

Corrections to Environmental Assessment prepared for the Big Bend Wind, Red Rock Solar, and Big Bend HVTL Projects in Cottonwood, Watonwan, and Martin Counties

Docket No. IP7013/CN-19-408, Docket No. IP7013/WS-19-619, Docket No. IP7013/TL-19-621,

Docket No. IP7014/CN-19-486, Docket No. IP7014/GS-19-620

OAH Docket No. 71-2500-36480

Submitted by the Minnesota Department of Commerce Energy, Environmental Review and Analysis

January 25, 2022 (Chapter 8 Tables Updated 2-2-2022 Included)

Summary

On January 18, 2022, the Minnesota Department of Commerce, Energy Environmental Review and Analysis (EERA) staff completed and made available the Environmental Assessment (EA) prepared for the Big Bend Wind, Red Rock Solar, and Big Bend HVTL Projects in Cottonwood, Watonwan, and Martin Counties.

EERA has identified and corrected the following errors in the EA prepared for the Big Bend Wind, Red Rock Solar, and Big Bend HVTL Projects.

1. References to the Walleye Wind Project and project specifics in the acronyms and definitions section in the Summary of the EA, have been updated to reflect the appropriate acronyms and definitions used within the EA.
2. Beginning on page 76, Chapter 4 of the EA, the page header does not reflect the transition from Chapter 3 to Chapter 4, and this formatting error is on the header of all pages in Chapter 4.
3. Beginning on page 274, Chapter 6 of the EA, the page header does not reflect the transition from Chapter 5 to Chapter 6, and this formatting error is on the header of all pages in Chapters 6, 7, and 8 and the Notes section of the EA.
4. The Table 8-2 Application of Routing Factors/Relative Merits of the Proposed Route and Alternative Route Options in Chapter 8 is missing text in the resource section headers.
5. The Factor F Rare and Unique Resources section header was revised to Factor F Rare and Unique 'Natural' Resources in Tables 8-2, 8-3, and 8-4.
6. The Rare and Unique Resources subsection header was revised to Rare and Unique 'Natural' Resources in section 8.3 of Chapter 8.

These errors do not affect the analysis completed in the EA.

For the purpose of clarifying the record, EERA staff submits corrected versions of the following:

- Acronyms and Definitions Section of the EA Summary
- Chapter 8 of the EA

ACRONYM/TERM	DEFINITION
AADT	average annual daily traffic
ADLS	aircraft detection lighting system
ALJ	administrative law judge
BMP	best management practice
Commission	Minnesota Public Utilities Commission
CN	certificate of need
CR	County Road
CSAH	County State Aid Highway
dba	A-weighted decibels
DEED	Minnesota Department of Economic Development
DNR	Minnesota Department of Natural Resources
ECS	Ecological Classification System
EERA	Minnesota Department of Commerce, Energy Environmental Review and Analysis
EMF	electromagnetic field
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
GE	General Electric
GPS	global positioning system
HAP	hazardous air pollutant
kV	kilovolt
kW	kilowatt
kWh	kilowatt-hour
LIDS	Light Intensity Dimming Solution
LNTE	low-noise trailing edge
LWECS	large wind energy conversion system
MBS	Minnesota Biological Survey

ACRONYM/TERM	DEFINITION
MDH	Minnesota Department of Health
MET	meteorological tower
MISO	Midcontinent Independent Transmission System Operator, Inc.
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MW	megawatt
MWh	megawatt-hour
NAC	noise area classification
NESC	National Electric Safety Code
NHIS	Natural Heritage Information System
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRO	Noise Reducing Operation
NSP	Northern States Power, a subsidiary of Xcel Energy
NTIA	National Telecommunications and Information Administration
NWI	National Wetlands Inventory
O&M	operation and maintenance
PM	particulate matter
ppm	parts per million
PV	photovoltaic
POI	point of interconnection
PWI	Public Waters Inventory
RD	rotor diameter; diameter of the rotor from the tip of a single blade to the tip of the opposite blade
ROW	right of way
SCADA	supervisory control and data acquisition
SHPO	Minnesota State Historic Preservation Office

ACRONYM/TERM	DEFINITION
SWPPP	stormwater pollution prevention plan
USACE	U.S. Army Corps of Engineers
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
VOC	volatile organic compound
WCA	Wetland Conservation Act
WMA	wildlife management area
WPA	waterfowl protection area

Definitions

Several terms used in this document have a specific meaning in Minnesota law or regulation. Other terms are defined for clarity.

associated facilities means buildings, equipment, and other physical structures that are necessary to the operation of a large electric power generating plant or high voltage transmission line (Minnesota Rule 7850.1000, subpart 3).

collection line means an underground 34.5 kV distribution line proposed by the applicant to connect wind turbines to the wind project substation, or an underground 34.5 kV distribution line proposed by the applicant to connect the solar array to the solar project substation.

collection line corridor means the review area associated with the underground collection line, extending from the solar array to the solar project substation.

construction means any clearing of land, excavation, or other action that would adversely affect the natural environment of the site or route but does not include changes needed for temporary use of sites or routes for nonutility purposes, or uses in securing survey or geological data, including necessary borings to ascertain foundation conditions (Minnesota Statute 216E.01, subdivision 3).

distribution line means power lines that operate below 69 kilovolts, and deliver electricity to a retail customer's home or business

gen-tie transmission line means an above-ground transmission line used to connect the generation facility substations to a switching station.

high voltage transmission line means a conductor of electric energy and associated facilities designed for and capable of operation at a nominal voltage of 100 kilovolts or more and is greater than 1,500 feet in length (Minnesota Statute 216E.01, subdivision 4).

Interconnection means the location of project connection to the power grid

large electric power generating plant means electric power generating equipment and associated facilities designed for or capable of operation at a capacity of 50,000 kilowatts or more (Minnesota Statute 216E.01, subdivision 5).

large energy facility means 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 (Minnesota Statute 216B.2421, subdivision 2(1)).

local vicinity as it refers to the solar project, means within 1,000 feet from the identified project boundary. As it refers to the transmission line project, means within 1,000 feet from the anticipated alignment of the routing options.

micrositing means the process in which the wind resources, potential environmentally sensitive areas, soil conditions, and other site factors, as identified by local, state and federal agencies, are evaluated to locate wind turbines and associated facilities

mitigation means to avoid, minimize, correct, or compensate for a potential impact.

power line means a distribution, transmission, or high voltage transmission line.

project area as it refers to the solar project, means one mile from the project boundary and collection line corridor. As it refers to the transmission line project, means one mile from the anticipated alignment of the routing options.

project boundary as it refers to the solar project, means areas involved in project construction, areas within the fenced in facilities, i.e. solar array, substation, and the collection line corridor. As it refers to the wind project, means the outer most extend of lands involved in project construction and/or potentially affected by the operation of proposed wind turbines.

solar farm means ground-mounted photovoltaic equipment capable of operation at 5,000 kilowatts or more connected directly to the electrical grid.

solar energy generation system means a set of devices whose primary purpose is to produce electricity by means of any combination of collecting, transferring, or converting solar-generated energy (Minnesota Statute 216E.01, subdivision 9a).

transmission line means power lines that operate at 69 kilovolts and above.

8 Application of Siting Factors and Routing Factors

8.1 Application of Siting Factors to the Red Rock Solar Project

The analysis that follows applies the information in the site permit application and this EA to the factors the commission must consider when making a site permit decision. Generally, EERA staff reviews these factors to help establish the relative merits of a proposed project against alternative power plant sites or transmission line routes studied in the environmental document. In this matter only one site was studied; therefore, the concept of relative merits is not applicable. However, because multiple electrical collection systems are proposed within the land control area the concept of relative merits applies to these systems.

The Minnesota Legislature directed the commission to select sites for large electric power generating plants that minimize adverse human and environmental impacts while insuring continuing electric power system reliability and integrity. The site must be compatible with environmental preservation and the efficient use of resources while also ensuring electric energy needs are met and fulfilled in an orderly and timely fashion. Minnesota Statute 216E.03, subdivision 7(b) identifies 12 considerations that guide commission decisions when designating a site for a large electric power generating plant. These considerations are further clarified and expanded by Minnesota Rule 7850.4100, which identifies 14 factors the commission must consider when making a permit decision.

Some factors are described in just a few words, for example, effects on archaeological and historic resources. Other factors are more descriptive and include a list of elements that, when grouped, make up the factor. Finally, certain factors are relatively succinct, but the scoping process identified elements to be analyzed in this EA. For example, the public health and safety factor includes an EMF element.

Factor M (unavoidable impacts) and Factor N (irreversible and irretrievable resource commitments) were discussed in the previous chapter. Factor H (use of existing rights-of-way) and Factor J (use of existing infrastructure rights-of-way) apply solely to high voltage transmission lines. Factor G (application of design options) and Factor L (costs dependent on design) do not apply as the design of the proposed project is the only design under consideration. Should the applicant receive a generation interconnection agreement from the Midcontinent Independent System Operator, Factor K (electrical reliability) will be met.

Other factors are ranked as follows:

	Impacts are anticipated to be negligible to minimal
	Impacts are anticipated to be minimal to moderate
	Impacts are anticipated to be moderate to significant

Table 8-1 Application of Siting Factors/Relative Merits of the Proposed Red Rock Solar Project

Element	Application of Siting Factors	
	Construction	Operation
Factor A. Human Settlement		
Aesthetics		
Displacement		
Cultural Values		
Electric Interference		
Environmental		
Floodplains		
Land Use and Zoning		
Noise		
Property Values *		
Recreation		
Socioeconomics		
Factor A Public Services		
Airports		
Roads and Highways		
Utilities		
Factor B Public Safety		
EMF		
Emergency Services		
Induced Voltage		

Element	Application of Siting Factors	
	Construction	Operation
Medical Devices	●	●
Public Safety	●	●
Stray Voltage	●	●
Worker Safety	●	●

Factor C Land Based Economies

Agriculture	○	○
Forestry	●	●
Mining	●	●
Tourism	●	●

Factor D Archaeological and Historic

Archeological	●	●
Historic	●	●

Factor E Natural Resources

Air Quality	●	●
Climate Change	●	●
Geology	●	●
Groundwater	●	●
Soils	○	●
Surface Water	●	●
Topography	●	●
Vegetation	●	●
Wetlands	●	●
Wildlife and Habitat	●	●

Factor F. Rare and Unique Natural Resources

State and Federally Listed Species	●	●
Rare and Unique Habitats	●	●

8.2 Application of Routing Factors and Relative Merits for the Big Bend HVTL Project

The analysis that follows applies the information and data available in the route permit application and this EA to the factors the Commission must consider when making a route permit decision

The Minnesota Legislature has directed the Commission to select HVTL routes that minimize adverse human and environmental impacts while insuring continuing electric power system reliability and integrity. An HVTL route must be compatible with environmental preservation and the efficient use of resources while also insuring electric energy needs are met and fulfilled in an orderly and timely fashion.

Minnesota Statute 216E.03, subdivision 7(b) identifies 12 considerations that the Commission must take into account when designating a route for a HVTL. These considerations are further clarified and expanded by Minnesota Rule 7850.4100, which identifies 14 factors the Commission must consider when making a permit decision.

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

Some factors are described in just a few words, for example, effects on archaeological and historic resources. Other factors are more descriptive and include a list of elements that, when grouped, make up the factor. Finally, certain factors are relatively succinct, but the scoping process identified elements to be analyzed in this EA. For example, the public health and safety factor includes an EMF element.

Factor I (use of existing large electric power generating plant sites) does not apply to HVTLS. *It is assumed that all routing options maximize energy efficiencies and accommodate expansion of transmission capacity (Factor G), and all routing options are electrically reliable (Factor K). Factor M* (unavoidable impacts) and **Factor N** (irreversible and irretrievable resource commitments) were discussed in Chapter 7. Other factors are ranked as follows:

	Route alternative is consistent with the routing factor OR Impacts are anticipated to be negligible to minimal
	Route alternative is consistent with routing factor but less so than the other options OR Impacts are anticipated to be minimal but the potential for impacts is greater than the other options or require special permit conditions OR Impacts are anticipated to be moderate
	Route alternative is not consistent with routing factor or consistent only in part OR Impacts might be moderate but the potential for impacts is greater than the other options or require special permit conditions OR Impacts are anticipated to be significant

This analysis applies the routing factors to the Proposed Route and discusses the relative merits of the Crandall Alternate Route, the Peaking Plant Alternate Route, and the relative merits of the four alternate route segments; Alternate Red, Alternate Yellow, Alternate Purple, and the Peaking Plant Alternate Route – Alternate Route Segment.

Graphics (described above) are used to illustrate the application of the routing factors outlined in Minnesota Rule 7850.4100 to the Proposed Route. These same graphics are used to explain the distinct impacts associated with the different routing options. A discussion highlighting differences follows.

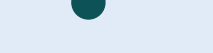
Table 8-2 Application of Routing Factors/Relative Merits of the Proposed Route and Alternate Route Options

Element	Application of Routing Factor	Relative Merits of Routing Factor	
	Proposed Route	Crandall Alternate Route	Peaking Plant Alternate Route
Factor A Human Settlement			
Aesthetics	○	○	○
Displacement	●	●	●
Cultural Values	●	●	●
Electric Interference	●	●	●
Environmental	●	●	●
Floodplains	●	●	●
Land Use and Zoning	●	●	●
Noise	●	●	●
Property Values *	○	○	○
Recreation	●	●	●
Socioeconomics	●	●	●
Factor A Public Services			
Airports	●	●	●
Roads and Highways	●	●	●
Utilities	●	●	●
Factor B Public Safety			
EMF	●	●	●
Emergency Services	●	●	●
Induced Voltage	●	●	●
Medical Devices	●	●	●
Public Safety	●	●	●
Stray Voltage	●	●	●
Worker Safety	●	●	●
Factor C Land Based Economies			
Agriculture	●	●	○

Element	Application of Routing Factor	Relative Merits of Routing Factor	
	Proposed Route	Crandall Alternate Route	Peaking Plant Alternate Route
Forestry	●	●	●
Mining	●	●	●
Tourism	●	●	●
Factor D Archaeological and Historic Resources			
Archeological	●	●	●
Historic	●	●	●
Factor E Natural Resources			
Air Quality	●	●	●
Climate Change	●	●	●
Geology	●	●	●
Groundwater	●	●	●
Soils	●	●	●
Surface Water	●	●	●
Topography	●	●	●
Vegetation	●	●	●
Wetlands	●	●	●
Wildlife and Habitat	●	●	●
Factor F Rare and Unique Natural Resources			
State and Federally Listed Species	●	●	●
Rare and Unique Habitats	○	●	●
Factor H Paralleling Existing ROW			
—	●	●	●

Element	Application of Routing Factor	Relative Merits of Routing Factor	
	Proposed Route	Crandall Alternate Route	Peaking Plant Alternate Route
Factor J Use of Existing Infrastructure			
—			
Factor L Cost			
—	N/A		
Minnesota Statute 216E.03, Subdivision 7(12): Existing HVTL route and Highway ROW			
—			

Table 8-3. Application of Routing Factors/Relative Merits of Routing Options
Comparative Portion of the Proposed Route and Alternate Route Segments (Red, Yellow, and Purple)

Element	Application of Routing Factor	Relative Merits of Routing Factor		
	Comparative Portion of the Proposed Route	Alternate Red	Alternate Yellow	Alternate Purple
Factor A Human Settlement				
Aesthetics				
Displacement				
Cultural Values				
Electric Interference				
Environmental Justice				

Element	Application of Routing Factor	Relative Merits of Routing Factor		
	Comparative Portion of the Proposed Route	Alternate Red	Alternate Yellow	Alternate Purple
Floodplains				
Land Use and Zoning				
Noise				
Property Values *				
Recreation				
Socioeconomics				
Factor A Public Services				
Airports				
Roads and Highways				
Utilities				
Factor B Public Safety				
EMF				
Emergency Services				
Induced Voltage				
Medical Devices				
Public Safety				
Stray Voltage				
Worker Safety				
Factor C Land Based Economies				
Agriculture				
Forestry				
Mining				
Tourism				
Factor D Archaeological and Historic Resources				
Archeological				
Historic				
Factor E Natural Resources				
Air Quality				

Element	Application of Routing Factor	Relative Merits of Routing Factor		
	Comparative Portion of the Proposed Route	Alternate Red	Alternate Yellow	Alternate Purple
Climate Change	●	●	●	●
Geology	●	●	●	●
Groundwater	●	●	●	●
Soils	●	●	●	●
Surface Water	●	○	○	●
Topography	●	●	●	●
Vegetation	●	●	●	●
Wetlands	●	○	○	●
Wildlife and Habitat	●	●	●	●
Factor F Rare and Unique Natural Resources				
State and Federally Listed Species	●	●	●	●
Rare and Unique Habitats	●	●	●	●
Factor H Paralleling Existing ROW				
—	●	●	●	●
Factor J Use of Existing Infrastructure				
—	●	●	●	●
Factor L Cost				
—	N/A	●	●	●
Minnesota Statute 216E.03, Subdivision 7(12): Existing HVTL route and Highway ROW				
—	●	●	●	●

Element	Application of Routing Factor	Relative Merits of Routing Factor		
	Comparative Portion of the Proposed Route	Alternate Red	Alternate Yellow	Alternate Purple

* Impacts to property values, on whole, are expected to be minimal to moderate and dissipate quickly at distances greater than 400 feet from the HVTL.

Table 8-4. Application of Routing Factors/Relative Merits of Routing Option
Comparative Portion of the Peaking Plant Alternate Route and Alternate Blue Route Segment

Element	Application of Routing Factor	Relative Merits of Routing Factor	
	Comparative Portion of the Peaking Plant Alternate Route	Alternate Blue	

Factor A Human Settlement

Aesthetics			
Displacement			
Cultural Values			
Electric Interference			
Environmental			
Floodplains			
Land Use and Zoning			
Noise			
Property Values *			
Recreation			
Socioeconomics			

Factor A Public Services

Airports				
Roads and Highways				
Utilities				

Factor B Public Safety

EMF				
Emergency Services				

Element	Application of Routing Factor	Relative Merits of Routing Factor		
	Comparative Portion of the Peaking Plant Alternate Route	Alternate Blue		
Induced Voltage	●	●		
Medical Devices	●	●		
Public Safety	●	●		
Stray Voltage	●	●		
Worker Safety	●	●		
Factor C Land Based Economies				
Agriculture	○	●		
Forestry	●	●		
Mining	●	●		
Tourism	●	●		
Factor D Archaeological and Historic Resources				
Archeological	●	●		
Historic	●	●		
Factor E Natural Resources				
Air Quality	●	●		
Climate Change	●	●		
Geology	●	●		
Groundwater	●	●		
Soils	○	●		
Surface Water	●	●		
Topography	●	●		
Vegetation	●	●		
Wetlands	●	●		
Wildlife and Habitat	●	●		
Factor F Rare and Unique Natural Resources				
State and Federally Listed Species	●	●		

Element	Application of Routing Factor	Relative Merits of Routing Factor		
	Comparative Portion of the Peaking Plant Alternate Route	Alternate Blue		
Rare and Unique Habitats				
Factor H Paralleling Existing ROW				
—				
Factor J Use of Existing Infrastructure				
—				
Factor L Cost				
—	N/A			
Minnesota Statute 216E.03, Subdivision 7(12): Existing HVTL route and Highway ROW				
—				

8.3 Recommendations

The following summarizes mitigation techniques recommended by staff that are not part of the sample site permit or the sample route permit issued for the project. In addition to the techniques summarized below, the Commission could require that one third party agency monitor reporting directly to EERA staff monitor construction and restoration of the project. The costs for such a monitor could be borne by the applicant.

Agriculture

If the Peaking Plant Alternate Route is selected, the Alternate Blue Route will reduce pole structure placement through three parcels of land that currently farmed as one large tract. Alternate Blue Route would place the HVTL adjacent to an existing road.

Rare and Unique Natural Resources

If the applicant's proposed route is selected, the Commission could require construction and pole structure placement along 50th Avenue in Martin County avoid impacts to Cedar 2-3, a moderate ranked MBS Site of Biodiversity Significance, and the adjacent native prairie areas.

Any 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 this species.

Wildlife Habitat

If the applicant's proposed route is selected, the Commission could require that construction and pole placement along the Cottonwood and Watonwan County borders avoid impacts to the existing CREP easement on the Cottonwood County side of the border.

Discussion

The following summarizes potential impacts to resource elements that are anticipated to vary across routing options, or those resource elements not previously discussed.

Aesthetics

All routing options will impact residences and recreational areas. The Alternate Yellow Route Segment will have reduced aesthetic impacts when compared to the associated segment of the applicant's proposed route.

Agriculture

Impacts to agriculture are expected to be minimal for all routing options; however, the Peaking Plant Alternate Route will have the most potential for disruption, due to the routing option cutting through large tract of farmland. Alternate Blue Route Segment would avoid this disruption of farming on multiple parcels of land.

Surface Waters

The comparative segments of the applicant's proposed route has less surface water crossings when compared to the Alternate Red and Alternate Yellow Route Segments.

Rare and Unique Natural Resources

The applicant's proposed route does cross a MNDNR SOBS of moderate value and associated native prairie areas. Construction and pole placement should be able to be completed in a manner that will

avoid these habitats, but if not, the Crandall Alternate Route and Peaking Plant Alternate Route will avoid these habitat areas.

Floodplains

Alternate Red, Alternate Yellow, and Alternate Purple Route Segments all avoid crossing identified floodplains when compared to the comparative segment of the applicant's proposed route.

Property Values

The segment of the Peaking Plant Alternate Route that travels through the large tract of farmland north of 220th Street has the potential to impact property values, as the routing option could reduce the desirability of purchasing the land for farming. The Alternate Blue Route Segment could reduce the potential of these impacts.

Soils

The segment of the Peaking Plant Alternate Route that travels through the large tract of farmland north of 220th Street has the potential to impact soils, as the routing option would extend through lands currently used for agricultural production and there is no previous disturbance for construction activities. The Alternate Blue Route Segment could reduce the potential of these impacts, as it is located adjacent to an existing road ROW.

Paralleling

The applicant's proposed route, the Crandall Alternate Route, and Peaking Plant Alternate Route parallel existing infrastructure for the vast majority or all their length. All of Alternate Blue Route Segment parallels existing infrastructure. Alternate Red, Alternate Yellow, and Alternate Purple parallel less existing infrastructure than any of the comparative segments of the applicant's proposed route.

Use of existing infrastructures

The applicant's proposed route, the Crandall Alternate Route, and Peaking Plant Alternate Route parallel existing infrastructure for the vast majority or all their length. All of Alternate Blue Route Segment parallels existing infrastructure. Alternate Red, Alternate Yellow, and Alternate Purple parallel less existing infrastructure than any of the comparative segments of the applicant's proposed route.

Minnesota Statute 216E.03

The applicant's proposed route, the Crandall Alternate Route, and Peaking Plant Alternate Route parallel existing infrastructure for the vast majority or all their length. All of Alternate Blue Route

Segment parallels existing infrastructure. Alternate Red, Alternate Yellow, and Alternate Purple parallel less existing infrastructure than any of the comparative segments of the applicant's proposed route.

No route segment follows an existing HVTL.