USFWS guidance or recent Commission permits, which instead provides that "tree clearing shall occur between August 1 and May 31."[319] Because the record does not support a departure from USFWS guidance or recent Commission permits, to the extent a condition is included in the Wind Site Permit related to tree removal timetables, the record supports the condition as identified by Big Bend Wind.

## ROUTE PERMIT

## I. ROUTE PERMIT CRITERIA

336. The Power Plant Siting Act ("PPSA"), Minn. Stat. ch. 216E, requires that route permit determinations "be guided by the state's goals to conserve resources, minimize environmental impacts, minimize human settlement and other land use conflicts, and ensure the state's electric energy security through efficient, cost-effective power supply and electric transmission infrastructure."[320]

337. Under the PPSA, the Commission and the ALJ must be guided by the following responsibilities, procedures, and considerations:

> (1) evaluation of research and investigations relating to the effects on land, water and air resources of large electric power generating plants and high-voltage Transmission Lines and the

[318] Ex. 337 at Sched. F (Ikkala Surrebuttal); DOC-EERA Hearing Comments at 2. DOC-EERA noted a minor error in the proposed language (the reference to "right-of-way"), which is corrected in the language identified above and with respect to the Solar Project.

[319] Ex. 337 at 5 (Ikkala Surrebuttal).

[320] Minn. Stat. § 216E.03, subd. 7.

effects of water and air discharges and electric and magnetic fields resulting from such facilities on public health and welfare, vegetation, animals, materials and aesthetic values, including baseline studies, predictive modeling, and evaluation of new or improved methods for minimizing adverse impacts of water and air discharges and other matters pertaining to the effects of power plants on the water and air environment;

(2) environmental evaluation of sites and routes proposed for future development and expansion and their relationship to the land, water, air and human resources of the state;

(3) evaluation of the effects of new electric power generation and transmission technologies and systems related to power plants designed to minimize adverse environmental effects;

(4) evaluation of the potential for beneficial uses of waste energy from proposed large electric power generating plants;[321]

(5) analysis of the direct and indirect economic impact of proposed sites and routes including, but not limited to, productive agricultural land lost or impaired;

(6) evaluation of adverse direct and indirect environmental effects that cannot be avoided should the proposed site and route be accepted;

(7) evaluation of alternatives to the applicant's proposed site or route proposed pursuant to subdivision 1 and 2;

(8) evaluation of potential routes that would use or parallel existing railroad and highway rights-of-way;

(9) evaluation of governmental survey lines and other natural division lines of agricultural land so as to minimize interference with agricultural operations;

(10) evaluation of future needs for additional high-voltage Transmission Lines in the same general area as any proposed route, and the advisability of ordering the construction of structures capable of expansion in transmission capacity through multiple circuiting or design modifications;

[321] Factor 4 is not applicable because the Applicants are not proposing to site a large electric generating plant in this docket.

(11) evaluation of irreversible and irretrievable commitments of resources should the proposed site or route be approved; and

(12) when appropriate, consideration of problems raised by other state and federal agencies and local entities.[322]

338. Also, Minn. Stat. § 216E.03, subd. 7(e), provides that the Commission "must make specific findings that it has considered locating a route for a high-voltage transmission line on an existing high-voltage transmission route and the use of parallel existing highway right-of-way and, to the extent those are not used for the route, the [C]ommission must state the reasons."

339. In addition to the PPSA, the Commission and the ALJ are governed by Minn. R. 7850.4100, which mandates consideration of the following factors when determining whether to issue a route permit for a high-voltage transmission line:

A. effects on human settlement, including, but not limited to, displacement, noise, aesthetics, cultural values, recreation, and public services;

B. effects on public health and safety;

C. effects on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining;

D. effects on archaeological and historic resources;

E. effects on the natural environment, including effects on air and water quality resources and flora and fauna;

F. effects on rare and unique natural resources;

G. application of design options that maximize energy efficiencies, mitigate adverse environmental effects, and could accommodate expansion of transmission or generating capacity;

H. use or paralleling of existing rights-of-way, survey lines, natural division lines, and agricultural field boundaries;

I. use of existing large electric power generating plant sites;[323]

J. use of existing transportation, pipeline, and electrical transmission systems or rights-of-way;

K. electrical system reliability;

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[322] Minn. Stat. § 216E.03, subd. 7.

[323] This factor is not applicable because it applies only to power plant siting.

L. costs of constructing, operating, and maintaining the facility which are dependent on design and route;

M. adverse human and natural environmental effects which cannot be avoided; and

N. irreversible and irretrievable commitments of resources.[324]

340. There is sufficient evidence on the record for the Administrative Law Judge to assess the routes on the record using the criteria and factors set out above.

## II. APPLICATION OF ROUTE PERMIT CRITERIA TO THE PROPOSED TRANSMISSION LINE

### A. Effects on human settlement

341. Minnesota law requires consideration of the Transmission Line's (or, for the purposes of this section discussing the Route Permit, the "Project") effects on human settlement, including displacement of residences and businesses, noise created during construction and by operation of the Project, and impacts to aesthetics, cultural values, recreation, and public services.[325]

#### 1. Displacement.

342. No displacement is anticipated to occur as a result of the Transmission Line.[326]

#### 2. Noise.

343. Section 5.3.5 of the sample route requires that "construction and maintenance activities shall be limited to daytime working hours to the extent practicable to ensure nighttime noise level standards will not be exceeded." During operations, Big Bend Wind is required to adhere to noise standards, and no additional mitigation was proposed in the EA because significant impacts are not anticipated.[327]

#### 3. Aesthetics

344. There are no scenic overlooks or scenic byways in the vicinity of the Transmission Line, nor are there schools or churches in the local vicinity.[328] There are several wind farms that are visible to residences along the Proposed Route.[329]

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[324] Minn. R. 7850.4100.
[325] Minn. Stat. § 216E.03, subd. 7(b); Minn. R. 7850.4100, subp. A.
[326] Ex. 107 at 290 (EA).
[327] Ex. 107 at 300-01 (EA).
[328] Ex. 107 at 284 (EA).
[329] Ex. 316 at 31 (Route Permit Application).

345. The Project's transmission line structures and conductors would create aesthetic impacts that are anticipated to be minimal to moderate. The degree of impact would be minimal for the Proposed Route. The Project will result in an alteration of the current landscape through construction of wood poles of 70 to 120 feet.[330] Construction the Step-up Substation in an existing agricultural field will present a new visual impact. Down-shielded lighting will minimize any lighting impacts.[331]

346. Big Bend Wind has minimized aesthetic impacts by choosing routes where a transmission line is most harmonious with the landscape, such as along roads and field edges.[332] The EA notes that there is currently a significant presence of existing transmission lines and operating wind projects in all three counties crossed by the Proposed Route, such that the current aesthetics of the area has structures that will be similar to those constructed for the Transmission Line.[333]

#### 4. Cultural values

347. The communities in the Project Study Area primarily have cultural values tied to agricultural production, light industry, and recreational activities such as hunting and fishing. [334] In addition, the Jeffers Site, which is about 11 miles northwest of the Transmission Line, is a culturally important site for several Tribes in the United States, including Tribes in Minnesota.[335]

348. The EA concluded that no impacts to cultural values are anticipated because of the Transmission Line.[336]

#### 5. Recreation

349. Recreation in the vicinity of the Transmission Line consists primarily of outdoor recreational opportunities, such as hiking, fishing, camping, and snowmobiling. Recreational opportunities at public lands include MNDNR-managed WMAs, snowmobile trails, and county and city parks.[337]

350. There are no other DNR classified lands, such as State Forests, Parks, Trails, or SNAs within 1,000 feet of any routing option. There are no federal parks, forests, or refuges; or county parks, other than Mountain County Park discussed previously, within the local vicinity.[338]

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[330] Ex. 316 at 31 (Route Permit Application).
[331] Ex. 316 at 32 (Route Permit Application).
[332] Ex. 316 at 31 (Route Permit Application); Ex. 107 at 288 (EA).
[333] Ex. 107 at 289 (EA).
[334] Ex. 316 at 35 (Route Permit Application).
[335] Ex. 316 at 35 (Route Permit Application); Ex. 107 at 289 (EA).
[336] Ex. 316 at 36 (Route Permit Application); Ex. 107 at 289 (EA).
[337] Ex. 316 at 36 (Route Permit Application).
[338] Ex. 107 at 304 (EA).

351. Impacts to recreation areas would mostly be related to Transmission Line construction, and will be minimal, temporary, and isolated to specific areas throughout the Proposed Route.[339]

### 6. Public services and infrastructure

352. Transmission line projects have the potential to impact public services during both construction and operation.[340]

353. Based on review of the National Pipeline Mapping System, the Proposed Route does not cross natural gas pipelines.[341]

354. The Proposed Route crosses an existing Xcel Energy 345 kV transmission line twice before reaching the Project Step-up Substation in northwest Martin County. At the request of Xcel Energy, Big Bend Wind will construct the proposed transmission line to cross over the top of the existing 345 kV transmission line at each location.[342]

355. No impacts on radio, television, cellular phones, or GPS units are expected from construction or operation of the Proposed Route.[343]

356. The nearest public airport is located approximately 11 miles west of the Proposed Route in Windom, Minnesota.[344] There is a private landing strip located along County Road 128 in Watonwan County. The Anticipated Alignment is located on the opposite site of County Road 128 from the landing strip, and the Anticipated Alignment turns east and crosses County Road 128 and the southern end of the private landing strip. Big Bend Wind has agreed to bury approximately 0.4 miles of the HVTL, beginning on the west side of County Road 128, crossing the road and landing strip, and continuing southeast to CSAH 7. Impacts to public airports and private landing strip will not occur, as sufficient mitigation efforts are being completed by Big Bend Wind.[345]

357. Big Bend Wind will coordinate with utility providers and authorities, including emergency services, to determine the locations of facilities, appropriate safety precautions and standards, and measures to address these precautions and standards.[346]

358. Prior to construction, Big Bend Wind will locate and mark underground utilities using the Gopher State One-Call system. If Big Bend Wind needs to cross an underground utility or other underground infrastructure with heavy equipment, they will employ BMPs to protect the infrastructure, such as construction matting.[347]

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[339] Ex. 316 at 39 (Route Permit Application); Ex. 107 at 302-06 (EA).
[340] Ex. 316 at 44 (Route Permit Application).
[341] Ex. 316 at 46 (Route Permit Application).
[342] Ex. 316 at 46 (Route Permit Application).
[343] Ex. 316 at 47 (Route Permit Application); Ex. 107 at 280-81 (EA).
[344] Ex. 316 at 49 (Route Permit Application).
[345] Ex. 107 at 280 (EA).
[346] Ex. 316 at 46 (Route Permit Application).
[347] Ex. 316 at 46 (Route Permit Application).

359. Overall, the EA concluded that impacts of the Transmission Line on public services and infrastructure are anticipated to be negligible.[348] Likewise, Section 5.3.3 of the Sample Route Permit requires a permittee to minimize disruptions to public services and public utilities.

### 7. Socioeconomics and property values

360. Construction of the Transmission Line would take approximately five months and the construction work force would be approximately 45 workers. The influx of additional construction personnel will have a small positive impact on the local economy from construction crew expenditures in the local community (e.g., lodging, fuel, food). Construction materials (e.g., lumber, concrete, aggregate) may be purchased from local vendors when feasible.[349] Adverse socioeconomic impacts arising from the Transmission Line are not anticipated.[350]

361. Impacts to property values could occur; however, specific changes to a property's value are difficult to predict. Property value impacts fall off rapidly with distance; therefore, impacts are anticipated to be localized. On whole, impacts are anticipated to be minimal and dissipate quickly at distances greater than 400 feet from the Transmission Line. All routing options could have minimal to moderate impacts on local property values, but it will be highly variable to individual properties and will depend on individual property location, distance from the selected routing option, and existing infrastructure currently present around or on a given property.[351]

### 8. Land use and zoning

362. Land cover types within the Proposed Route are approximately 82.5 percent cultivated croplands, 15.8 percent developed areas (low density, medium density, and open space), 0.6 percent herbaceous lands, 0.6 percent emergent herbaceous wetlands, and 0.5 percent hay/pastureland.[352]

363. Under Minn. Stat. § 216E.10, subd. 1, a route permit from the Commission preempts all zoning, building and land use rules, regulations, and ordinances promulgated by regional, county, and local governments.[353] The majority of the Proposed Route within Cottonwood County is located in the Agricultural District, with the Route crossing a few parcels zoned as Residential – Single Unit. These Residential – Single Unit parcels are farmsteads within the rural landscape and are not the same a residential area in an urban or municipal setting. The majority of the Proposed Route in Watonwan County is located within the Agricultural District and a smaller portion of the Route travels through the Flood Plain Overlay District and the Shoreland Overlay District. The majority of the Proposed Route in Martin County is located within the Agricultural District and smaller portions of the Route travel through the Shoreland District.

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[348] Ex. 107 at 280-81 (EA).
[349] Ex. 316 at 35 (Route Permit Application).
[350] Ex. 107 at 309 (EA).
[351] Ex. 107 at 302-03 (EA).
[352] Ex. 107 at 294 (EA); Ex. 316 at 39, 40 (Route Permit Application).
[353] Ex. 107 at 45 (EA).

Where the Proposed Route crosses Cedar Creek, Martin County has specifically identified lands adjacent to Cedar Creek as a Special Protection District.[354]

364. The Transmission Line is not expected to change the underlying land use; the Step-Up Substation will change the underlying land use from agricultural to industrial.[355]

365. The Anticipated Alignment, within the Proposed Route, has been sited outside of the residential areas in Cottonwood County. The Transmission Line will also span all shoreland districts. Big Bend Wind will avoid placing pole structures within floodplain districts to the greatest extent practicable, and when pole structures must be placed in the floodplain districts the poles will be placed in a manner that is consistent with the floodplain districts requirements and ordinances.[356]

#### 9. Environmental justice

366. The EA concluded that the Transmission Line is not anticipated to have any impacts on communities of environmental justice concern.[357]

### B. Effects on public health and safety

367. The Transmission Line will meet local, state, and NESC safety standards and will be equipped with protective devices to prevent damage from transmission line or pole falls or other potential accidents. In addition, the Step-up Substation will be fenced and, accessible only by authorized personnel. Signage around the Project will warn the public of the safety risks associated with the energized equipment. [358]

368. There is no federal standard for transmission line electric fields. The Commission, however, has imposed a maximum electric field limit of 8 kV/m measured at one meter (3.28 feet) above the ground. The standard was designed to prevent serious hazards from shocks when touching large objects parked under alternating current transmission lines of 500 kV or greater.[359]

369. Big Bend Wind anticipates that the proposed 161 kV will have an electrical field of 1.0 Kv/m directly below the line, and will dissipate to 0.5 kv/m at 50 feet from the HVTL alignment. These field strengths are well below the Commission permit standard of 8.0 kV/m.[360]

370. No health impacts due to EMF are anticipated for any of the possible routing options; therefore, no mitigation is proposed. The Transmission Line will be constructed to

[354] Ex. 107 at 295 (EA).
[355] Ex. 107 at 295 (EA).
[356] Ex. 107 at 296-97 (EA).
[357] Ex. 107 at 294 (EA).
[358] Ex. 316 at 25 (Route Permit Application).
[359] Ex. 316 at 26 (Route Permit Application).
[360] Ex. 107 at 312 (EA).

maintain proper safety clearances, etc. The step-up substation site will not be accessible to the public.[361] Likewise, impacts to implantable medical devices are not expected.[362]

371. Potential impacts to residences or farming operations from neutral-to-earth stray voltage are not anticipated. HVTLs do not produce this type of stray voltage because HVTLs do not directly connect to businesses, residences, or farms.[363]

372. In summary, the record demonstrates that the construction and operation of the Project is not expected to impact emergency services or have a negative impact on public health or safety.[364] Further, the Sample Route Permit contains conditions related to the protection of public safety.[365]

## C. Effects on land-based economies

### 1. Agriculture

373. Agriculture is the primary land-based economic resource in the Project Area.[366]

374. Construction of the Transmission Line could cause minimal, temporary impacts to farmland from soil compaction and rutting, accelerated soil erosion, crop damage, temporary disruption to normal farming activities, and introduction of noxious weeds to the soil surface.[367]

375. Big Bend Wind will implement measures to reduce compaction, soil erosion, and the introduction of noxious weeds. Construction impacts to farmland would be short term and minimal in nature and would be mitigated through the proper use and installation of BMPs, such as minimizing the number of vehicles and protection and maintenance of topsoil during right-of-way clearing and generation-tie-line construction.[368]

376. No CREP or RIM parcels have been identified within the Proposed Route.[369]

### 2. Forestry

377. There are no forestry operations along the Proposed Route.[370] The Proposed Route minimizes tree clearing, and impacts to forestry are anticipated to be negligible.[371]

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[361] Ex. 107 at 313 (EA).
[362] Ex. 107 at 314 (EA).
[363] Ex. 107 at 319-20 (EA).
[364] *E.g.*, Ex. 316 at 25, 26 (Route Permit Application); Ex. 107 at 281 (EA).
[365] *E.g.*, Ex. 107 at Appx. B § 5.5.1 (EA).
[366] Ex. 316 at 51, 64 (Route Permit Application).
[367] Ex. 316 at 54 (Route Permit Application).
[368] Ex. 316 at 55 (Route Permit Application).
[369] Ex. 316 at 54 (Route Permit Application).
[370] Ex. 316 at 55 (Route Permit Application).
[371] Ex. 107 at 281 (EA).

### 3. Tourism

378. Big Bend Wind has minimized impacts to tourism opportunities by siting the Proposed Route to avoid recreation areas and municipalities where tourism opportunities are available.[372]

379. Construction and operation of the Transmission Line would not preclude future tourist activities in the vicinity of the Projects.[373]

### 4. Mining

380. The closest mapped mining resources to the Project are an inactive gravel pit that is 4.7 miles east of the Proposed Route in Watonwan County, just south of the Town of Butterfield, and an inactive gravel pit near Cedar Lake in Martin County that is 4.1 miles southeast of the Proposed Route.[374] As such, impacts to mining resources are not anticipated.[375]

## D. Effects on archaeological and historic resources

381. No previously recorded archaeological sites, and one previously recorded historic architectural resource were identified being crossed by the Proposed Route Application Alignment. The previously recorded historic architectural resource is the St. Paul & Pacific Railroad; this railroad is recommended as eligible for listing in the NRHP.[376]

382. No impacts to any recorded archaeological or architectural resources are anticipated to result from the Transmission Line, including the Step-up Substation.[377]

383. Further, Section 5.3.14 of the Sample Route Permit requires a permittee to make every effort to avoid impacts to identified archaeological and historic resources during construction.

384. Big Bend Wind has prepared an Unanticipated Discovery Plan in coordination with Tribes, which has been filed in this record and governs the discovery of unanticipated archaeological resources during construction of the Transmission Line.[378]

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[372] Ex. 316 at 57 (Route Permit Application).
[373] Ea. 107 at 283 (EA).
[374] Ex. 316 at 58 (Route Permit Application).
[375] Ea. 107 at 282 (EA).
[376] Ex. 316 at 59 (Route Permit Application).
[377] Ex. 107 at 327 (EA).
[378] Ex. 316 at 60 (Route Permit Application).

## E. Effects on the natural environment

### 1. Air quality and climate change

385. Potential air quality impacts associated with the Transmission Line come from two primary sources: short-term emissions from construction vehicles and ozone and nitrogen oxide emissions from operating the facility.[379]

386. Air emissions during construction would primarily consist of emissions from construction equipment and would include carbon dioxide, NOX, and particulate matter; dust generated from earth disturbing activities would also give rise to particulate matter. Emissions would be dependent on weather conditions, the amount of equipment at any given location, and the period of operation required for construction at that location. Any emissions from construction would be similar to those from agricultural activities common in the Project Area and would only occur for short periods of time in localized areas.[380]

387. During operation of the line, air emissions would be minimal. An insignificant amount of ozone is created due to corona from the operation of transmission lines.[381] The emission of ozone from the operation of a transmission line of the voltages proposed for the Project is not anticipated to have a significant impact on air quality and no mitigation is proposed.[382]

### 2. Water quality and resources

#### *(1) Groundwater*

388. There are no private wells within the right-of-way for any of the proposed routing options.[383] Indirect impacts to groundwater, if any, can be mitigated by avoiding or minimizing impacts to surface waters. Should dewatering be used it should be directed away from wetlands and done in a manner to prevent erosion, that is, using an appropriately sized dewatering containment system that is carefully monitored.[384]

389. Overall, potential impacts to groundwater are anticipated to be minimal.[385]

#### *(2) Surface Waters*

390. The Proposed Route right-of-way has six stream and river crossings, and four of the water courses are identified on the PWI. The Crandall Alternate Route right-of-way has 10 stream and river crossings, and nine of those water courses are identified on the PWI. The Peaking Plant Alternate Route right-of-way will cross six streams and rivers, and five of the water courses are on the PWI. The Alternate Red Route Segment has one stream and river crossing, and that

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[379] Ex. 316 at 61 (Route Permit Application).
[380] Ex. 316 at 61 (Route Permit Application); Ex. 107 at 330 (EA).
[381] Ex. 316 at 61, 62 (Route Permit Application).
[382] Ex. 316 at 62 (Route Permit Application).
[383] Ex. 107 at 335 (EA).
[384] Ex. 107 at 335 (EA).
[385] Ex. 107 at 334 (EA).

water course is identified on the PWI. The Alternate Yellow Route Segment has two stream and river crossings, and both of those crossings are on the same water course that is identified on the PWI. The Alternate Purple Route Segment and the Peaking Plant Alternate Route – Alternate Rouse Segment do no cross any PWI streams or rivers. [386]

391. Impaired waters are found throughout the Project Area, and the Proposed Route crosses five impaired waters, the Crandall Alternate Route crosses nine impaired waters, and the Peaking Plant Alternate Route crosses five impaired waters. The Alternate Yellow Route Segment has two crossings of an impaired water. The Alternate Red Alternate Route Segment, Alternate Purple Alternate Route Segment and the Peaking Plant Alternate Route – Alternate Route segment do no cross any impaired waters.[387]

392. Potential impacts along all routing options are anticipated to be minimal to moderate and can be mitigated. All waterbodies and watercourses will be spanned. Because no structures or equipment will enter the water, no direct impacts to surface waters are anticipated. However, construction activities near surface waters could cause riparian vegetation disturbance and surface erosion. [388]

*(3) Wetlands*

393. There are 3.4 acres of NWI-mapped wetlands within the Proposed Route right-of-way. None of the wetlands crossed by the Proposed Route are PWI wetlands. Based on minimum pole spacing and NWI wetlands, two structures would be placed in wetlands.[389]

394. Based on the NLCD land cover data, there are approximately 0.6 acre of emergent herbaceous wetland in the five-acre Step-up Substation. However, based on wetland-specific desktop data (NWI), there are no mapped wetlands within the Step-up Substation area.[390] The step-up substation location next to the Lakefield Peaking Plant Substation does not have any wetlands present within the area.[391]

395. Commission route permits require permittees to avoid and minimize wetland impacts. Wetland impact avoidance measures that will be implemented during design and construction of the transmission lines include spacing and placing the power poles at variable distances to span and avoid wetlands, where possible. When it is not possible to span the wetland, several measures will be utilized to minimize impacts during construction. In addition, the mitigation measures to which Big Bend Wind has committed to avoid and minimize wetland impacts are described in Section 5.5.5.1 of the Route Permit Application.[392]

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[386] Ex. 107 at 343-44 (EA).
[387] Ex. 107 at 344 (EA).
[388] Ex. 107 at 343 (EA).
[389] Ex. 316 at 73 (Route Permit Application).
[390] Ex. 316 at 73 (Route Permit Application).
[391] Ex. 107 at 351 (EA).
[392] Ex. 107 at 352-53 (EA).

*(4) Floodplains*

396. The Proposed Route crosses floodplain and shoreland districts (or overlay districts). Based on preliminary engineering design, the Proposed Route would place 20 pole structures in FEMA designated 100-year floodplains along the anticipated alignment. The Crandall Alternate Route would place 25 pole structures in the FEMA designated 100 year floodplain, and the Peaking Plant Alternate Route would place 20 pole structures in the FEMA designated 100 year floodplain. Any pole structures placed within a floodplain or shoreland area for any routing option will be placed in a manner that is consistent with all applicable zoning ordinances.[393]

397. Approximately, 0.9 acres of the step-up substation location adjacent to the Crandall Substation is within the 100 year floodplain associated with Cedar Creek. Facility structures will not be placed in the portion of the area within the 100 year floodplain.[394]

**3. Vegetation**

398. Impacts on vegetation for the transmission line will primarily be associated with cultivated crop areas. Other impacts to flora may be related to wind breaks, woodlots, fence rows, and other landscape features.[395]

399. Construction of the Transmission Line will result in short-term adverse impacts on existing vegetation, including localized physical disturbance and soil compaction. Construction activities, such as site preparation and installation of structures, are anticipated to impact approximately 0.1 to 0.5 acres of vegetation per structure.[396]

400. Construction would also result in long-term impacts on vegetation by permanently removing vegetation at each structure and within portions of the right-of-way that are currently dominated by forest or other woody vegetation. Big Bend Wind would permanently convert forested areas and shrub lands to low-stature vegetation by clearing woody vegetation throughout the entire right-of-way where it occurs.[397]

401. Vegetation management is necessary for the safe operation of the Transmission Line as tree branches can cause stress on transmission lines and increase the risk of outages, especially in areas with a strong wind resource, which is typical of this area of the state. Big Bend will minimize the need for trimming and removal of trees during construction and operation of the Transmission Line. Where trimming of trees is necessary, it will be performed with best practices for tree trimming so as to minimize stress on the tree. [398]

402. The primary means of mitigating impacts to flora is to avoid vegetation, particularly trees, through prudent routing. Mitigation can be achieved, in part, by using existing infrastructure rights-of-way (e.g., roadway, transmission line) such that tree removal is minimized. Mitigation

[393] Ex. 107 at 331 (EA).
[394] Ex. 107 at 332, 334 (EA).
[395] Ex. 316 at 74 (Route Permit Application).
[396] Ex. 316 at 74 (Route Permit Application).
[397] Ex. 316 at 74 (Route Permit Application).
[398] Ex. 316 at 55-56 (Route Permit Application).

can also be accomplished by spanning plant communities. Wooded areas along the Proposed Route consist of isolated rows of trees that are used as shelter belts or wind breaks along the edges of agricultural fields or surrounding farmsteads and in riparian areas along waterbodies. Big Bend Wind made every effort to develop a Route and Application Alignment that minimizes tree clearing.[399]

403. Further, Sections 5.3.11 and 5.3.12 of the Sample Route Permit requires a permittee to employ BMPs to avoid the introduction and spread of invasive species and noxious weeds.

#### 4. Wildlife and habitat

404. Wildlife using the ROW are expected to be displaced during construction due to increased human activity. Most wildlife would return to the area after construction.[400]

405. Impacts to terrestrial species will be intermittent, temporary, and localized during construction. While direct significant impacts might occur to individuals, population level impacts are not anticipated. These short-term, localized impacts can be minimized. Operational impacts are expected from continued maintenance of the right-of-way. These intermittent but long-term impacts will be of a small size.[401]

406. There are no DNR WMAs, SNAs, or Migratory Waterfowl Feeding and Resting Areas or National Audubon Society Important Bird Areas within the local vicinity of any routing option. There are also no WPAs or National Wildlife Refuge lands within the local vicinity of any of the routing options.[402]

407. Impacts to habitat are primarily associated with widening existing corridors. These long-term impacts are unavoidable. The Proposed Route crosses the MBS SOBS (Cedar 2-3), which has moderate quality habitat and portions of the Site are native prairie areas. These types of areas provide higher quality habitat than what is typically available on the primarily agricultural landscape in the Project Area. Additionally, this type of habitat is much more limited in availability. The Cedar 2-3 Site will attract more specialized wildlife species, including species that don't tolerate human disturbance as well as generalist wildlife species more commonly found in agricultural dominated landscapes. Potential impacts to the wildlife utilizing the Cedar 2-3 Site of Biological Significance is expected to be minimal and temporary, and these impacts can be avoided or minimized. Big Bend Wind is not going to place any pole structures within the Cedar 2-3 Site, and the area will be spanned by the HVTL. Equipment and machinery will only access the Site if necessary, and disturbance to vegetation and the soil surface will be minimized to the greatest extent practicable.[403]

408. Overall, potential impacts to wildlife and habitat are expected to be minimal for all routing options, as the primary land cover type being impacted by the Transmission Line is

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[399] Ex. 316 at 74 (Route Permit Application).
[400] Ex. 107 at 353 (EA).
[401] Ex. 107 at 353 (EA).
[402] Ex. 107 at 354-55 (EA).
[403] Ex. 107 at 353-54 (EA).

cultivated cropland. Direct impacts to avian species, caused by direct line strikes and electrocutions, are more likely to occur where HVTLs are placed adjacent to larger tracts of habitat, water bodies, water courses, or if the HVTL divides an avian resting area and a feeding area. Bird diverters installed near these areas will help minimize the potential for strike. Potential impacts will be short- and long-term. These localized impacts can be minimized in part and are unavoidable in part.[404]

409. Further, Section 5.3.15 of the Sample Route Permit requires a permittee to cooperate with MDNR to identify areas where bird flight diverters will be incorporated prevent large avian collisions.

#### 5. Soils

410. Soil compaction and rutting will occur from movement of construction vehicles along the right-of-way and near the step-up substation. Construction of the step-up substation will result in a small area of new impervious surface. Potential impacts to soils can be mitigated by using BMPs and standard construction practices. A variety of methods can be used to minimize soil erosion.[405] Further, Section 5.3.7 of the Sample Route Permit requires a permittee to implement soil erosion and sediment control practices.

### F. Rare and unique natural resources

411. The Northern long-eared Bat, prairie bush clover, abbreviated underwing, great plains toad, phlox moth, Poweshiek Skipperling, and Sullivant's milkweed are state listed species potentially present within one mile of the routing options, but no records of these species were identified within any of the routing option rights-of-way.[406]

412. The Proposed Route crosses one SOBS ranked as moderate, Cedar 2-3, which indicates that the site has been characterized as having records of rare species, NPCs that are moderately disturbed, or strong potential for recovery of NPCs or ecological processes.[407] This site will be spanned, and pole structure placement within this site will be avoided. Implementing these mitigation measures will also avoid impacts to the NPC, Dry Hill Prairie (southern) type areas within the Cedar 2-3 MBS SOBS. This will also avoid potential impacts to prairie bush clover, Poweshiek Skipperling, abbreviated underwing, and phlox moth, if they were present within the site.[408]

413. In the EA, DOC-EERA stated that "[a]ny tree removal should avoid the active season (April 1 - September 30) for the Northern long-eared bat. Ensuring construction and operation are consistent with USFWS guidance would minimize impacts to species."[409] In response, Big Bend Wind stated that it did not agree to DOC-EERA's proposed conditions because

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[404] Ex. 107 at 353-54 (EA).
[405] Ex. 107 at 341-42 (EA).
[406] Ex. 107 at 336 (EA).
[407] Ex. 316 at 81 (Route Permit Application).
[408] Ex. 107 at 341 (EA).
[409] Ex. 107 at 379 (EA).

it is not consistent with current USFWS guidance or recent Commission permits, which provide that "tree clearing shall occur between August 1 and May 31." Big Bend Wind further noted that DOC-EERA had not identified a reason to depart from USFWS guidance or recent Commission permits here.[410]

### G. Application of various design considerations

414. The Transmission Line is designed to meet current and projected needs. While the Wind Project and Solar Project will together generate up to 335 MW of renewable energy, the proposed transmission line would be designed, constructed, and operated to be capable of supporting and transmitting up to 374 MW of electricity. The capacity provided by the Transmission Line allows for potential future additional generation in southern Minnesota to be interconnected to the electric grid.[411]

### H. Use and paralleling of existing rights-of-way

415. Sharing right-of-way with existing infrastructure or paralleling existing rights-of-way minimizes fragmentation of the landscape and can minimize human and environmental impacts. The Commission considers the use and parallel of existing rights-of-way in determining the most appropriate route for the project. To minimize impacts on the environment and affected landowners, Big Bend Wind looked for routing opportunities that will share existing rights-of-way along road and railroad rights-of-way and field and section lines.[412]

416. *Proposed Route.* The Proposed Route parallels existing road rights-of-way for the majority of its length.[413]

417. *Crandall Alternate Route.* The Crandall Alternate Route is approximately 14.5 miles long and parallels existing infrastructure for the vast majority of its length.[414]

418. *Peaking Plant Alternate Route.* The Peaking Plant Alternate Route is approximately 18 miles long and parallels existing infrastructure for the vast majority of its length.[415]

419. *Red Segment.* The Alternate Red Segment would have more of its length collocated with roads and is routed further from the Watonwan River.[416]

420. *Yellow Segment.* The Alternate Yellow Segment follows the township road for 0.35 miles before turning and following a parcel line/field edge for 0.5 miles to the Proposed Route.[417]

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[410] Ex. 337 at 5 (Ikkala Surrebuttal).
[411] Ex. 316 at 8 (Route Permit Application).
[412] Ex. 107 at 370-371 (Environment Assessment (Part 2 of 2)).
[413] Ex. 107 at 287 (EA).
[414] Ex. 316 at 14 (Route Permit Application).
[415] Ex. 316 at 14 (Route Permit Application).
[416] Ex. 316 at 13 (Route Permit Application).
[417] Ex. 316 at 13 (Route Permit Application).

421. *Purple Segment.* The Alternate Purple Segment begins at the intersection of 420th Street and County Road 128 and follows the south side of 420th east for one mile before turning south along a township minimum maintenance road for one mile and rejoining the Proposed Route. The Alternate Purple Segment would eliminate the need to bury approximately 0.4 Miles of the Proposed Route due to an existing landing strip located on the east side of County Road 128, north of the Watonwan River and south of the farmstead driveway. [418]

422. *Blue Segment.* The Alternate Blue Route Segment is essentially the same length as the corresponding segment of the Peaking Plant Alternate Route, but the Peaking Plant Alternate Route would place pole structures in approximately a half mile of agricultural crop field where no fence lines or other ROWs currently exist.[419]

## I. Electrical system reliability

423. The NESC are mandatory standards when constructing new facilities or upgrading existing facilities. These NESC is ensures that the collection system, the transmission lines, and all the associated structures are built from high-quality materials that will withstand the operational stresses placed upon them over the expected lifespan of the equipment, provided routine maintenance is performed.[420]

424. NERC has established standards to define the reliability requirements for planning and operating electrical transmission in North America.[421]

425. The Transmission Line will be designed and constructed in accordance with applicable reliability standards.[422] Further, should Big Bend Wind receive a generation interconnection agreement from MISO, electrical reliability will be met.[423]

## J. Costs of constructing, operating, and maintaining the facility

426. The total estimated cost of the Transmission Line along the Proposed Route is approximately $12-14 million. This estimate is an engineering estimate and expected to reflect actual Project costs within 20 percent. Final costs are dependent on a variety of factors, including the approved route, timing of construction, cost of materials, and labor.[424]

427. The anticipated annual operating and maintenance costs for the Transmission Line is approximately $1,500 per mile.[425]

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[418] Ex. 316 at 13-14 (Route Permit Application).
[419] Ex. 107 at 266 (EA).
[420] Ex. 316 at 49 (Route Permit Application).
[421] Ex. 316 at 49 (Route Permit Application).
[422] Ex. 316 at 6 (Route Permit Application).
[423] Ex. 107 at 367 (EA).
[424] Ex. 316 at 7 (Route Permit Application).
[425] Ex. 316 at 7 (Route Permit Application).

## K. Adverse human and natural environmental effects that cannot be avoided

428. Transmission lines are infrastructure projects that have unavoidable adverse human and environmental impacts. Even with mitigation strategies, certain impacts cannot be avoided. [426]

429. The Transmission Line will have permanent aesthetic impacts, temporary construction-related impacts, permanent impacts on agriculture, and permanent impacts on the natural environment. [427] However, the Proposed Route has been sited to minimize adverse human and environmental impacts.[428]

## L. Unavoidable, irreversible, and irretrievable commitments of resources

430. Resource commitments are irreversible when it is impossible or very difficult to redirect that resource to a different future use; an irretrievable commitment of resources means the resource is not recoverable for later use by future generations.[429]

431. Irreversible impacts include the land required to construct the Transmission Line. While it is possible that the structures, conductors, and substation could be removed and the right-of-way restored to previous conditions, this is unlikely to happen in the foreseeable future (~50 years). Certain land uses within the right-of-way will no longer be able to occur, especially at the step-up substation. [430]

432. Irreversible and irretrievable commitments are anticipated to occur for all segment alternatives and not to vary significantly among alternatives.[431]

## M. Summary of factors analysis

433. As set forth in the EA, the applicable routing factors are similar across all routing alternatives in this record, with the Peaking Plant Alternate Route having greater impacts on agriculture and the Proposed Route having potentially greater impacts on rare and unique habitats (with respect to a moderate ranked MBS Site of Biodiversity Significance). However, as discussed above and in the EA, Big Bend Wind has committed to construction and pole structure placement to avoid impacts to the site identified in the EA along the Proposed Route and, as such, impacts across all routing alternatives are similar.[432] These factors, together with the fact that the Proposed Route terminates at Big Bend Wind's identified POI and is a route for which Big Bend Wind has acquired, voluntarily, all needed land rights, support the selection of the Proposed Route for the Transmission Line.

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[426] Ex. 107 at 362 (EA).
[427] Ex. 107 at 362 (EA).
[428] Ex. 316 at 9 (Route Permit Application).
[429] Ex. 107 at 363 (EA).
[430] Ex. 107 at 363 (EA).
[431] Ex. 107 at Summary (EA).
[432] Ex. 107 at 379-80 (EA); Ex. 337 at 5 (Ikkala Surrebuttal).

## III. ROUTE PERMIT CONDITIONS

434. The sample route permit includes proposed permit conditions that apply to right-of-way preparation, construction, clean-up, restoration, operation, maintenance, abandonment, decommission, and other aspects of the Transmission Line. Many of the conditions contained in the sample route permit were established as part of the route permit proceedings of other transmission lines permitted by the Commission.

435. Big Bend Wind did not object to DOC-EERA's recommendation that a condition regarding an independent agency monitor be included in the Route Permit. Big Bend Wind proposed the following language, with which DOC-EERA agreed:

> Section 6.2 Independent Monitor: Prior to any construction, the Permittee shall propose a scope of work and identify one independent third party agency monitor on behalf of the Department of Commerce. The scope of work shall be developed in consultation with and approved by the Department of Commerce. This third-party monitor will report directly to and will be under the control of the Department of Commerce with costs borne by the Permittee. The Permittee shall file with the Commission the scope of work 30 days prior to commencing construction and the name, address, email, phone number, and emergency phone number of the third-party monitor 14 days prior to commencing any construction or right-of-way preparation and upon any change that may occur during the construction of the project and restoration of the right-of-way.[433]

436. Although not identified in the sample route permit, in the EA, DOC-EERA recommended a condition regarding tree removal timetables that would require any tree clearing to be conducted between October 1 and March 30 to mitigate impacts to northern long-eared bats. Big Bend Wind did not agree to this condition as proposed by DOC-EERA because it is not consistent with current USFWS guidance or recent Commission permits, which instead provides that "tree clearing shall occur between August 1 and May 31."[434] Because the record does not support a departure from USFWS guidance or recent Commission permits, to the extent a condition is included in the route permit related to tree removal timetables, the record supports the condition as identified by Big Bend Wind.

# RED ROCK SOLAR CERTIFICATE OF NEED

## I. CERTIFICATE OF NEED CRITERIA

437. A "large energy facility" is "any electric power generating plant or combination of plants at a single site with a combined capacity of 50,000 kilowatts or more and transmission lines

[433] Ex. 337 at Sched. H (Ikkala Surrebuttal); DOC-EERA Hearing Comments at 2.
[434] Ex. 337 at 5 (Ikkala Surrebuttal).

directly associated with the plant that are necessary to interconnect the plant to the transmission system."[435]

438. A Certificate of Need is required for all large energy facilities. Because Red Rock Solar proposes to build a project generating up to 60 MW, it must obtain a Certificate of Need from the Commission for this Project.[436]

439. *See* paragraphs 125 through 129 regarding the certificate of need criteria.

## II. APPLICATION OF CERTIFICATE OF NEED CRITERIA TO THE SOLAR PROJECT

### A. Probable result of denial (Minn. R. 7849.0120(A))

440. Under Minn. R. 784.0120(A), the Commission must examine whether "the probable result of denial would be an adverse effect upon the future adequacy, reliability, or efficiency of energy supply to the applicant, to the applicant's customers, or to the people of Minnesota and neighboring states." The Commission considers multiple factors, including the forecasted need, available energy resources, and the advantages and disadvantages of utilizing alternative resources.[437]

441. The Solar Project will provide up to 60 MW of nameplate capacity to meet the electricity needs of Minnesota and the region. Denying the CN Application would result in the loss of a significant amount of electricity needed to satisfy state and regional demand, and would deny utilities and other customers the opportunity to purchase clean, low-cost energy that will count toward satisfying renewable energy standards and goals. There is a significant body of state legislative policy requiring utilities to obtain a certain percentage of their total energy resources from renewable energy, which supports the need for reliable, efficient renewable resources, like the wind energy produced by the Solar Project. Likewise, the generation fleet in the MISO region is in transition, and MISO is engaged in active analysis and planning to enable the transition to lower carbon resources. The Solar Project is only one part of the transition to less carbon intensive energy, and this shift to new generation technology will continue, even absent the Project. The Solar Project layout has been designed to efficiently utilize this solar resource while minimizing potential human and environmental impacts.[438]

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[435] Minn. Stat. § 216B.2421, subd. 2(1).

[436] Minn. Stat. § 216B.2421, subd. 2(1).

[437] *In re Northern States Power Co*., No. A10-397, 2010 WL 4608342, at *5 (Minn. Ct. App. Nov. 15, 2020); *see also In re Great River Energy*, Nos. A09-1646, A09-1652, No. 2010 WL 2266138, at *3-4 (Jun. 8, 2010) (affirming grant of certificate, even when evidence showed general decreases in energy needs over the next decade because, among other things, "forecasts were only one of the factors the MPUC considered in its decision to grant the certificates of need.")

[438] Ex. 317 at 9-10 (RR-CN Application).

### 1. Accuracy of the Applicant's forecast of demand (Minn. R. 7849.0120(A)(1))

442. Minnesota Rule 7849.0120(A)(1) requires consideration of "the accuracy of the applicant's forecast of demand for the type of energy that would be supplied by the proposed facility" when determining if denial of a Certificate of Need application would have an adverse effect.

443. Red Rock Solar was granted an exemption to Minn. R. 7849.0270, which requires an applicant to provide information concerning its system peak demand and annual energy consumption. Instead, Red Rock Solar was required to provide information about regional remand, consumption, and capacity.[439]

444. Analyzing this requirement, DOC-DER concluded that Red Rock Solar has met this factor. Relying on the Commission's Plum Creek Order, DOC-DER explained that the Commission previously found that there is no requirement that an applicant "present a PPA, IRP, biennial transmission project report, or any other specific data to demonstrate demand. The Legislature contemplated that independent power producers would construct such projects and did not require them to enter into power purchase agreements before obtaining a certificate of need. Rather, the Commission may evaluate demand using any data it finds persuasive, on a case-by-case basis."[440] In the Plum Creek Order, the Commission concluded that the applicant had "showed that utilities and commercial and industrial customers have reported strong clean energy goals above and beyond RES requirements, and additional renewable energy sources will be needed to meet that demand. Furthermore, utilities plan to retire coal-based generating units across the region in the coming years, and renewable energy sources are expected to fill some of the resulting capacity needs. These established goals and plans are strong evidence of a utility's intention for future energy development and can be used to demonstrate demand, especially when consistent with stated public policy goals."[441]

445. DOC-DER noted that, as in the Plum Creek Order, Red Rock Solar cited several sources that create a need for the Solar Project. First, Red Rock Solar cited the integrated resource plans, renewable energy goals, and carbon dioxide emissions reduction goals of Xcel Energy, Otter Tail Power Company, Minnesota Power, and Southern Minnesota Municipal Power Agency. Second, Red Rock Solar cited to Minnesota Statutes §§ 216C.055 and 216H.026 as supporting the need for renewable energy. Third, Red Rock Solar cited corporations turning to renewable energy to save money and meet sustainability goals. Commercial and industrial customers either purchase renewable energy directly or obtain renewable benefits and cost savings through financially settled contracts [also known as virtual power purchase agreements]. Fourth, Red Rock Solar stated that retirements of coal-based generating units are expected across the MISO region, and renewable generation resources are expected to fill the resulting capacity needs. Therefore, DOC-DER

[439] Ex. 806 at 5 (DOC-DER Comments).
[440] Ex. 806 at 4 (DOC-DER Comments).
[441] Ex. 806 at 5 (DOC-DER Comments).

concluded that Red Rock Solar's forecast of the need for the renewable energy expected to be produced by the Solar Project is reasonable.[442]

446. Given the undisputed accuracy of the demand data provided, Red Rock Solar has satisfied Minn. R. 7849.0120(A)(1).

### 2. Effects of Applicant's conservation programs (Minn. Rule 7849.0120(A)(2))

447. Minnesota Rule 7849.0120(A)(2) requires consideration of "the effects of the applicant's existing or expected conservation programs and state and federal conservation programs."

448. The Commission granted Red Rock Solar an exemption from this requirement, and DOC-DER concluded that it is unlikely that the regional needs for solar energy at the scale indicated by Red Rock Solar could be met through conservation programs.[443]

### 3. Promotional practices (Minn. R. 7849.0120(A)(3))

449. Minnesota Rule 7849.0120(A)(3) requires consideration of the effects of promotional practices of the applicant that may have given rise to the increase in the energy demand, particularly promotional practices which have occurred since 1974.

450. This subfactor correlates to Minn. Stat. § 216B.243, subd. 3(4), which requires the Commission, in assessing need, to consider "promotional activities that may have given rise to the demand for this facility."

451. The Commission granted Red Rock Solar an exemption from this requirement. because Red Rock Solar does not have captive retail customers to consider. Further, Red Rock Solar stated that it has not engaged in promotional activities that could have given rise to the need for the electricity to be generated by the proposed Project.[444]

### 4. Ability of facilities not requiring a CN to meet future demand (Minn. R. 7849.0120(A)(4))

452. Minn. R. 7849.0120(A)(4) requires consideration of "the ability of current facilities and planned facilities not requiring Certificates of Need to meet the future demand." Alternatives not requiring a Certificate of Need can be either generation or transmission facilities.

453. This subfactor correlates, in part, to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission to consider "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of

[442] Ex. 805 at 4-5 (DOC-DER Comments).
[443] Ex. 806 at Attachment 1 (DOC-DER Comments).
[444] Ex. 806 at 15 (DOC-DER Comments).

existing energy generation and transmission facilities, load-management programs, and distributed generation."

454. The primary alternatives to the proposed facilities are purchases from renewable facilities outside Minnesota or construction of renewable Minnesota facilities that are small enough not to require certificates of need (less than 50 MW). As an IPP, Red Rock Solar is a producer or seller, rather than purchaser, of electric generation. A renewable facility of less than 50 MW would not contribute as substantial an amount of renewable energy towards the Minnesota RES or towards a utility's need for additional solar resources and would not benefit as much from economies of scale as the proposed Project. In addition, as an IPP Red Rock Solar has the incentive to site generation in an economically efficient manner inside or outside Minnesota. Further, DOC-DER noted that any party wishing to do so may propose an alternative to the proposed Solar Project, and that no party had done so. DOC-DER concluded that current and planned facilities not requiring a CN have not been demonstrated to be more reasonable than the proposed Solar Project, and the record supports this conclusion.[445]

#### 5. Effect of facility in making efficient use of resources (Minn. R. 7849.0120(A)(5))

455. Minn. R. 7849.0120(A)(5) requires consideration of "the effect of the proposed facility, or a suitable modification thereof, in making efficient use of resources."

456. The Solar Project offers an opportunity to maximize the economic attributes that benefit the local community and deliver an overall cost-competitive energy project. The Solar Project's strong solar resource, proximity to existing electrical and transportation infrastructure, and ability to create a construction-efficient layout are some of the major benefits of the Solar Project. Further, the Solar Project's status as part of the state's first hybrid wind/solar project presents a unique opportunity to add complementary renewable generation in a cost-efficient manner.[446]

457. In summary, the record demonstrates that Red Rock Solar has satisfied each of the five sub-factors of Minn. R. 7849.0120(A).

### B. A more reasonable and prudent alternative to the facility has not been demonstrated (Minn. R. 7849.0120(B))

458. To grant a Certificate of Need, Minn. R. 7849.0120(B) requires that "a more reasonable and prudent alternative to the proposed facility has not been demonstrated by a preponderance of the evidence on the record." This factor relates to Minn. Stat. § 216B.243, subd. 3(6), which requires the Commission to consider "possible alternatives for satisfying the energy demand or transmission needs including but not limited to potential for increased efficiency and upgrading of existing energy generation and transmission facilities, load-management programs, and distributed generation."

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[445] Ex. 806 at 10 (DOC-DER Comments).
[446] Ex. 317 at 7 (RR-CN Application).

459. Consistent with state requirements, Red Rock Solar analyzed multiple alternatives, as did the EA. In its CN Application, Red Rock Solar discussed, among other things, new transmission, wind power, hydropower, biomass, emerging technologies, and concluded that the Solar Project is the best alternative for meeting the capacity and renewable energy needs in Minnesota and the region in the near term. All other potential alternatives reviewed by Red Rock Solar fall short in one or more categories. Red Rock Solar's analysis demonstrated that the Project is a cost-effective energy resource; the Project uses commercially proven and reliable generating technology for the electrical generation output needed; and, the Project is the energy source appropriate for the site selected for the Project.[447]

460. The EA analyzed the Solar Project as proposed, a 335 MW solar facility, a 335 MW wind energy and solar facility hybrid located elsewhere in the state, a 335 MW solar facility with battery storage located elsewhere in the state, and the no-build alternative.[448] The EA did not conclude that any of these alternatives were more reasonable and prudent that the Projects as proposed.

### 1. Size, type, and timing of proposed facility compared to reasonable alternatives (Minn. R. 7849.0120(B)(1))

461. Minn. R. 7849.0120(B)(1) requires consideration of "the appropriateness of the size, type, and timing of the proposed facilities relative to reasonable alternatives." Each of these three categories of alternatives is discussed below.

462. Size. Regarding size, although collective information submitted by the utilities subject to the Minnesota RES indicates that there is sufficient energy in aggregate to meet the RES and SES, this does not consider the potential need for additional renewable resources from individual utilities with insufficient energy to meet RES. Additional for renewable energy may also be required as power purchase agreements involving renewable resources expire. Additionally, utilities in neighboring states may have a need for renewable energy. Further, the Solar Project is sized to take advantage of economies of scale while also making efficient use of existing transmission capacity. Thus, DOC-DER concluded that the proposed Project's size is not excessive and therefore is reasonable, and the record supports this conclusion.[449]

463. Type. The Commission's Exemption Order granted Red Rock Solar an exemption to Minnesota Rules, part 7849.0250 (B) (1) – (3), and (5) and a partial exemption to data requirement (4), to the extent that the Rule requires discussion of non-renewable alternatives. The goal of the Solar Project is to provide renewable energy that will help utilities satisfy Minnesota's RES or SES. Given these factors, along with the preference for renewable resources in Minnesota Statutes, DOC-DER concluded that the proposed Project's type is reasonable, and the record supports this conclusion.[450]

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[447] Ex. 317 at 26 (RR-CN Application).
[448] Ex. 107 at 69-73 (EA).
[449] Ex. 806 at 7 (DOC-DER Comments).
[450] Ex. 806 at 8 (DOC-DER Comments).

464. Timing. The timing of the Solar Project generally coincides or precedes the anticipated need for solar additions of multiple utilities in their IRPs as discussed in the forecast section above. As DOC-DER noted, current IRPs address through 2034. Thus, the proposed Project is timed so as to be available to meet the IRP needs. DOC-DER explained that: there will likely not be a one-to-one match between CN applications based on the regional need for renewable generation and Minnesota utilities' RES compliance level; additional renewable resources may be needed for certain Minnesota utilities to meet future RES requirements due to capacity expirations; and capacity additions are typically added in "chunks" due to the benefits of economies of scale. In summary, DOC-DER concluded that the timing of the Solar Project is reasonable, and the record supports this conclusion.[451]

465. 151. As summarized above, the record reflects that Red Rock Solar has appropriately considered the size, type, and timing of the Solar Project compared to those of the reasonable alternatives and found that the Project is superior in all respects. Thus, the Applicant has satisfied Minn. R. 7849.0120(B)(1).

### 2. Cost of the facility and the energy to be supplied compared to reasonable alternatives (Minn. R. 7849.0120(B)(2))

466. Minn. R. 7849.0120(B)(2) requires consideration of "the cost of the proposed facility and the cost of the energy to be supplied by the proposed facility as compared to the costs of the reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives."

467. In the Exemption Order the Commission granted Red Rock Solar an exemption to Minnesota Rules, part 7849.0250 (C), which requires an applicant to provide a description of alternatives that could provide electric power at the asserted level of need. Only details regarding renewable alternatives need be provided, including an estimate of the proposed Project's effect on wholesale rates in Minnesota or the region.[452]

468. Red Rock Solar intends to sell the power produced from the proposed Project to a potential buyer, one possibly being an investor-owned utility within Minnesota. In the event a PPA is reached with a Minnesota utility, the Commission will have the opportunity to review the terms and costs associated with the PPA in its own proceeding. The Solar CN Application also included a discussion of alternatives to the proposed Solar Project, including, but not limited to hydropower, biomass, wind, and emerging technologies. Red Rock Solar concluded that solar energy resources are cost effective when compared with other renewable resources. DOC-DER concluded that the data provided by Red Rock Solar is reasonable and demonstrates solar energy's cost advantages and disadvantages relative to other new, renewable sources, and the record supports this conclusion.[453]

469. Further, because the Solar Project would not be subject to fluctuations in fuel costs, the Solar Project could help stabilize or lower electricity prices in the state and region. DOC-DER

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[451] Ex. 806 at 8 (DOC-DER Comments).
[452] Ex. 806 at 10 (DOC-DER Comments).
[453] Ex. 806 at 11 (DOC-DER Comments).

concluded that the cost of the Solar Project and the cost of energy to be supplied by the proposed Project is reasonable compared to the costs of reasonable alternatives and the cost of energy that would be supplied by reasonable alternatives, and the record supports this conclusion.[454]

470. Thus, Red Rock Solar has satisfied Minn. R. 7849.0120(B)(2).

### 3. Effects of facility on natural and socioeconomic environments compared to reasonable alternatives (Minn. R. 7849.0120(B)(3))

471. Minn. R. 7849.0120(B)(3) requires consideration of "the effects of the proposed facility upon the natural and socioeconomic environments compared to the effects of reasonable alternatives."

472. The Solar Project will have relatively minor pollution impacts. Approximately 451.8 acres of predominately agricultural land would be permanently impacted by construction and installation of the proposed Solar Project. As an emission-free fuel, solar does not result in releases of CO2, NOx, etc. Therefore, consideration of the effects on the natural and socioeconomic environments using the Commission-approved externality values would not impact the overall cost analysis against the proposed Project. Therefore, DOC-DER concluded this sub-criterion had been met, and the record supports this conclusion.[455]

473. Likewise, the EA and Solar CN Application contain analysis concerning the human and environmental effects of the Solar Project and demonstrate that the Solar Project compares favorably with other alternatives in the record with respect to this fact.[456]

474. Thus, Red Rock Solar has satisfied Minn. R. 7849.0120(B)(3).

### 4. Reliability of facility compared to reasonable alternatives (Minn. R. 7849.0120(B)(4))

475. Minn. R. 7849.0120(B)(4) requires consideration of "the expected reliability of the proposed facility compared to the expected reliability of reasonable alternatives."

476. This subfactor correlates, in part, to Minn. Stat. § 216B.243, subd. 3(9), which requires consideration of "the benefits of enhanced regional reliability, access, or deliverability to the extent these factors improve the robustness of the transmission system or lower costs for electric consumers in Minnesota."

477. Red Rock Solar estimated that the Solar Project will have an availability of about 99 percent, which it stated is consistent with industry standards. In addition, Red Rock Solar estimated a net capacity factor of between approximately 24 and 27 percent, which is within the

[454] Ex. 806 at 11 (DOC-DER Comments).
[455] Ex. 806 at 11 (DOC-DER Comments).
[456] Ex. 107 at 76-254 (EA).

National Renewable Energy Laboratory's Utility-Scale Energy Technology Capacity Factors range.[457]

478. Thus, the record demonstrates that Red Rock Solar has satisfied Minn. R. 7849.0120(B)(4).

#### 5. Conclusion regarding Minn. R. 7849.0120(B)

479. As discussed above, Red Rock Solar has satisfied each of the four sub-factors of Minn. R. 7849.0120(B).

480. No other party submitted a more reasonable and prudent alternative to the proposed Project that satisfies the requirements of Minn. R. 7849.0110 and 7849.0120.

### C. The facility will provide benefits compatible with protecting the natural and socioeconomic environments

481. Minn. R. 7849.0120(C) requires that "by a preponderance of evidence on the record, the proposed facility, or a suitable modification of the facility, will provide benefits to society in a manner compatible with protecting the natural and socioeconomic environments, including human health."

482. Applying the factors set forth in Minn. R. 7849.0120(C), the energy produced by the Solar Project will provide significant, numerous, and varied societal benefits, with minimal negative impacts.[458]

#### 1. Relationship of facility to overall state energy needs (Minn. R. 7849.0120(C)(1))

483. Minnesota Rule 7849.0120(C)(1) requires consideration of "the relationship of the Project, or a suitable modification thereof, to overall state energy needs."

484. A review of the most recently filed IRPs indicates that Minnesotans are expected to have little change in their electricity requirements. However, all three utilities are proposing retirements of large baseload coal units. As a result, over time these and other utilities are planning on adding wind and solar generating capacity. The Solar Project could help Minnesota meet its energy needs while supporting the state's renewable energy and GHG reduction goals (see Minnesota Statutes §§ 216B.1691 and 216H.02). DOC-DER concluded that the Solar Project fits the state's overall energy needs, and the record supports this conclusion.[459]

485. Further, Minn. Stat. § 216B.243, subd. 2(3) requires that the Commission consider the relationship of the proposed facility to other state energy needs as described in the most recent Quadrennial Report prepared under Minn. Stat. § 216C.18.[460] The Quadrennial Report discusses

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[457] Ex. 806 at 12 (DOC-DER Comments).
[458] Ex. 806 at 13-14 (DOC-DER Comments).
[459] Ex. 806 at 6 (DOC-DER Comments).
[460] Ex. 314 at 11 (BB-CN Application).

not only utility efforts to meet RES requirements, but also voluntary green pricing programs. Green pricing programs provide Minnesota ratepayers the option to voluntarily purchase energy from renewable sources to meet all or a portion of their energy requirements. The Quadrennial Report also describes the GHG reduction goals in Minn. Stat. § 216H.02 and the role renewable energy has and continues to play in driving down the carbon intensity of electricity generated in Minnesota. Thus, as a source of competitively priced, no emission, solar energy, the Solar Project is compatible with Minnesota's energy needs.[461]

### 2. Effects of facility on natural and socioeconomic environments (Minn. R. 7849.0120(C)(2))

486. Minnesota Rule 7849.0120(C)(2) requires consideration of "the effects of the proposed facility, or a suitable modification thereof, upon the natural and socioeconomic environments compared to the effects of not building the facility."

487. In general, the socioeconomic impacts associated with the Solar Project will be positive. Wages will be paid, and expenditures will be made to local businesses and landowners during the Project's construction and operation. The construction and operation of the Project will increase Cottonwood County's tax base. In addition, lease and purchase payments to landowners will offset potential financial losses associated with removing a portion of their land from agricultural production. Agricultural production would be allowed to continue in the area outside of the fence line of the solar facility during construction and operation of the Project. In addition, Red Rock Solar has voluntarily developed an AIMP detailing methods to minimize soil compaction, preserve topsoil, and establish and maintain appropriate vegetation that will help to ensure the Project is designed, constructed, operated and ultimately decommissioned and restored in a manner allowing the land to be returned to its original agricultural use in the future. Moreover, conversion of the Project Footprint to non-row-crop uses for the life of the Project may also have beneficial environmental impacts such as soil building, erosion control, habitat for wildlife, and protection of groundwater and surface water resources from nitrogen pollution.[462]

488. Long-term benefits to the county's tax base as a result of the construction and operation of the Project will contribute to improving the local economy. For example, the Project will provide production tax payments to Cottonwood County of approximately $208,000 annually over 30 years for a total of approximately $6.2 million. Additionally, Midway Township will receive approximately $52,000 annually over 30 years for a total of approximately $1.6 million. Not building an electrical generation facility would result in no physical impact to the environment in Cottonwood County. However, not building the Project would also not provide an additional source of tax revenues to the county, an increase in the income stream to residences and businesses, or an increase in the amount of low-cost, clean, reliable renewable energy available to state or regional utilities and their customers. The Project will have a minimal impact on the physical environment, while simultaneously providing significant benefits.[463]

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[461] Ex. 314 at 12 (BB-CN Application).
[462] Ex. 317 at 13 (RR-CN Application).
[463] Ex. 317 at 14 (RR-CN Application).

### 3. Effects of facility in inducing future development (Minn. R. 7849.0120C(3))

489. Minnesota Rule 7849.0120(C)(3) requires consideration of "the effects of the proposed facility, or a suitable modification thereof, in inducing future development."

490. Although the Solar Project is not expected to directly affect development in Cottonwood County, the Solar Project will provide significant benefits to the local economy and local landowners. Landowners in the Solar Project area will benefit from the lease and purchase payments, and installation of solar energy infrastructure will increase the local tax base in the county and township in which the Project is sited. The Solar Project will also provide significant income opportunities for local residents through the creation of temporary construction positions.[464]

### 4. Socially beneficial uses of facility output (Minn. R. 7849.0120(C)(4))

491. Minnesota Rule 7849.0120(C)(4) requires consideration of "the socially beneficial uses of the output of the proposed facility, or a suitable modification thereof, including its uses to protect or enhance environmental quality."

492. This sub-factor relates to Minn. Stat. § 216B.243, subd. 3(5), which, in relevant part, requires the Commission to consider "the benefits of this facility, including its uses to protect or enhance environmental quality…."

493. The Project will produce affordable, clean, renewable energy that will help meet energy demands for the RES, the SES, and other clean energy and carbon reduction standards. In addition, the local economy will benefit from the landowner lease and purchase payment for the Project, production taxes, income from jobs created, and local spending. It will also provide carbon-free energy that will assist in meeting Minnesota's carbon and greenhouse gas reduction goals.[465]

494. Thus, in summary the record demonstrates that Red Rock Solar has satisfied Minn. R. 7849.0120(C), in that the record demonstrates that the Solar Project will provide benefits compatible with protecting the human and natural environments.

## D. Whether the facility will comply with relevant policies, rules, and regulations (Minn. R. 7849.0120(D))

495. Minnesota Rule 7849.0120(D) requires that "the record does not demonstrate that the design, construction, or operation of the proposed facility, or a suitable modification of the facility, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments."

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[464] Ex. 317 at 14 (RR-CN Application).
[465] Ex. 317 at 15 (RR-CN Application).

496. This factor relates to Minn. Stat. § 216B.243, subd. 3(7), which requires the Commission, in assessing need, to consider "the policies, rules, and regulations of other state and federal agencies and local governments."

497. The Solar Project would meet or exceed the requirements of all federal, state, and local environmental laws and regulations. Red Rock Solar provided a table listing the potential permits and approvals needed for the Solar Project. DOC-DER indicated that it has no reason to believe that Red Rock Solar will fail to comply with the requirements of the listed federal, state, and local governmental agencies. DOC-DER concluded that the record does not demonstrate that the design, construction, or operation of the Solar Project, or a suitable modification of the facilities, will fail to comply with relevant policies, rules, and regulations of other state and federal agencies and local governments, and the record supports this conclusion.[466]

498. Based on the foregoing, the Applicant has satisfied Minn. R. 7849.0120(D).

499. As discussed in detail above, Red Rock Solar has satisfied each of the relevant factors and sub-factors set forth in Minn. R. 7849.0120(A) through (D) necessary to determine that a Certificate of Need must be granted for the Solar Project.

## III. OTHER APPLICABLE STATUTORY CONSIDERATIONS

500. As explained by DOC-DER in its comments, there are two applicable Minnesota statutes which provide a preference for renewable resources in resource planning and acquisition decisions.[467] Minnesota law indicates a clear preference for renewable facilities, and the proposed Project is consistent with that preference.[468]

501. Further, Minn. Stat. §§ 216B.2426 and 216B.169 provide for the consideration of distributed generation. As noted by DOC-DER, no proposals for distributed generation as an alternative to the Solar Project have been filed in this proceeding, and DOC-DER stated that the requirement to consider distributed generation had been met.[469]

# RED ROCK SOLAR SITE PERMIT

## I. SITE PERMIT CRITERIA

502. Large electric power generating plants ("LEPGP") are governed by Minn. Stat. § 216E and Minn. R. part 7850. Minn. Stat. § 216E.01, subd. 5, defines a "large electric power generating plant" as "electric power generating equipment and associated facilities designed for or capable of operation at a capacity of 50,000 kilowatts or more."

503. On June 29, 2020, Red Rock Solar submitted information to the Minnesota Department of Commerce requested a size determination for the Solar Project. On July 21, 2020,

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[466] Ex. 806 at 15 (DOC-DER Comments).
[467] Minn. Stat. §§ 216B.243, subd. 3a; 216B.2422, subd. 4.
[468] Ex. 806 at 9 (DOC-DER Comments).
[469] Ex. 806 at 12-13 (DOC-DER Comments).

DOC-EERA informed Red Rock Solar that, based on the information provided, the Solar Project is subject to the Commission's siting authority under Minn. Stat. § 216E. Therefore, a site permit is required prior to construction of the Solar Project.

504. An LEPGP powered by solar energy is eligible for the alternative permitting process authorized by Minn. Stat. § 216E.04. Red Rock Solar filed the Red Rock SP Application under the process established by the Commission in Minn. R. 7850.2800-7850.3900.

505. Under Minn. Stat. § 216E.04, for an LEPGP permitted under the alternative permitting process, DOC-EERA prepares for the Commission an environmental assessment containing information on the human and environmental impacts of the proposed project and addresses mitigating measures. The environmental assessment is the only state environmental review document required to be prepared on the Solar Project.

## II. APPLICATION OF SITE PERMIT CRITERIA TO THE SOLAR PROJECT

### A. Human settlement

#### 1. Displacement

506. Construction of the Solar Project will not displace residents or buildings.[470]

#### 2. Noise

507. Construction of the Solar Project is anticipated to generate noise with the heavy equipment and increased vehicle traffic associated with the transport of construction materials and personnel to and from the work areas.[471]

508. The anticipated inverter noise is predicted to be 63.3 dBA at 50 feet from the source and is modelled to dissipate to 50 dBA within 233 feet from the inverter, and the tracking equipment is predicted to be 64.3 dBA at 50 feet and noise dissipation to 50 dBA is anticipated to occur within 130 feet of the trackers. The proposed solar portion of the hybrid project has been designed so the inverters will be located 1,122 feet from the nearest residence. Noise from the Red Rock Solar portion of the hybrid project's electric collection system would not be expected to be perceptible. During operations noise impacts for the Red Rock Solar Project are anticipated to be negligible, and the Sample Site Permit requires a permittee to comply with applicable noise standards.[472]

#### 3. Aesthetic impacts

509. Solar energy facilities may create visual impacts; however, being visible is not necessarily the same as being intrusive. Due to their relatively low profile, PV solar facilities will

[470] Ex. 107 at 96 (EA).
[471] Ex. 107 at 107 (EA).
[472] Ex. 107 at 111 (EA).

not be visible from great distance; the viewshed and aesthetic impacts will be experienced primarily by nearby residents and people using the roads adjacent to the facilities.[473]

510. Because of the materials used, glare and reflection should be minimal; today's panels reflect as little as two percent of the incoming sunlight depending on the angle of the sun and assuming use of anti-reflective coatings. Perimeter fencing for solar farms in Minnesota are typically eight-foot wood pole and woven wire fence (i.e., deer fence or an agricultural fence) that shield or minimize the visual impacts.[474]

511. Red Rock Solar will use down lit security lighting at the Project entrance, and down lit, switch controlled, lights at each inverter to facilitate maintenance activities. With mitigation measures, impacts to light sensitive land uses and the aesthetics of the area will be negligible.[475]

#### 4. Cultural values

512. While negative impacts will occur to specific resource elements, for example, aesthetics, the construction and operation of the Solar Project is not anticipated to impact or alter the work and leisure pursuits of residents in the Red Rock Solar Project Area, or land use in such a way as to impact the underlying culture of the area. There is currently a significant presence of existing transmission lines and operating wind projects in the vicinity of the proposed Solar Project, so the current aesthetics of the Solar Project Area has structures that will be similar to those constructed for the Solar Project.[476]

#### 5. Recreation

513. The impacts of the Red Rock Solar Project on recreation is anticipated to be minimal, and with mitigation the impacts will be short-term and negligible. There are no public recreational lands within the local vicinity. Depending on the timing of construction of the Solar Project there could be some additional truck traffic on local roads that may be noticeable to user of the snowmobile trails close to the Solar Project, but general trail and road use regulations should minimize those interactions. Truck traffic during construction could result in indirect impacts to recreationalist on private lands near the Solar Project area. Operation of the Solar Project will have no long-term impacts to recreational activities.[477]

#### 6. Public service and infrastructure

514. With respect to potential road impacts, Red Rock Solar estimates that there will be 15 large truck trips per day, tractor-trailer trips per day while be highly variable, and up to 200 small-vehicle (pickups and automobiles) trips per day in the area during peak construction periods. Since many of the area roadways have AADTs that are currently well below capacity, the addition of 766 vehicle trips during peak construction for the wind portion of the proposed hybrid project

[473] Ex. 107 at 80 (EA).
[474] Ex. 107 at 81 (EA).
[475] Ex. 107 at 93 (EA).
[476] Ex. 107 at 94 (EA).
[477] Ex. 107 at 117 (EA).

and the additional 215 vehicle trips during peak construction for the solar portion of the proposed hybrid project would be perceptible, but similar to seasonal variations such as spring planting or autumn harvest.[478]

515. Together with Big Bend Wind, Red Rock Solar is currently coordinating with local jurisdictions to execute a single, cooperative Development, Road Use, and Drainage Agreement to minimize and mitigate impacts to existing road ways. The Development Agreement will address items such as communication with the various road authorities during construction, restoring impacted roadways, and planning the movement of large construction equipment. Red Rock Solar has committed to obtaining all necessary county permits to allow their proposed access roads to intersection with county and township roads.[479]

516. Impacts to local electric, natural gas, telephone, fiber optic cables, and cable television utilities could occur during the construction of the Solar Project. These impacts would only occur if an overhead distribution line or buried utility line was disturbed or damaged during construction activities. With planned mitigation these types of impacts are anticipated to be negligible to short-term, isolated, and minimal.[480]

517. Because the Solar Project does not propose the construction of any significant vertical structures no impacts to any communication systems are anticipated to result from the construction and operation of the Solar Project.[481]

518. The Solar Project is not anticipated to cause any electrical interference impacts.[482]

519. Impacts of the Solar Project on the use of emergency services are anticipated to be negligible and will be mitigated if impacts are later identified.[483]

520. Red Rock does not anticipate any impacts to occur to any FAA registered airports as a result of the construction and operation of the Red Solar portion of the hybrid project.[484]

### 7. Socioeconomics and property values

521. Large electric generation facilities have the potential to impact property values, but the type and extent of impacts, if any, depend upon the location of the facilities and existing land uses in the area.[485]

[478] Ex. 107 at 162-63 (EA).
[479] Ex. 107 at 164 (EA)
[480] Ex. 107 at 157 (EA).
[481] Ex. 107 at 158 (EA).
[482] Ex. 107 at 97 (EA).
[483] Ex. 107 at 146 (EA).
[484] Ex. 107 at 136 (EA).
[485] Ex. 107 at 113 (EA).

522. The EA explained that comparable sales data related to the Aurora Distributed Solar and North Star Projects (both utility-scale PV facilities in Minnesota) is becoming available, and initial results show no property value impacts.[486]

523. The EA concluded that impacts to property values as a result of the Solar Project are anticipated to be negligible.[487]

524. Utility scale wind and solar development provide economic benefits across all phases of development and across industries, such as manufacturing; construction, operation and maintenance. Because utility scale wind and solar developments are usually located in rural areas, they can provide noticeable economic impacts on the smaller, rural communities that host them.

525. The Solar Project will increase the local demand for specialized construction labor and increase demand for contractors and material suppliers such as concrete, gravel, fuel, and fill material. The Solar Project is anticipated to require up to 200 people during construction. Some of the workers will be local, and some will likely come from outside the region. It is anticipated that most of the wages earned by local workers will circulate through the local economy. Non-local workers will also inject money into the local economy for food, lodging, fuel, and incidental expenditures. Local contractors and suppliers will be used for portions of the construction. Additional income will be generated for the county and state economy through the circulation and recirculation of dollars paid out by the developer for business expenditures and for state and local taxes. Payments for equipment, fuel, operating supplies, and other products and services benefit local and regional businesses.[488]

526. Once operational, the Solar Project will need one permanent operations and maintenance staff.[489] During operations, Red Rock Solar will make lease payments to local landowners, as well as production tax credits to the local government.[490] The Red Rock Solar Project will pay local landowners $965,000 annually, a total of $29,000,000 over the 30 year Project life span, for land lease and purchase payments. The Red Rock Solar Project will provide approximately $208,000 annually, $6,200,000 over the life of the Project, in production tax payments to Cottonwood County. An additional production tax payment of $52,000 annually, $1,600,000 over the life of the Project, will be paid to Midway Township.[491]

527. The EA concludes that the Solar Project is likely to have a short-term positive impact on local labor opportunities, and a short-term (private businesses) and long-term (local governments and lease holders) impact on local economies.[492]

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[486] Ex. 107 at 114 (EA).
[487] Ex. 107 at 115 (EA).
[488] Ex. 107 at 127 (EA).
[489] Ex. 107 at 127 (EA).
[490] Ex. 107 at 127 (EA).
[491] Ex. 107 at 128 (EA).
[492] Ex. 107 at 128 (EA).

### 8. Zoning and land use

528. The Solar Project is located within Cottonwood County's Agricultural District, and solar energy development is a conditionally permitted use in that district. As such, the Solar Project will not conflict with local zoning ordinances.[493]

529. There are no lands enrolled in any conservation easements within the Red Rock Solar portion of the Project Area, so no impacts to lands under conservation easements will occur due to the construction and operation of the Red Rock Solar Project.[494]

530. The Solar Project Area is predominantly rural with sparsely scattered rural residences, farmsteads, commercial livestock operations, agricultural support facilities, and cultivated cropland throughout. The majority of land use in the Solar Project boundary is cultivated cropland, approximately 479.4 acres (99.2 percent); followed by developed (all categories), approximately 3.7 acres (0.8 percent), and deciduous forest comprise, approximately 0.1 acres (< 0.1 percent). Constructing the Solar Project will change land use from agricultural to solar energy production for at least 30 years. The area could then be restored to agricultural use or other planned land uses by implementing appropriate restoration activities.[495]

### 9. Environmental justice

531. Impacts to communities of environmental justice concern are not anticipated to occur as a result of the Solar Project.[496]

## B. Public health and safety

532. The primary source of EMF from the Solar Project will be the PV panel arrays, inverters, collector lines, and the transformer. EMF levels produced at the array and the inverters are anticipated to dissipate to background levels before reaching the nearest residence. The AC collection line connecting transformers to the Solar Substation will also create EMF, but with the collection line being buried at a minimum depth of four feet EMF levels will dissipate rapidly in the soil and impacts will be negligible. No health impacts from EMF generated by the Solar Project are anticipated.[497]

533. All Project components will be designed and constructed in compliance with applicable electric codes. Electrical inspections will ensure proper installation of all components, and the Project will undergo routine inspection. Construction is bound by federal and state Occupational Safety and Health Administration requirements for worker safety, and must comply with local, state, and federal regulations regarding installation of the facilities.[498]

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[493] Ex. 107 at 103 (EA).
[494] Ex. 107 at 170 (EA).
[495] Ex. 107 at 181 (EA).
[496] Ex. 107 at 100 (EA).
[497] Ex. 107 at 140 (EA).
[498] Ex. 107 at 152 (EA).

534. Solar Project workers will handle and store potential hazardous materials appropriately. Leaks or spills will be mitigated using appropriate clean up techniques. The decommissioning plan for the Solar Project addresses PV panel end of life issues.[499]

## C. Land-based economies

### 1. Agriculture

535. The construction and operation of the Solar Project will remove all cultivated cropland within the fenced portions of the Project (solar arrays, access roads, and the Solar Project Substation). This will be a long-term and significant impact to the lands within the Solar Project boundary. However, when considered in the full context of Cottonwood County, which is has significant acres of cultivated cropland, the 483.3 acres of land removed from crop production will have negligible impacts on local agricultural production.[500]

536. There is a poultry farm located within the Solar Project Area, but the poultry farm is outside of planned construction footprint of the solar facility. All electrical components of the solar facility will be adequately grounded to meet electrical codes, so no stray voltage impacts to the poultry farm are anticipated.[501]

537. Impacts to agriculture associated with the Solar Project are unavoidable, but economic losses will be mitigated with the payment of land leasing options. Section 4.3.18 of the sample permit requires permittees fairly restore or compensate landowners for damages to crops, fences, drain tile, etc. during construction. Other sections address impacts to soils, such as erosion, compaction, etc. No additional mitigation is proposed.[502]

538. Additionally, Red Rock Solar has committed to developing a Vegetation Management Plan ("VMP") and AIMP to adequately address short and long term vegetation management methods and goals and to minimize impacts to agricultural lands being impacted by the Solar Project.[503]

#### *(1) Prime farmland*

539. Minnesota Rule 7850.4400 states that no large electric power generating plant site (including a solar energy generating system) can include more than one-half acres of prime farmland per MW of net generating capacity. This prime farmland exclusion can be waived if "no feasible and prudent alternative" is available or if the Commission varies its rules. Here, the Solar Project would be constructed on more than 0.5 acres of prime farmland per MW of net generating capacity.

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[499] Ex. 107 at 152 (EA).
[500] Ex. 107 at 170 (EA).
[501] Ex. 107 at 172 (EA).
[502] Ex. 107 at 175 (EA).
[503] Ex. 107 at 175 (EA).

540. Red Rock Solar conducted a screening analysis to assess whether the Solar Project meets the "feasible and prudent alternative" threshold. The analysis looked at factors such as high solar resource areas, interconnect locations, and efforts to investigate developable sites, focusing on the southwestern portion of the state. Additionally, Red Rock Solar considered the fact that the Solar Project was being developed as a hybrid project with the Wind Project, so wind resource and land availability to develop the wind portion of the hybrid project were factors to consider. Within this area, Red Rock Solar screened for substations and transmission lines with available capacity, leading to a relatively narrow subset of possible points of interconnection. A potential development location was identified approximately 15 miles from a POI. The Solar Project site was selected due to its proximity to the POI, supportive landowners, and available land currently not under lease with other potential renewable energy project in the area.[504]

541. Red Rock Solar has incorporated design options to minimize impacts on soil and prime farmland. In addition, Red Rock Solar has developed an AIMP and VMP as mitigation measures. Further, the Solar Project may reduce nitrogen pollution and avoid impacts to sensitive groundwater resources.[505]

542. The record demonstrates that Red Rock Solar evaluated a variety of factors, including cost and non-cost factors, but was unable to locate a feasible and prudent alternative for the site. On this record, there is no feasible and prudent alternative within a reasonable geographic area available to construct the Solar Project and not impact prime farmland. This conclusion is based in part of consideration of non-economic factors including but not limited to the quality of the solar resource, proximity to existing transmission infrastructure, positive environmental impacts, and furtherance of the State's renewable energy goals.

### 2. Forestry

543. There are no commercial timber companies or other forestry operations within the Solar Project Area, and, impacts to forestry are anticipated to be negligible.[506]

### 3. Mining

544. There are no active mining operations within the Solar Project Area, so impacts from the Solar Project are not anticipated.[507]

### 4. Tourism

545. The Solar Project will be located away from municipalities, county parks, and other public areas typically utilized by visitors to the area. As such, impacts to tourism are not anticipated.[508]

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[504] Ex. 107 at 203 (EA).
[505] Ex. 319 at 11-12 (RR-Site Application).
[506] Ex. 107 at 172 (EA).
[507] Ex. 107 at 167 (EA).
[508] Ex. 107 at 168 (EA).

### D. Archaeological and historic resources

546. No previously recorded archaeological or historic sites will be directly impacted by the Solar Project. A Phase I archaeological survey of the Solar Project boundary was completed in May of 2020, and no archaeological or historic sites, or historic architectural sites were identified.[509]

547. Further, Red Rock Solar has prepared an Unanticipated Discovery Plan in coordination with Tribes, which has been filed in this record, and Section 4.3.13 of the Sample Site Permit requires a permittee to make every effort to avoid impacts to identified archaeological and historic resources during construction.

### E. Natural environment

#### 1. Wildlife

548. The Solar Project is highly fragmented, and 99.6 percent of the land is utilized for agricultural production. Only small areas of forested land and lawn area exist around residences and commercial livestock facilities within the Solar Project.[510]

549. The Solar Project will be enclosed by a fence, limiting movement of animals in and out of the facility. Solar facilities permitted by the Commission typically have fences designed to allow small animals to enter the property. Although a variety of birds, small mammals, reptiles and amphibians are likely to still be able to gain access to the property to use the habitats under and around the solar arrays, access will be limited for larger wildlife.[511]

550. The potential for habitat fragmentation impacts as a result of the Solar Project is low because the Project Area is sited in a highly agricultural landscape and much of the remaining habitat is disturbed or associated with rural residences and farm sites.[512]

551. There are no DNR WMAs, SNAs, or Migratory Waterfowl Feeding and Resting Areas or National Audubon Society Important Bird Areas within the Red Rock Solar Project Area, nor are there WPAs or National Wildlife Refuge lands.[513]

552. In the EA, DOC-EERA referenced "[f]ield surveys to identify any known wildlife movement corridors within, or through" the Solar Project. In response, Red Rock Solar explained that Applicants have undertaken multiple years of wildlife and other environmental studies and analyses related to the Projects.[514] The EA does not identify any deficiency in that analysis, and the work already undertaken by Applicants is sufficient to address this recommendation,

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[509] Ex. 107 at 177 (EA).
[510] Ex. 107 at 233 (EA).
[511] Ex. 107 at 233-34 (EA).
[512] Ex. 107 at 236 (EA).
[513] Ex. 107 at 241-42 (EA).
[514] Many of these surveys and analyses are listed in the EA. *See* Ex. 107 at 236 (EA).

particularly in light of the fact that the Solar Project is proposed on agricultural land (not current wildlife habitat).[515]

### 2. Vegetation

553. Solar Project will covert currently cultivated cropland, within the fence-line, to open herbaceous cover under and around the PV panels. The Solar Project Substation, inverter skids, and access roads will be converted to developed land and impervious surfaces.[516]

554. Red Rock Solar has developed a VMP, and they will adopt and follow all measures in the VMP through construction and operation of the Solar Project. The VMP will detail long term management of the vegetation established under and around the solar arrays. Red Rock Solar has designed the Solar Project to avoid any tree clearing.[517]

555. In the EA, DOC-EERA noted that MDNR provided comments on the Solar Project VMP and recommended that Red Rock Solar "use a diverse native prairie species seed mix as indicated" in Minn. Stat. § 216B.1642, subd. 1. That statutory provision provides that the owner of a ground-mounted solar site "may following site management practices that . . . provide native perennial vegetation and foraging habitat. . . . To the extent practicable, when establishing perennial vegetation and beneficial foraging habitat, a solar site owner shall use native plant species and seed mixes. . . ." In response, Red Rock Solar explained that it has already prepared and provided a comprehensive VMP for the Solar Project, and the VMP and the Site Application explain the benefits of the seed mixes proposed by Red Rock Solar for the Project. The EA does not identify any deficiencies in the existing VMP or the seed mixes proposed by Red Rock Solar for the Solar Project.[518] Red Rock Solar states that it will coordinate additional changes, if any, to the VMP with MDNR prior to construction.[519]

556. The EA further noted that MDNR recommends that the existing VMP be updated to include certain additional maps, and Red Rock Solar agreed to provide said maps.[520]

### 3. Soils, geologic, and groundwater resources

557. Red Rock Solar will employ numerous BMPs and mitigation measures to avoid and minimize soil impacts, as described in the EA.[521] Red Rock Solar developed and is committed to an AIMP that details methods to minimize soil compaction, preserve topsoil, and establish and maintain appropriate vegetation to ensure the Project is designed, constructed, operated and ultimately restored in a manner that would allow the land to be returned to agricultural use.[522]

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[515] Ex. 337 at 8 (Ikkala Surrebuttal).
[516] Ex. 107 at 208 (EA).
[517] Ex. 107 at 210 (EA).
[518] Ex. 337 at 6-7 (Ikkala Surrebuttal).
[519] Applicants' Post-Hearing Comments (Mar. 18, 2022).
[520] Ex. 337 at 7 (Ikkala Surrebuttal).
[521] Ex. 107 at 205 (EA).
[522] Ex. 107 at 206 (EA).

558. Grading, trenching, and pile driving activities associated with the Solar Project are not anticipated to extend to bedrock depth and blasting or excavation of bedrock is extremely unlikely. No impacts to the site geology and bedrock are anticipated for the Solar Project. Impacts to topography for the Solar Project are anticipated to be minimal.[523]

559. Homes and farms in the Project Area typically use private wells and septic systems for their household needs. According to the Minnesota Department of Health's Minnesota Well Index online database, there are three wells identified within the Solar Project.[524] The closest well to the Solar Project is 320 feet away, and any necessary dewatering activities completed during construction will be discharged to the ground surface near the location of dewatering, allowing for infiltration and minimization of potential impacts. No impacts to groundwater resources are anticipated to result from construction or operation of the solar portion of the proposed hybrid project.[525]

#### 4. Surface water and wetlands

560. There are two unnamed intermittent streams within the main portion of the Solar Project construction area, and there are three unnamed watercourses crossed by the AC collection line corridor.[526]

561. The Solar Project will not directly impact any identified PWI watercourses, PWI waterbodies, impaired waters, designated wildlife lakes, Migratory Waterfowl Feeding and Resting Areas, designated trout streams, or Outstanding Resource Value Waters. The Solar Project will not impact any designated floodplains.[527]

562. Protection of surface waters from construction and operation Solar Project is implemented through the NPDES permit and the associated SWPPP. BMPs such as silt fencing, management of exposed soils and revegetation plans to prevent erosion will be included in the SWPPPs. In areas where a surface water body is identified as impaired, the SWPPP would provide detailed mitigation to prevent or reduce impacts to impaired water bodies.[528]

563. The Solar Project is currently designed to construct 10 stormwater basins to help control runoff within the solar facility during rain events.[529]

564. Wetlands within the Solar Project Area will be delineated. If wetland impacts will occur due to the Solar Project, a wetland permit may be required, which will identify necessary measures to minimize impacts or provide replacement for impacted wetlands.[530]

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[523] Ex. 107 at 190 (EA).
[524] Ex. 107 at 214 (EA).
[525] Ex. 107 at 215 (EA).
[526] Ex. 107 at 219 (EA).
[527] Ex. 107 at 224 (EA).
[528] Ex. 107 at 225 (EA).
[529] Ex. 107 at 226 (EA).
[530] Ex. 107 at 232 (EA).

### 5. Air and water emissions

565. Impacts from the construction of the Solar Project will be short-term and minimal as a result of the emissions from vehicles, large construction equipment, and haul trucks.[531]

566. Emissions from construction of the Solar Project will occur and will have a short-term negligible impact on climate change. However, the Solar Project will have a positive impact by offsetting carbon and helping Minnesota meet its renewable energy goals. During the operational phase, the facility components will not generate any criteria pollutants, GHGs, HAPs, VOCs, or ozone. Short-term and minimal quantities of criteria pollutants, GHGs, HAPs, VOCs, or ozone will be generated by trucks used by staff when accessing the site to complete maintenance activities.[532]

### 6. Solid and hazardous wastes

567. Potential impacts of hazardous materials being generated or released as a result of the Solar Project are minimal, and negligible with proper materials handling and disposal mitigation measures in place.[533]

## F. Rare and unique natural resources

568. There are no mapped native prairie areas, mapped NPCs, or mapped SOBs within the Solar Project Area.[534] Accordingly, no impacts to these resources are anticipated.[535]

569. There are no records of any federal or state listed endangered, threatened, or special concern species within the Red Rock Solar portion of the hybrid project area, so no impacts to federal or state listed species are anticipated to occur.[536]

570. In the EA, DOC-EERA stated that "[a]ny tree removal should avoid the active season (April 1 - September 30) for the Northern long-eared bat. Ensuring construction and operation are consistent with USFWS guidance would minimize impacts to species."[537] In response, Red Rock Solar stated that it did not agree to DOC-EERA's proposed conditions because it is not consistent with current USFWS guidance or recent Commission permits, which provide that "tree clearing shall occur between August 1 and May 31." Red Rock Solar noted that DOC-EERA had not identified a reason to depart from USFWS guidance or recent Commission permits here.[538]

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[531] Ex. 107 at 186 (EA).
[532] Ex. 107 at 187 (EA).
[533] Ex. 107 at 149 (EA).
[534] Ex. 107 at 193-94 (EA).
[535] Ex. 107 at 196 (EA).
[536] Ex. 107 at 195 (EA).
[537] Ex. 107 at 379 (EA).
[538] Ex. 337 at 5 (Ikkala Surrebuttal).

### G. Future development and expansion

571. Red Rock Solar does not have any plans for future expansion.[539]

## III. SOLAR SITE PERMIT CONDITIONS

572. The sample site permit includes proposed permit conditions that apply to preparation, construction, clean-up, restoration, operation, maintenance, abandonment, decommission, and other aspects of the Solar Project. Many of the conditions contained in the sample site permit were established as part of the site permit proceedings of other solar facilities permitted by the Commission.

573. The sample site permit included a condition regarding tree removal timetables that would require any tree clearing to be conducted between October 1 and March 30 to mitigate impacts to northern long-eared bats. Red Rock Solar did not agree to this condition as proposed by DOC-EERA because it is not consistent with current USFWS guidance or recent Commission permits, which instead provides that "tree clearing shall occur between August 1 and May 31." Because the record does not support a departure from USFWS guidance or recent Commission permits, it would be appropriate to modify Condition 5.2 in the sample site permit as proposed by Red Rock Solar.

574. Red Rock Solar did not object to DOC-EERA's recommendation that a condition regarding an independent agency monitor be included in the Site Permit. Red Rock Solar proposed the following language, with which DOC-EERA agreed:

> Section 5.3 Independent Monitor: Prior to any construction, the Permittee shall propose a scope of work and identify one independent third party agency monitor on behalf of the Department of Commerce. The scope of work shall be developed in consultation with and approved by the Department of Commerce. This third-party monitor will report directly to and will be under the control of the Department of Commerce with costs borne by the Permittee. The Permittee shall file with the Commission the scope of work 30 days prior to commencing construction and the name, address, email, phone number, and emergency phone number of the third-party monitor 14 days prior to commencing any construction and upon any change that may occur during the construction of the project and restoration.

575. Any of the foregoing Findings more properly designated Conclusions of Law are hereby adopted as such.

Based on the foregoing Findings of Fact and the record in this proceeding, the ALJ makes the following:

## NOTICE

[539] Ex. 318 at 13 (RR-Site Application).

576. Minnesota statutes and rules require Applicant to provide certain notice to the public and local governments before and during the certificate of need, site permit, and route permit process.[540] Applicants provided notice to the public and local governments in satisfaction of Minnesota statutory and rule requirements.[541]

577. Minnesota statutes and rules also require DOC-EERA and the Commission to provide certain notice to the public throughout the Route Permit process.[542] DOC-EERA and the Commission provided the notice in satisfaction of Minnesota statutes and rules.[543]

578. Based on the foregoing Findings of Fact and the record in this proceeding, the Commission makes the following:

## ENVIRONMENTAL ASSESSMENT

579. When more than one application is pending before the Commission related to a facility, the environmental assessments required for each application may be combined.[544] For the Projects, DOC-EERA elected to prepare a combined EA.[545] However, the Big Bend Site Permit Application serves as the environmental document for analyzing environmental impacts related to that application.[546]

580. The EA process is the alternative environmental review approved by the Environmental Quality Board for high voltage transmission lines. The Commission is required to

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[540] Minn. Stat. § 216E.03, subps. 3a, 4; Minn. R. 7850.2100, subps. 2, 4.

[541] *See* Exs. 311 (RR-Site Notice of Intent to Submit a Site Permit Application under Alternative Permitting Process), 313 (BB-Route Notice of Intent to Submit a Route Permit Application under Alternative Permitting Process), 320 (Notice of Filing a Route Permit Application), 310 (Compliance Filing – Notice Plan), 312 (Compliance Filing – Notice Plan – Supplemental Filing), 321 Compliance Filing – Notice of Filing Applications), 324 (Corrected Compliance Filing – Notice of Filing Applications), 322 (BB Notice of Notice of Comment Period/Completeness), 323 (RR Notice of Comment Period/Completeness).

[542] Minn. Stat. § 216E.03, subd. 6; Minn. R. 7850.2300, subp. 2; Minn. R. 7850.3700, subps. 2, 3, and 6.

[543] *See* Ex. 105 (Notice of Substantial Changes & New Information & Environmental Assessment Scope Comment Period); Ex. 200 (Notice of Comment Period on Request for Exemptions from Certain Filing Requirements); Ex. 202 (Notice of Comment Period on Request for Exemptions from Certain Filing Requirements); Ex. 203 (Notice of Comment Period); Ex.207 (Notice of Commission Meeting – February 4, 2021 Agenda Meeting); Ex. 209 (Order Accepting Applications as Complete, Establishing Review Procedures, Granting Variances, and Notice of And Order for Hearing); Ex. 210 (Notice of Public Information and Environmental Review Scoping Meeting); Ex. 211 (Notice of Commission Meeting – June 17, 2021); Ex. 214 (Notice of Commission Planning Meeting); Ex. 215 (Notice of Commission Planning Meeting), 216 (Notice of Environmental Assessment Availability, Public Hearings and Comment Period); Ex. 217 (Notice of Comment Period--On Request For Exemptions From Certain Filing Requirements); Ex. 220 (Notice of Comment Period); Ex. 231 (Notice of Commission Meeting--February 4, 2021 Agenda Meeting); Ex. 234 (Notice--of Public Information And Environmental Review Scoping Meeting), 236 (Notice of Commission Planning Meeting); Ex. 237 (Notice of Commission Planning Meeting); Ex. 238 (Notice of Environmental Assessment Availability, Public Hearings, And Comment Period); Ex. 241 (Notice of Commission Meeting--June 17, 2021 Agenda Meeting).

[544] Minn. R. 7849.1900, subp. 1; Minn. R. 7850.2500.

[545] Ex. 107 (EA).

[546] Minn. R. 7854.0550, subp. 7.

determine the completeness of the EA. An EA is complete if it and the record address the issues and alternatives identified in the Scoping Decision.[547]

## CONCLUSIONS OF LAW

## I. CONCLUSIONS APPLICABLE TO ALL APPLICATIONS

1. Any of the forgoing Findings of Fact more properly designated as Conclusions of Law are hereby adopted as such.

2. The Commission and the Administrative Law Judge have jurisdiction over the Applications submitted by the Applicants.

3. Applicants, the Commission, and DOC-EERA provided all notices required under Minnesota States and Rules for the Applications, and have substantially complied with the procedural requirements of Minn. Stat. Ch. 216B, Minn. Stat. Ch. 216E, Minn. Stat. Ch. 216F, and Minn. R. Ch. 7829, 7849, 7850 and 7854.

4. DOC-EERA has conducted an appropriate environmental analysis of the Projects for purposes, and the EA satisfies Minn. R. 7850.3700 and 7850.3900. Specifically, the EA and the record address the issues identified in the Revised Scoping Decision to a reasonable extent considering the availability of information, and the EA includes the items required by Minn. R. 7850.3700, subp. 4, and was prepared in compliance with the procedures in Minn. R. 7850.3700.

5. Applicants gave notice as required by Minn. Stat. § 216E.04, subd. 4; Minn. R. 7850.2100, subp. 2; and Minn. R. 7850.2100, subp. 4.

6. Notice was provided as required by Minn. Stat. § 216E.04, subd. 6; Minn. R. 7850.3500, subp. 1; Minn. R. 7850.3700, subps. 2, 3, and 6; and Minn. R. 7850.3800.

7. A public hearing was conducted near the Projects. Proper notice of the public hearing was provided, and the public was given the opportunity to speak at the hearing and to submit written comments. All procedural requirements for the Applications were met.

8. The record in this proceeding demonstrates that Big Bend Wind has satisfied the criteria for: a Certificate of Need set forth in Minn. Stat. § 216B.243 and Minn. R. 7849.0120; a LWECS Site Permit as set forth in Minn. Stat. Ch. 216F, Minn. Stat. § 216E.03, and Minn. R. Ch. 7854; the Route Permit as set forth in Minn. Stat. § 216E.04, subd. 8 (referencing Minn. Stat. § 216E.03, subd. 7) and Minn. R. 7850.4100; and, all other applicable legal requirements.

9. The record in this proceeding demonstrates that Red Rock Solar has satisfied the criteria for: a Certificate of Need set forth in Minn. Stat. § 216B.243 and Minn. R. 7849.0120; a LEPGP site permit set forth in Minn. Stat. § 216E.04, subd. 8 (referencing Minn. Stat. § 216E.03, subd. 7) and Minn. R. 7850.4100; and, all other applicable legal requirements.

[547] Minn. R. 4410.4400, subp. 6; Minn. R. 7850.3900, subp. 2.

10. The Projects, with the applicable permit conditions, does not present a potential for significant adverse environmental effects pursuant to the Minnesota Environmental Rights Act, Minn. Stat. Ch. 116B and/or the Minnesota Environmental Policy Act, Minn. Stat. Ch. 116D.

## II. WIND PROJECT CERTIFICATE OF NEED

11. No party or person has demonstrated by a preponderance of the evidence that there is a more reasonable and prudent alternative to address those needs met by the Wind Project.

12. No conditions on the Wind Project Certificate of Need are necessary.

## III. WIND PROJECT SITE PERMIT

13. The Commission has the authority under Minn. Stat. § 216F.04(d) to place conditions in a LWECS site permit.

14. The Draft Site Permit contains a number of important mitigation measures and other reasonable conditions that adequately address the potential impacts of the Project on the human and natural environments.

15. It is reasonable to amend the Draft Site Permit to include the changes in proposed by Big Bend Wind as set forth in Schedule F to the Surrebuttal Testimony of Dylan Ikkala.

16. The record supports approving a Site Permit for the Wind Project that is consistent with the Settlement Agreement because if the Wind Project is permitted and constructed in accordance with the Settlement Agreement, the Wind Project will not have a significant adverse effect on the Jeffers Site that cannot be avoided and appropriate treatments will be in place to avoid and mitigate any adverse effects.

## IV. SOLAR PROJECT CERTIFICATION OF NEED

17. No party or person has demonstrated by a preponderance of the evidence that there is a more reasonable and prudent alternative to address those needs met by the Solar Project.

18. No conditions on the Solar Project Certificate of Need are necessary.

## V. SOLAR PROJECT SITE PERMIT

19. The Commission has the authority under Minn. Stat. § 216E.03 to place conditions in a LEPGP site permit.

20. The sample solar site permit contains a number of important mitigation measures and other reasonable conditions.

21. It is reasonable to amend the sample solar site permit, as proposed by Red Rock Solar as set forth in Schedule G to the Surrebuttal Testimony of Dylan Ikkala.

22. On this record, there is no potential site within a reasonable geographic area that is conducive to a substantial solar development that is not defined as prime farmland. Within this

geographical limitation, there is no prudent and feasible alternative to the Red Rock Solar Project site.

23. Any of the foregoing Conclusions of Law which are more properly designated as Findings of Fact are hereby adopted as such.

RECOMMENDATIONS

Based on these Findings of Fact and Conclusions of Law, the Administrative Law Judge recommends that the Commission issue a Certificate of Need, Site Permit, and Route Permit to Big Bend Wind, LLC to construct and operate the Wind Project and associated facilities in Cottonwood, Martin, and Watonwan Counties, with the conditions identified above.

Based on these Findings of Fact and Conclusions of Law, the Administrative Law Judge also recommends that the Commission issue a Certificate of Need and Site Permit to Red Rock Solar, LLC, to construct and operate the Solar Project and associated facilities in Cottonwood County, with the conditions identified above.

THIS REPORT IS NOT AN ORDER AND NO AUTHORITY IS GRANTED HEREIN. THE MINNESOTA PUBLIC UTILITIES COMMISSION WILL ISSUE THE ORDER THAT MAY ADOPT OR DIFFER FROM THE PRECEDING RECOMMENDATION.

Dated on _____

_____
James E. LaFave
Administrative Law Judge