August 2020

Minnesota Public Utilities Commission

# Site Permit Addendum

PUC Docket No. IP7003/GS-19-395

## Regal Solar Project

Benton County, Minnesota

Submitted by:
Regal Solar, LLC
8400 Normandale Lake Blvd
Suite 1200
Bloomington, MN 55437

GERONIMO® ENERGY
a nationalgrid company

REGAL SOLAR

# *Public Utilities Commission Site Permit Addendum for the Regal Solar Project*

**Regal Solar, LLC**

**Benton County, Minnesota**

**Docket No. IP7003/GS-19-395**

**Addendum August 4, 2020**

**8400 Normandale Lake Boulevard**
**Suite 1200**
**Bloomington, MN 55437**

| | |
|---|---|
| **Applicant:** | Regal Solar, LLC |
| **Address:** | 8400 Normandale Lake Boulevard, Suite 1200<br>Bloomington, MN 55437 |
| **Authorized Representative:** | Melissa Schmit |
| **Signature:** |  |
| **Phone:** | 952-988-9000 |
| **Fax:** | 952-988-9001 |
| **Email:** | melissa@geronimoenergy.com |

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## ACRONYM LIST

| | |
|---|---|
| AADT | Annual Average Daily Traffic |
| AC | alternating current |
| Addendum | Site Permit Addendum. |
| APLIC | Avian Power Line Interaction Committee |
| Applicant | Regal Solar, LLC |
| Application | Site Permit Application |
| Area M | Area M Consulting |
| BMPs | best management practices |
| Collection Line Corridor | Approximate 84-acre area of mostly privately-owned land, for which Regal Solar, LLC has easements, will obtain a Utility Crossing Agreement from Benton County, a crossing license from the Department of Natural Resources, or is a review area for the Project substation, gen-tie routing area, and Minnesota Power switching station for the above-ground collection line and associated facilities |
| Commission | Minnesota Public Utilities Commission |
| dBA | A-weighted decibels |
| DPP1 | The first phase of transmission interconnection studies by Midcontinent Independent System Operator |
| ECE | East Central Energy |
| EPA | United States Environmental Protection Agency |
| GAP | Gap Analysis Program |
| GIA | Generator Interconnection Agreement |
| GRE | Great River Energy |
| HDD | Horizontal Directional Drill |
| kV | kilovolt |
| Land Control Area | Approximate 802-acre area of privately-owned land for which Regal Solar, LLC has a purchase option; the Land Control Area was presented in the Original and Revised Applications |
| Langola Tap | The origination point of the 115 kV line tap and is located on a 115 kV line that runs north-south between Little Falls and St. Cloud. |
| mG | milliGauss |
| MNBBA | Minnesota Breeding Bird Atlas |
| MNDNR | Minnesota Department of Natural Resources |
| MNDOT | Minnesota Department of Transportation |
| MW | megawatt |
| NESC | National Electrical Safety Code |

| | |
|---|---|
| NHIS | Natural Heritage Information System |
| NLEB | northern long-eared bat |
| NPCs | native plant communities |
| NRCS | Natural Resources Conservation Service |
| NRHP | National Register of Historic Places |
| O&M building | operations and maintenance building |
| Original Application | Site Permit Application submitted by Regal Solar, LLC to the Minnesota Public Utilities Commission on July 19, 2019 |
| POI | Point of Interconnect |
| Project | Regal Solar Project |
| PV | photovoltaic |
| PWI | Public Waters Inventory |
| Regal/Regal Solar | Regal Solar, LLC |
| Revised Application | Revised Site Permit Application submitted by Regal Solar, LLC to the Minnesota Public Utilities Commission on September 6, 2019 |
| SEIA | Solar Energy Industries Association |
| SHPO | State Historic Preservation Office |
| SGCN | Species of Greatest Conservation Need |
| SSURGO | Soil Survey Geographic Database |
| SWPPP | Stormwater Pollution Prevention Plan |
| TCLP | Toxicity Characteristic Leaching Procedure |
| U.S. | United States |
| USDA | U.S. Department of Agriculture |
| USDOT | U.S. Department of Transportation |
| USFWS | U.S. Fish and Wildlife Service |
| USGS | U.S. Geological Survey |
| WNS | white-nose syndrome |

# Application Content Requirements Completeness Checklist

| Project Permit Application Requirements (Minn. Rules 7850.1900, Subp. 1) | Application Section |
|---|---|
| A. a statement of proposed ownership of the facility as of the day of filing and after commercial operation; | 1.2 |
| B. the precise name of any person or organization to be initially named as permittee or permittees and the name of any other person to whom the permit may be transferred if transfer of the permit is contemplated; | 1.2 |
| C. at least two proposed sites for the proposed large electric power generating plant and identification of the applicant's preferred site and the reasons for preferring the site; | 2.4 |
| D. a description of the proposed large electric power generating plant and all associated facilities, including the size and type of the facility; | 3.1, 3.2 |
| E. the environmental information required under subpart 3; | See Environmental Information below |
| F. the names of the owners of the property for each proposed site; | 1.2 |
| G. the engineering and operational design for the large electric power generating plant at each of the proposed sites; | 3.1, Appendix A |
| H. a cost analysis of the large electric power generating plant at each proposed site, including the costs of constructing and operating the facility that are dependent on design and site; | 2.5 |
| I. an engineering analysis of each of the proposed sites, including how each site could accommodate expansion of generating capacity in the future; | 2.6 and 3.1 |
| J. identification of transportation, pipeline, and electrical transmission systems that will be required to construct, maintain, and operate the facility; | 3.1.7 and 3.1.8 |
| K. a listing and brief description of federal, state, and local permits that may be required for the project at each proposed site; and | 1.4.2 |
| L. a copy of the Certificate of Need for the project from the Public Utilities Commission or documentation that an application for a Certificate of Need has been submitted or is not required. | 1.4.1 |

| Environmental Information Requirements (Minn. Rules 7850.1900, Subp. 3) | Application Section |
|---|---|
| A. a description of the environmental setting for each site or route; | 4.1 |
| B. a description of the effects of construction and operation of the facility on human settlement, including, but not limited to, public health and safety, displacement, noise, aesthetics, socioeconomic impacts, cultural values, recreation, and public services; | 4.2 |
| C. a description of the effects of the facility on land-based economies, including, but not limited to, agriculture, forestry, tourism, and mining; | 4.3 |
| D. a description of the effects of the facility on archaeological and historic resources; | 4.4 |
| E. a description of the effects of the facility on the natural environment, including effects on air and water quality resources and flora and fauna; | 4.5 |
| F. a description of the effects of the facility on rare and unique natural resources; | 4.5.8 |
| G. identification of human and natural environmental effects that cannot be avoided if the facility is approved at a specific site or route; and | 4.6 |
| H. a description of measures that might be implemented to mitigate the potential human and environmental impacts identified in items A to G and the estimated costs of such mitigative measures. | 4.1 – 4.5 |

# 1.0 INTRODUCTION

Regal Solar, LLC (Regal, Regal Solar, or Applicant), a wholly owned subsidiary of Geronimo Energy, LLC, a National Grid Company, submitted a Site Permit Application (Original Application) to the Minnesota Public Utilities Commission (Commission) on July 19, 2019 pursuant to the Minnesota Power Plant Siting Act (Minnesota Statutes Chapter 216E) and Minnesota Administrative Rules Chapter 7850. Regal Solar proposes to construct the Regal Solar Project (Project), a solar energy conversion facility with an up to 100-megawatt (MW) alternating current (AC) nameplate capacity, in Langola Township, Benton County, Minnesota (Figure 1 – Project Location). In the Original Application, Regal planned on a Point of Interconnect (POI) to the East Central Energy (ECE)/Great River Energy (GRE) Langola Substation. However, ECE expressed concerns about the potential impact the Project may have on its downstream distribution system. To help mitigate these concerns, Regal met with Midcontinent Independent System Operator (MISO), ECE, GRE, and Minnesota Power and Regal agreed to change the POI to the adjacent Platte River Substation owned by Minnesota Power. This POI change was reflected in Regal's Revised Site Permit Application (Revised Application), which was submitted on September 6, 2019.

Since the Revised Application was submitted, MISO completed the first phase of transmission interconnection studies (DPP1). Upon completion of DPP1, MISO, Minnesota Power, and GRE indicated concerns remained about the potential impact of the Project on the local distribution system, even when interconnecting to the Platte River Substation. Their concerns revolve around the fact that the Langola and Platte River Substations are at the terminal end of a 4.5 mile long 115 kilovolt (kV) line tap. The utilities are concerned that the additional load at the end of this line tap could cause problems with the line tap and to the ECE distribution system. The Langola Tap is the origination point of the 115 kV line tap and is located on a 115 kV line that runs north-south between Little Falls and St. Cloud (see Figure 2 – Existing Transmission System).

To avoid potential problems on the 115 kV line tap and ECE's distribution system, Regal and the utilities agreed that Regal would revise its interconnection application with MISO to interconnect at a new switching station that would interconnect to the existing 115 kV line that runs between Little Falls and St. Cloud near the Langola Tap (see Figure 2 – Existing Transmission System). Minnesota Power will secure necessary permits, build, own, and operate the switching station. Permitting the switching station separately from the Project is consistent with other Large Electric Power Generating Plants and Large Electric Power Facilities[1] permitted in Minnesota.[2] Regal has secured voluntary landowner easements along a corridor to accommodate this POI modification. The modification includes shifting the Project substation from the existing proposed location

[1] As defined in Minn. Stat. 216E.01

[2] See for example: Odell Wind Farm High Voltage Transmission Line Project Order dated October 29, 2014 in docket IP-6914/TL-13-591; Blazing Star Wind Farm Sit Permit Application dated June 19, 2018 and Site Permit Order dated August 3, 2017 in docket IP-6961/WS-16-686; and Nobles 2 Wind Farm Site Permit Application dated December 1, 2017 and Site Permit Order dated January 31, 209 in docket IP-6964/WS-17-597

adjacent to the Langola and Platte River Substations to a location at the southeast intersection of the two 115 kV lines near the Langola Tap (see Figure 2 – Existing Transmission System).

The Project would interconnect to the Project substation via a double-circuit above-ground 3-phase 34.5 kV collection line (above-ground collection line) within a corridor, ranging in width from 75 to 290 feet, that will run from the northwestern corner of the Land Control Area[3] approximately 3.3 miles northwest to a new Minnesota Power switching station. The new collection line corridor and substation/switching station study area is referred to in this Addendum (as defined below) as the "Collection Line Corridor". The Collection Line Corridor is approximately 84.1 acres (See Figure 3 – Collection Line Corridor and Figures 8a – 8d – Detailed Above-Ground Collection Line). From the northwest corner of the Land Control Area and immediately south of Halfway Crossing NW, the Collection Line Corridor travels west approximately three hundred feet before crossing to the north side of Halfway Crossing NW. On the north side of Halfway Crossing NW, the Collection Line Corridor will travel west for approximately 0.4-mile, where Halfway Crossing NW turns northwest. At this point, the Collection Line Corridor extends on both sides of Halfway Crossing NW and travels along the road for 0.3-mile. The Collection Line Corridor crosses to the south side of Halfway Crossing NW prior to crossing the Platte River. On the west side of the Platte River, the Collection Line Corridor extends to both sides of Halfway Crossing Road for 0.15-mile before leaving Halfway Crossing NW and crossing Balsa Road and continuing on the south side of Barley Road NW for 0.43-mile to 65th Avenue NW. The Collection Line Corridor travels north along 65th Avenue NW for approximately 0.5-mile before turning west along a field edge for an additional 0.5-mile to 70th Avenue NW. The Collection Line Corridor follows 70th Avenue NW north for approximately quarter mile before turning west along another field edge for 0.4-mile. The Collection Line Corridor then turns south approximately 100 feet into the new Project substation location. For the purposes of collection line construction, operation and maintenance, Regal Solar will regularly utilize and maintain 13 feet on either side of the collection line for a 26-foot-wide right-of-way. However, over the life of the Project, Regal will remove any dead or dying tress within the easement but outside this right-of-way that pose a safety hazard for operation of the collection line. The Project substation will interconnect to a new switching station to be permitted, constructed, owned and operated by Minnesota Power via a 115 kV line that will be approximately 700 feet long between the Project substation and the Minnesota Power switching station; preliminary design of the 115 kV gen-tie line does not include any structures outside the footprints between the two facilities. The preliminary design of the 115 kV gen-tie line is based on preliminary coordination with Minnesota Power on the location and size of the switching station footprint. Regal includes a 35.1-acre review area in this Addendum for siting the Project substation and Minnesota Power switching station.

Similar to the description in the Revised Application, the Project substation will measure approximately 150 feet by 150 feet in its new location. However, Regal has included a 5.3-acre siting area in this Addendum within which the Project substation will be located. The exact location within the 5.3-acre siting area is dependent on further coordination with Minnesota Power and the landowner and further engineering. As documented in this Addendum, the environmental conditions within the 5.3-acre area are homogenous and, accordingly, environmental impacts from the Project substation will be the same regardless of where it is sited within the 5.3-acre siting area.

[3] See Acronym List. The Land Control Area was presented in the Original and Revised Applications.

Because the Project substation is no longer within the Preliminary Development Area described in the Revised Application, Regal has shifted the operations and maintenance building (O&M building) to a more central portion of the Preliminary Development Area (See Figure 5a).

This Site Permit Addendum (Addendum) describes the updates to the Project description, engineering and operational design, environmental information, and agency and public outreach sections. Every section of the Original and Revised Applications is included in this Addendum; each section includes updated information and analysis, as necessary, or a statement that there is no change from the Revised Site Permit Application. New information presented in this Addendum is intended to be a supplement to the Revised Application.

## 1.1 Purpose and Need

The purpose and need of the Project have not changed since the Revised Application.

## 1.2 Applicant Information

### 1.2.1 Permittee and Contact Information

The permittee and contact persons have not changed since the Revised Application.

### 1.2.2 Statement of Ownership

In addition to the purchase option with the landowners for the Land Control Area depicted in the Revised Application, Regal Solar has signed easements for private land within the Collection Line Corridor. Landowners in the Collection Line Corridor include: Kevin Popp and Jacob Popp, Cricket Farms Limited Partnership, Kirby and Joyce Fluharty, Dean and Lisa Block, Patricia and Kevin Kasella, Gary and Penelope Borash and Jeffrey Borash, Benton County, William Christle, B&B Properties, LLP, Arleen Hudek, and Andrew Legatt. There is approximately 650 feet of land owned by Benton county for which Regal Solar will obtain a Utility Crossing Agreement. Regal Solar must also obtain a Utility Crossing License from the Minnesota Department of Natural Resources (MNDNR) for the Platte River crossing.

Minnesota Power will construct, own, and operate the switching station.

## 1.3 Project Schedule

The anticipated schedule for the Site Permit, construction, testing, and commercial operation is outlined below:

- **Land acquisition**: Complete. Regal Solar has a purchase option for the Project site. After issuance of the Site Permit and prior to construction of the Project, Regal Solar will purchase the Project site from the underlying landowner. For the Collection Line Corridor, Regal has acquired easements for 48 acres, will obtain a Utility Crossing Agreement for a 1-acre Benton County parcel (approximately 650 feet), and is negotiating a final purchase area for the Project substation based on preliminary facility design by Minnesota Power within the 35.1-acre Project substation/Minnesota Power switching station review area. Regal will

secure a purchase option for the land on which the switching station will be built and sell it to Minnesota Power.

- **Site Permit:** Regal Solar anticipates the Site Permit will be issued in the Spring of 2021.
- **Other Permits:** Regal Solar will acquire all other permits necessary for construction of the Project prior to conducting the work for which the permit is required. This includes the Utility Crossing License from the MNDNR. Refer to Table 1.4-1 Potential Permits/Approvals.
- **Equipment Acquisition:** Regal Solar has narrowed its equipment vendors for solar equipment and confirmed availability for 2021 construction (e.g., panels, racking, piers, collection cables, inverters). The equipment will be allocated to the Project after meteorological and economic studies are completed to achieve the best match of technology and facility location.
- **Construction:** Regal Solar anticipates that construction will begin in the second quarter of 2021 and will be completed by the end of 2021. The exact timing of construction will be dependent upon the interconnection study review process currently being completed by MISO. The MISO study schedule for the group of projects being studied with the Project has been delayed from that which was originally estimated in the Revised Application. The current MISO study schedule is anticipated to have DPP3 complete in April 2021. MISO study schedules can change over time and are difficult to predict. Regal continues to remain hopeful that it can begin construction in the second quarter of 2021 by accelerating the execution of a Generator Interconnection Agreement (GIA) after the interconnection studies are completed, provided that it may need to delay construction until the MISO studies are completed and the GIA is executed by Minnesota Power, Regal and MISO. Section 3.4 of the Revised Application provides additional information on the construction timeline and process.
- **Commercial Testing:** Testing for the Project is expected to begin in the fourth quarter 2021, following the completion of construction. If the commencement of construction is delayed, commercial testing would also be delayed approximately the same amount of time as the start of construction is delayed from that which is contemplated in this Addendum.
- **Commercial Operations:** Commercial operation for the Project is targeted to begin by the end of 2021, following the completion of construction and testing. If the commencement of construction is delayed, commercial operations would also be delayed approximately the same amount of time as the start of construction is delayed from that which is contemplated in this Addendum.

## 1.4 Required Project Permits

### 1.4.1 Certificate of Need

The Project still requires a Certificate of Need, which is filed in Docket No. IP7003/CN-19-223. This Addendum is being filed in the Certificate of Need Docket concurrently to update the record for the Certificate of Need proceeding.

### 1.4.2 Other Permits

In addition to the permits identified in the Revised Application, Regal Solar anticipates the additional permits and licenses listed in Table 1.4-1 may be required for construction and operation

of the Project. Regal will obtain all permits and licenses that are required for the Project, following issuance of the Site Permit.

**Table 1.4-1 Potential Permits/Approvals**

| Agency | Permit | Applicability | Permit Status and Timing |
|---|---|---|---|
| **State** | | | |
| Minnesota Department of Natural Resources | Utility Crossing License | Required to cross Public Waters and Lands | To be obtained prior to construction |
| **County/Local** | | | |
| Benton County | Land use permit to remove pine plantations and shelter belts | Potentially required for tree removal | To be obtained prior to construction, if necessary |
| | Utility Crossing Agreement | Required as landowner on one-acre parcel with approximately 650 feet of above-ground collection | To be obtained prior to construction |

# 2.0 PROJECT DESCRIPTION

## 2.1 Overall Project Description

The overall Project description has not changed; the Regal Solar Project is an up to 100 MW solar photovoltaic (PV) facility located in northwest Benton County, Minnesota. After more detailed transmission interconnect studies, the Project will now interconnect to the 115-kV transmission system at a new Minnesota Power switching station approximately 2.8 miles northwest of the 802-acre Land Control Area. This change in interconnection results in approximately 3.3 miles of above-ground AC collection line and adds 84.1 acres to the Project (Collection Line Corridor). This change in interconnection location also means the Project substation is now located near the new POI and not within the fence of the solar facility. Additionally, with the Project substation shift and to create efficiency for operations staff, Regal has moved the O&M building to the south side of Halfway Crossing NW to a more centralized location in the Preliminary Development Area defined in the Revised Application. The area that was previously designated for the Project substation and O&M facility is now designated as a laydown area.

## 2.2 Size and Location

The Land Control Area depicted in the Revised Application will continue to host the majority of solar facilities, including panels, access roads, inverters, direct current collection, laydown areas, O&M building, weather stations, and some AC collection. These facilities occur Sections 12 and 13, Township 38 North, Range 32 West, and Sections 18 and 19, Township 38 North, Range 31 West, Benton County, Minnesota. The Collection Line Corridor includes 84.1 acres and consists of: 48 acres of easements for above-ground collection line, a one-acre parcel owned by Benton County for which Regal will obtain a Utility Crossing Agreement, and a 35.1 acre Project substation and Minnesota Power switching station review area for which Regal is currently negotiating the configuration of the facilities with the landowner based on preliminary coordination with Minnesota Power (see Figure 3 – Collection Line Corridor). While Minnesota Power has not provided a design of its switching station, it has provided the preliminary dimensions (5.2 acres or about 650 feet by 350 feet) it will require for its switching station footprint. Additionally, crossing of the Platte River within the Collection Line Corridor will require a Utility Crossing License from MNDNR. These facilities are located in Sections 3 and 10-13 in Township 38 North, Range 21 West (Figure 1 – Project Location).

The Collection Line Corridor occurs along Halfway Crossing NW, Barley Road NW, 65th Avenue NW, 70th Avenue NW, and field edge/parcel lines. It crosses the Platte River and its associated riparian corridor and is otherwise characterized by cultivated crops with few farmsteads in the vicinity. In establishing this corridor, Regal prioritized collocation with roads and field edges to minimize human and environmental impacts. Many of the roads along this corridor (Halfway Crossing NW and Barley Road NW) are at least partially lined with trees that serve as wind breaks for adjacent agricultural fields, most of which have center-pivot irrigation systems. The Collection Line Corridor and the above-ground collection line balance avoiding impacts to landowner's irrigation systems while minimizing impacts to trees; in some cases, landowner's have requested an alignment that necessitates impacts to trees to avoid impacts to their irrigation system. In other cases, Regal has obtained wider easements than is anticipated to be required for engineering and

construction to allow for flexibility in avoiding environmental and cultural resources to the degree practicable. For example, the Collection Line Corridor extends on both sides of a portion of Halfway Crossing NW, for a distance of approximately 0.9 mile. However, Regal does not anticipate impacts on the opposite side of the road from the above-ground collection line. In all cases where the above-ground collection line is collocated with a road, the poles and collection cables will be outside of road rights-of-way, unless the collection line is crossing the road right-of-way, in which case the poles would be outside road right-of-way but the collection cables would cross and span over road right-of-way.

As discussed in the Revised Application, Regal is providing a preliminary Project layout within the Preliminary Development Area for both a below-ground electrical collection system (Figures 4 – Below-Ground Preliminary Project Layout and 5a-5e – Detailed Below-Ground Preliminary Project Layout; and displayed in more detail in Appendix A – Site Plan) and an above-ground electrical collection system (Figures 6 – Above-Ground Preliminary Project Layout and 7a-7e – Detailed Above-Ground Preliminary Project Layout). A hybrid Project layout with a combined below-ground and above-ground electrical system would have an array layout consistent with the Below-Ground Preliminary Project Layout. As shown on the Preliminary Project Layout figures, the only changes to facilities described in the Revised Application are the Project substation moving to the new POI and the O&M building moving to a more central portion of the Preliminary Development Area.

## 2.3 Prohibited and Exclusion Sites

The Project facilities are not located within any prohibited or exclusion areas.

Subject to certain exceptions, Minnesota Rules 7850.4400, subp. 4 prohibits large energy power generating plants from being sited on more than 0.5-acre of prime farmland per MW of net generating capacity unless there is no feasible and prudent alternative. There is no prime farmland in the Land Control Area and there are 2.1 acres of prime farmland within the Collection Line Corridor. For a 100 MW generating facility, the Project threshold would be 50 acres; 2.1 acres is well below the 0.5-acre per MW of net generating capacity threshold for large energy power generating plants. Soils are discussed in further detail in Section 4.5.3.

## 2.4 Alternatives Considered but Rejected

Per Minn. Stat. 216E.04, Subd. 2(8), the Project still qualifies for the alternative review process specified in Minn. R. 7850.2800-7850.3900. Accordingly, Regal is not required to analyze alternative sites pursuant to 7850.3100.

The Langola and Platte River Substations discussed in the Original and Revised Applications were rejected due to concerns from MISO, GRE, and Minnesota Power (see Section 1.0). Therefore, the POI modification discussed in this Addendum was requested in coordination with MISO, GRE, and Minnesota Power. No other point of interconnection was considered by Regal for the POI.

## 2.5 Cost Analysis

The total installed capital costs for the Project are estimated to be approximately $164.7 million, with Project cost depending on variables including, but not limited to, construction costs, taxes, tariffs, and panel selection, along with associated electrical and communication systems, and access roads. Costs associated with the various Project components are detailed in Table 2.5-1 and have been updated to reflect the POI modification as well as more accurately estimate Project costs as the Project moves through the development process.

**Table 2.5-1 Estimated Project Costs**

| Project Components | Cost |
|---|---|
| Engineering, Procurement, Construction Contractor | $118.6 million |
| Development Expense | $28.2 million |
| Interconnection | $15.2 million |
| Financing | $2.7 million |
| **Project Total** | **$164.7 million** |

## 2.6 Future Expansion

Regal's interconnection request is for 100 MW, the planned output of the Project. Regal does not anticipate expanding the proposed Project at this time. Based on the switching station siting area (10.4 acres) and preliminary switching station footprint (5.2 acres), it is possible that the Minnesota Power switching station could be expanded to accommodate future modifications.

Regal does not have any information from Minnesota Power as to whether an expansion to the switching station is planned or contemplated.

# 3.0 ENGINEERING AND OPERATIONAL DESIGN

The overall description of engineering and operational design is described in the Revised Application. Components of the design that have changed are discussed below; however, the harvesting of solar energy process and associated voltages remains unchanged.

## 3.1 Design

The Project's design of PV panels is described in the Revised Application. The description, configuration, and spacing of panels are unchanged.

In addition to the equipment information contained in the Revised Application, Regal is also providing the following additional information to supplement the Revised Application.

Panels are designed to withstand the impact of weather systems, including hail, and the probability of a PV solar panel shattering due to hail is extremely low. Applicable International Electrotechnical Commission design requirements (i.e., IEC 61215) requires panels to withstand hail up to one inch in diameter[4] though some manufacturers test and obtain certification to greater levels. A review of historical hail report data[5] dating back to 1956 indicates 62 hail events, with hail greater than one inch in diameter have occurred within Benton County. The National Renewable Energy Laboratory conducted a detailed study of 50,000 PV systems totaling 1.7 gigawatts of installed capacity in the United States (U.S.) from 2009 to 2012 and found that the probability of PV system damage due to hail is below 0.05 percent[6]. Therefore, the potential for PV solar panels installed at the Project to be damaged by hail or other common weather events in Minnesota is minimal. Any PV solar panels damaged during construction or during operation of the Project will be removed, properly disposed of and replaced.

[4] International Electrotechnical Commission. Terrestrial photovoltaic (PV) modules - Design qualification and type approval - Part 1-1: Special requirements for testing of crystalline silicon photovoltaic (PV) modules (2016), available at https://www.iecee.org/dyn/www/f?p=106:49:0::::FSP_STD_ID:24313 (Accessed July 12, 2020).

[5] National Climatic Data Center. Storm Events Database (2020). Available at https://www.ncdc.noaa.gov/stormevents/ (Accessed July 12, 2020)

[6] NREL. Reliability and Geographic Trends of 50,000 Photovoltaic Systems in the U.S. (2014) available at https://www.nrel.gov/docs/fy14osti/62801.pdf (Accessed July 1, 2020).

### 3.1.1 Linear Axis Tracking Rack System

The linear axis tracking rack system is described in the Revised Application. The footprint of the arrays has not changed for either the below-ground/hybrid or above-ground collection systems (see Figures 4-7).

### 3.1.2 Inverters, Transformers, and Electrical Collection System

The description of the inverters, transformers, and three electrical collection systems is in the Revised Application. The location and configuration of inverters and transformers has not changed for the below-ground, above-ground, or hybrid collection systems. Regardless of the collection system implemented, the design now includes above-ground AC collection from the northwest corner of the Land Control Area to the updated Project Substation location approximately 2.8 miles northwest in Section 3. The design includes 51 poles typically spaced approximately 300 feet apart that will carry two circuits with six conductors from the Land Control Area to the Project substation; two of these poles are within the Project substation footprint. Based on preliminary design, pole spacing ranges from 156-862 feet to span various environmental features or roads. The preliminary design includes two pole types to avoid and minimize environmental impacts to cultural resources, floodplains, agricultural activities, and tree clearing (see Chapter 4 for more information). The double circuit tangent poles are made of wood, approximately 60-feet tall, have a diameter of 18 inches, and will be direct embed. Tangent poles are sometimes referred to as "straight-through" poles as they are generally used along relatively straight portions of a line. Tangent poles used for the Project will carry collection cables on one side of the pole to minimize the width of the collector right-of-way used by the Project. Tangent poles are used for the majority of the corridor. Steel dead end double circuit poles are made of steel, approximately 60-feet tall, have a diameter of up to 6 feet, and will require concrete foundations. These dead end structures are used for longer spans, road crossings, and in certain soil conditions where excess strain is placed on the pole or its components. Typical drawings of double circuit tangent and dead end poles are included in Appendix B; their placement is included on Figure 8a -8d – Detailed Above-Ground Collection Line and Appendix C – Preliminary Plan and Profile. If the below-ground or hybrid electrical systems are implemented, there will be a riser pole in the northwest corner of the Land Control Area for the six circuits to rise above ground before traveling the collection corridor to the updated Project substation location. If the above-ground collection system is implemented, a riser pole will not be needed as the system will already be above-ground. The pole placement included in this Addendum is preliminary and final locations will be determined based on final engineering and geotechnical analysis.

The line also will be collocated with the ECE distribution line between poles 38-48. By collocating with the existing ECE line, the collection line will not add a cumulative visual impact along this 0.7-mile stretch because the ECE line will be buried (see Section 4.2.9 and Figure 8 – Detailed Above-Ground Collection Line). An additional 0.3-mile of ECE distribution line between proposed Structure 38 and near the intersection of Halfway Crossing NW and Balsa Road will also be buried even though this segment of the above-ground collection line will be on the opposite side of Halfway Crossing NW. This 0.3-mile segment of the ECE distribution line crosses the Platte River.

### 3.1.3 Access Roads

Access roads are described in the Revised Application. Access roads within the Land Control Area are unchanged. There will be an additional 1,400-foot access road off Acorn Road NW to the Project substation that will utilize an existing two-track, dirt road; in coordination with the landowner, Regal may upgrade this road from dirt to gravel to enhance the reliability and usability of this road to better suit the access needs of the Project and landowner accessing the agricultural field. The access road driveway will require a county entrance permit from Benton County, which will be obtained prior to construction, similar to the entrances to the solar facility.

### 3.1.4 Safety Features

The safety features of the Project, including fencing, lighting, and security cameras, are described in the Revised Application. Similar to the Project substation, the Minnesota Power switching station will be fenced and have lighting; Minnesota Power may use security cameras for added safety and security.

### 3.1.5 Associated Facilities

#### 3.1.5.1 Project Substation

The Project substation is described in the Revised Application. The only change is the modification in its location. As described in Section 1.0, Regal will site the Project substation within an approximately 5.3-acre footprint in the northwest corner of an agricultural field outside of center-pivot irrigation. The substation's area will be approximately 150 feet by 150 feet once construction is complete.

#### 3.1.5.2 Operation and Maintenance Building

The O&M building is described in the Revised Application. The only change is its location shift to more central location within the Land Control Area (see Figures 4-7 and the Site Plan in Appendix A).

#### 3.1.5.3 Parking

A parking lot will be located adjacent to the O&M building and will be approximately 500 square feet with the final size being determined in accordance with the Benton County Development Code. The parking lot will be gravel or paved depending on the size to comply with the off-street parking provisions detailed in Section 9.2 of the Benton County Development Code (Benton County, 2016).

#### 3.1.5.4 Weather Stations

The Project's weather stations are described in the Revised Application.

#### 3.1.5.5 Switching Station

The switching station will be located within a 10.4-acre area, with the final fenced in area anticipated area to be approximately 5.2 acres (about 650 feet by 350 feet; see Figure 8d). Because the switching station will be permitted and constructed by the interconnecting utility (Minnesota Power), the exact location of the fenced in area is pending Minnesota Power's final design. The final alignment of the switching station within the 10.4-acre area is limited by the presence of existing 115 kV transmission lines on the northern and western portions of the 10.4 acre review area. The 10.4-acre review area consists of herbaceous and row-crop vegetation. The exact location of the switching station within the review area is not expected to change the environmental impacts from the switching station. The switching station will contain station service transformers and a 3-ring breaker bus. The voltage will be 115 kV. The switching station components will be mounted on concrete pads. For electrical and fire safety, the switching station will be graveled to maintain the area free of vegetation. The area will be fenced to prevent unauthorized entry by individuals and wildlife. Once construction is complete, the switching station would be maintained and operated by Minnesota Power.

### 3.1.6 Temporary Facilities

There is one additional 1.6-acre laydown area within the Preliminary Development Area (inside the fence) that was previously sited to host the Project substation, O&M building, and parking area. With this addition, there are five laydown areas totaling 8.6 acres. As described in the Revised Application, these areas will serve both as a parking area for construction personnel and staging areas for Project components during construction. These laydown areas have been sited to avoid any tree clearing. After construction, they will be reseeded using a seed mix as described in the Vegetation Management Plan.

### 3.1.7 Transmission System

The Project will interconnect into a to-be-constructed Minnesota Power switching station via a 115-kV overhead gen-tie transmission line of less than 1,500 feet. There will be a single dead-end pole within the Project substation and likely at least one additional pole within the Minnesota Power switching station with an overall length currently estimated to be approximately 700 feet, pending final engineering. The poles will likely be made of wood and 70 feet tall. The type of conductor will be determined following the completion of detailed electrical design. Per Minn. Stat. 216E.01 Subd. 4, the transmission line does not meet the high voltage transmission line definition as it is less than 1,500 feet. As such, a separate route permit from the Commission will not be required.

### 3.1.8 Pipeline System

Minnesota Rules 7850.1900, subp. 1(J) is not applicable to the Project because no pipelines will be accessed or built as part of the Project.

## 3.2 Project Layout

The Project's layout of solar arrays is described in the Revised Application, including setbacks. The additional above-ground collection line is sited on private land and adjacent to road rights-of-way and parcel boundaries and field edges.

## 3.3 Estimated Project Facility Acreages

In general, the Project facilities' estimated acreages within the approximately 711-acre Preliminary Development Area are significantly similar to those described in the Revised Application; the configuration of some facilities within the Preliminary Development Area has changed. The footprint for access roads and inverters in both configurations has not changed. The fenced area in both configurations is 0.8 acre less due to a change in the northwest corner of the Land Control Area. Additionally, the Preliminary Gen-tie Routing Area is no longer within the Preliminary Development Area; it is now associated with the updated Project Substation location. The area that was previously sited with the Project Substation and O&M building is now a laydown area, increasing the laydown acreage in both configurations by 1.6 acres. Updated acreages for each configuration are included in Table 3.3-1.

**Table 3.3-1 Updated Estimated Project Facility Acreages within Preliminary Development Area**

| Project Facilities | Acres | |
|---|---|---|
| | Below-Ground Configuration | Above-Ground Configuration |
| Access Roads | 24.5 | 24.6 |
| Inverters | 0.4 | 0.4 |
| Laydown Areas | 8.6 [1] | 8.6 [1] |
| Fenced Area with Solar Panels | 672.4 [2] | 676.6 [2] |
| **Project Total** | **705.9** | **710.3** |

[1] The laydown areas are temporary impacts to be used only during construction

[2] The impacts associated with solar panels include 16-foot-wide grass area between every row of panels

Estimated acreages for Project facilities within the Collection Line Corridor are presented in Table 3.3-2. The footprint for poles is estimated by 31 tangent poles being 18 inches in diameter and construction impact of 3-foot diameter hole and 18 dead end poles (including one riser pole) being up to 6 feet in diameter and requiring a 7-foot diameter hole for construction, including the concrete footing. As previously noted, the Project substation will measure approximately 150 feet by 150 feet within a 5.3-acre siting area. Similarly, the Minnesota Power switching station will likely be a smaller footprint than the 10.4-acre siting area. The acreage for this facility is included in Table 3.3-2, however, Minnesota Power will permit the switching station separately through Benton County. As previously stated, because the switching station will be permitted and constructed by the interconnecting utility (Minnesota Power), the exact location of the fenced in area is pending Minnesota Power's final design. Based on discussions with Minnesota Power, an area of 350 feet by 650 feet (~5.3 acres) will be required for the switching station. For purposes of impacts, Regal conservatively includes the 10.4 acre siting area even though only 5.3 acres within the 10.4 acre siting area that are not currently occupied by the two existing 115-kV transmission

lines are anticipated to be impacted . Final acreages for these facilities will depend on final engineering. For the purposes of this Addendum, Regal includes the larger siting area. Finally, the gen-tie routing area is approximately 9.2 acres. However, based on preliminary design of the 115 kV gen-tie line, there will not be any transmission structures within this area; instead, it will be an approximately 700-foot span between the Project substation and Minnesota Power switching station to minimize impacts to the underlying agricultural field.

**Table 3.3-2 Estimated Project Facility Acreages within Collection Line Corridor**

| Project Facilities | Acres |
|---|---|
| Poles | 0.02 |
| Project Substation | 5.3 |
| Gen-Tie Routing Area | 9.2 |
| Minnesota Power Switching Station Siting Area[1] | 10.4 |
| **Project Total** | **24.9** |

[1] To be permitted by Minnesota Power; acreage is representative and dependent on additional engineering. The preliminary Switching Station footprint covers 5.2 acres within the 10.4 acre siting area.

## 3.4 Project Construction

### 3.4.1 Construction Procedures

Construction will begin after applicable federal, state, and local approvals have been obtained, soil conditions are established, and final design is completed. The precise timing of construction will take into account various requirements that may be in place due to permit conditions, system loading issues, weather, and available workforce and materials.

Project construction begins with surveying the easement area to define construction limits to the Collection Line Corridor and mark locations for poles and the Project substation. Surveyors will stake the construction corridor within the Collection Line Corridor and the pole locations in preparation for the construction crew arriving on site. Once the construction crew arrives, they will begin by clearing and grubbing out the portion of the Collection Line Corridor that requires some form of vegetation maintenance (see Section 4.5.6) to ensure that vegetation meets the National Electrical Safety Code (NESC) standards and that the construction crew will have easy access to the construction site. Because a majority of the above-ground collection line is in or immediately adjacent to crop land (i.e., row crops) or developed, this clearing will be minimal (up to 2.0 acres, see Section 4.5.6.1). Regal Solar will coordinate with landowners on clearing and grubbing to ensure minimal impact to wind breaks, landscaping, and other vegetative buffers. The crew will use chain saws, lifts, tractors, and bulldozers only where needed to clear vegetation. The crew will install temporary culverts and field approaches where needed to access the Collection Line Corridor and to maintain adequate access and drainage throughout construction.

Above-ground collection line poles are generally designed for installation at existing grades. Typically, structure sites with 10 percent or less slope will not be graded or leveled. Sites with more than 10 percent slope will have working areas graded level or fill brought in for working pads. Regal Solar anticipates that only minimal grading, if any, will be needed because the

Collection Line Corridor has very little elevation change. If the landowner permits, it is preferred to leave the leveled areas and working pads in place for use in future maintenance activities. If permission is not obtained, the site will be graded back to as close to its original condition as possible, and all imported fill, will be removed from the site and disturbed areas will be returned to pre-disturbance conditions.

Typical construction equipment used on a project consists of tree removal equipment (i.e., chain saws), mowers, cranes, backhoes, digger-derrick line trucks, track-mounted drill rigs, dump trucks, front end loaders, bucket trucks, bulldozers, flatbed tractor-trailers, flatbed trucks, pickup trucks, concrete trucks, and various trailers. Many types of excavation equipment are set on wheel or track-driven vehicles. Poles are transported on tractor-trailers.

Regal Solar will utilize laydown areas within the Preliminary Development Area for staging poles for the above-ground collection line. When it is time to install the poles, they will be moved from the staging areas, delivered to the staked location, and placed within the Collection Line Corridor until the pole is set. Typically, access to the Collection Line Corridor is made directly from existing roads or two-tracks that run parallel or perpendicular to the Collection Line Corridor. In some situations, private field roads or trails are used. Permission from the property owner is obtained prior to accessing the Collection Line Corridor outside of public rights-of-way.

At this time, Regal Solar anticipates the predominant method for securing the poles for the above-ground collection line will be direct-embedment for tangent poles and concrete pier for dead-end poles. To place direct-embedded single poles in the ground, the spoils are removed from the ground. Temporary casing may be required if the hole does not stay open during the excavation process. The pole is set and backfilled with crushed rock. The spoils will be removed from site unless other arrangements are made with the landowner. Regal Solar will not dispose of spoil materials within wetlands, protected water bodies, protected watercourses, floodplains, or in a manner that could impact these areas through erosion or transport of the spoil materials. Concrete foundations will be used when warranted by site-specific design criteria or circumstances. For concrete foundations, the excavation process will utilize temporary steel casing and rebar, concrete and anchor bolts will be placed in the hole. The standard projection of a concrete foundation is one foot above grade.

Once the poles are erected, the collection lines will be strung. A boom truck will likely be used at each pole location and a smaller construction vehicle like a skidsteer will pull the circuits between poles (i.e., stringing). At the Platte River crossing, the stringing vehicle would use the bridge along Halfway Crossing NW to cross the River and avoid impacts to the waterbody. Use of Halfway Crossing NW would be coordinated through Benton County and all appropriate safety measures in place, such as lane closures and signage.

Substation construction procedures are described in the Revised Application and would not change for the POI modification. Similarly, Regal anticipates Minnesota Power's construction procedures for their switching station would be substantially similar to the substation procedures with site preparation, grading (if necessary), pouring of concrete foundations, and installation of gravel.

As discussed in Section 3.1.2, the above-ground collection line will be collocated with an existing ECE distribution line for approximately 0.7-mile. Regal will enter into a Relocation Agreement

whereby ECE will bury their distribution line in this 0.7-mile segment and an additional 0.3 mile, totaling one mile. Regal anticipates the majority of approximate one-mile segment to be buried will be installed in trenches by ECE, except for the Platte River crossing, which would likely be Horizontal Directional Drill (HDD) under the river crossing. Based on preliminary coordination, ECE anticipates relocating their segment will take approximately one month, including installation of underground facilities and retirement of overhead facilities. The HDD is anticipated to take one to two days.

### 3.4.2 Restoration and Clean-Up Procedures

The ground will be disturbed during the normal course of work (as is typical of most construction projects), which can take several weeks in any one location. Regal Solar will take the steps necessary to lessen the impact of the Project on the surrounding environment by restoring areas disturbed by construction in accordance with best management practices (BMPs) and the Project's permit conditions. This will begin with a pre-construction survey that will identify areas requiring special restoration procedures. During construction, crews will also attempt to limit ground disturbance wherever possible. As construction on each parcel of land is completed, disturbed areas will be restored to its original condition to the maximum extent practicable.

Regal Solar or its contractor will contact each property owner after construction is completed to identify and address any damage that may have occurred as a result of the construction of the Project. If damage has occurred to crops, fences, or the property, Regal Solar will fairly compensate the landowner for the damages sustained in accordance with the terms and conditions agreed upon in the Easement Agreement entered into by Regal Solar and the landowner. In some cases, Regal Solar may engage an outside contractor to restore the damaged property to its original condition to the extent practicable.

Portions of permanent vegetation that are disturbed or removed during construction of above-ground collection line will be reestablished to pre-disturbance conditions, except that trees will not be allowed to grow to heights or widths that would infringe upon the safe buffer distances established by NESC standards. Resilient species of common grasses and shrubs typically reestablish naturally with few problems after disturbance. Areas with significant soil compaction and disturbance from construction activities will require assistance in reestablishing the vegetation stratum and controlling soil erosion. Commonly used BMPs to control soil erosion and assist in reestablishing vegetation that may be used include, but are not limited to:

- Erosion control blankets with embedded seeds,
- Silt fences,
- Hay bales,
- Hydro seeding, and
- Planting individual seeds or seedlings of non-invasive native species.

Regal Solar will reseed any disturbed areas with a Minnesota Department of Transportation roadside seed mix that blends with the road right-of-way and/or field edges where the Project is proposed. The roadside seed mix is included as an appendix to the revised Vegetation Management Plan attached in Appendix F.

## 3.5 Project Operation and Maintenance

In addition to the Project operation and maintenance described in the Revised Application for the solar facility itself, the above-ground collection line will require maintenance, particularly in the first few years of operation. Above-ground collection line infrastructure is reliable because it includes very few mechanical elements. It is built to withstand weather extremes, with the exception of severe weather such as tornadoes and heavy ice storms. Collection lines are automatically taken out of service by the operation of protective relaying equipment when a fault is sensed on the system. Such interruptions are usually momentary. Scheduled maintenance outages are also infrequent. As a result, the average annual availability of transmission infrastructure is very high, in excess of 99 percent.

The above-ground collection line inspections will occur by vehicle at least monthly by operations and maintenance staff. Inspections will be conducted to ensure that the above-ground collection line is fully functional and that no vegetation has encroached so as to violate NESC prescribed clearances. Vegetation maintenance will primarily consist of tree and branch trimming; mowing is not anticipated.

Minnesota Power will operate and maintain the switching station.

## 3.6 Decommissioning and Repowering

The decommissioning and repowering of the Project, including the timeline, removal and disposal of Project components, restoration/reclamation of the facility site, and financial resource plan are described in the Revised Application. Similar to other Project components, at the end of the Project's useful life, the above-ground collection line will either be repurposed or decommissioned. If decommissioned, the process would be the reverse of the construction process described above. All above-ground collection components (wire, conductors, poles) would be removed and either recycled or properly disposed of in accordance with applicable regulations. Poles will be completely removed and recycled or properly disposed of in accordance with applicable regulations. A copy of Regal Solar's revised Decommissioning Plan is provided in Appendix D.

In addition to the recycling information contained in the Revised Application, Regal is also providing the following additional information to supplement the Revised Application.

Solar panels and other equipment utilized by the Project will, at some time, need to be managed as waste products. Therefore, certain manufacturers, PVCycle (an international program that some silicon manufacturers participate in), waste management companies, or other entities such as the Solar Energy Industries Association (SEIA) have been actively seeking and developing panel and associated equipment recycling partners across the U.S. For example, as of January 2020, SEIA's recycling partners have processed more than four million pounds of PV solar panels and related equipment since SEIA's recycling program was initiated in 2016. The heaviest components of panels, glass and aluminum are common and easily recyclable. Other panel components that can be successfully recovered are copper, silver and semiconductor materials. More than 90 percent of semiconductor material and glass can be reused in new modules and products. Future research and development of recycling equipment should further optimize the recoverability of additional

PV solar panel materials and the purity of any reclaimed materials. Regal anticipates that, by the end of the useful life of the panels used for the Project, panel recycling will be sufficiently established in Minnesota or surrounding states to recycle the PV solar panels and associated equipment used for the Project.

When panels are disposed of at recycling facilities or landfills, the characteristics of the elements within the panels that would be characterized as hazardous materials by the United States Environmental Protection Agency (EPA) and the likelihood that those materials will leach from the panels into the environment must be determined and reported. Many manufacturers of panels are taking proactive actions to determine the potential for the metals contained in panels to leach from the panels during operation of the panel or if it is broken into pieces. The EPA-approved method for determining whether a hazardous substance is likely to leach into the ground and ground water is the Toxicity Characteristic Leaching Procedure (TCLP). Each of the manufacturers being considered by Regal to provide panels completes TCLP testing as part of the product development process and has determined that all existing products passed TCLP testing. In other words, no hazardous materials (including arsenic, barium, cadmium, chromium, lead, mercury, selenium, or silver) leached from the tested products resulting in leachate concentrations above the EPA's regulatory thresholds. In light of the panels being fully encapsulated, unlikely to shatter and not expected to leach hazardous materials into the environment, the risk to the environment from the contents of the panels will be minimal. If a panel is broken at the Project, the broken pieces and the remainder of the panel will be recycled or disposed of and replaced, thereby further reducing the risk for hazardous materials contained in the panels to leach into the environment.

# 4.0 ENVIRONMENTAL INFORMATION

For the discussion in the following sections, the following terminology, assumptions, and approach are used.

For existing conditions within the portions of land under Regal's control or survey area, calculations are based on the Collection Line Corridor (84.1 acres). This reflects the fact that final design may necessitate development in areas within the overall area under easement. Additionally, for any discussions of resources that are located outside of Collection Line Corridor (such as parks within one mile), the Collection Line Corridor boundary is used in order to discuss the vicinity of these features from anywhere within the portion under easement.

The impact discussion is generally specific to the preliminary Project layout and is described by resource. For many resources, such as vegetation, soils, wetlands, surface waters, and floodplains, impacts are discussed relative to pole placement. Other resources, such as wildlife or rare and unique natural resources, have a resource-specific analysis to provide an accurate representation of impacts. All construction activities, including access and staging, will occur within the Collection Line Corridor; however, these activities would be limited to the construction period.

## 4.1 Environmental Setting

The Collection Line Corridor falls within the same ecological province, section, and subsections described in the Revised Application. The Collection Line Corridor is also characterized by a rural setting, immediately adjacent to Halfway Crossing NW (County Road 40), Barley Road, 65th Avenue Northwest, and 70th Avenue NW before following field edges and parcel lines to the Langola Tap. Residences are scattered throughout the rural area where the land use is dominated by center-pivot irrigation with tree rows serving as wind breaks along portions of most roads and some field edges. The Collection Line Corridor also crosses the Platte River and its riparian corridor along Halfway Crossing NW.

## 4.2 Human Settlement

### 4.2.1 Public Health and Safety

The Collection Line Corridor is also within Langola Township; the public health and safety described in the Revised Application, including emergency services applies to the Collection Line Corridor. The Collection Line Corridor is closer to an Allied Radio Matrix for Emergency Response tower in Royalton; however, this tower remains more than one mile from Project facilities (Minnesota Department of Public Safety, 2018).

#### 4.2.1.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

#### 4.2.1.2 Electric and Magnetic Fields

The electric and magnetic fields associated with a 34.5 kV collection line are described in Table 4.2-1.. As displayed in Table 4.2-1, both electric and magnetic fields dissipate with distance. 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[7]. There are presently no Minnesota regulations pertaining to magnetic field exposure; however, the internationally accepted guideline for the general public exposed to magnetic fields is 833 milliGauss (mG) (NEIHS, 2002).

**Table 4.2-1: Electric and Magnetic Fields Associated with a 34.5 kV Collection Line**

| | Distance (feet) | | | |
|---|---|---|---|---|
| **Field Type** | **0** | **50** | **100** | **150** |
| Electric (kV/M) | 0.82 | 0.2 | 0.05 | 0.01 |
| Magnetic (mG) | 90 | 26 | 7 | 2 |

#### 4.2.1.3 Impacts and Mitigation

As displayed in Table 4.2-1, even directly below the above-ground collection line where electric and magnetic fields are the strongest, both the electric and magnetic fields are well below the maximum limit and guidance. As such, no impacts are anticipated and no mitigation is proposed.

### 4.2.2 Displacement

There are no residences, business, or structures such as barns or sheds in the Collection Line Corridor (see Figure 8 – Detailed Above-Ground Collection Line).

#### 4.2.2.1 Impacts and Mitigation

Because there are no building structures in the Collection Line Corridor, there will not be any displacement; as such, no mitigation is proposed.

### 4.2.3 Noise

The description of noise in the Revised Application applies to the Collection Line Corridor.

[7] *In the Matter of the Route Permit Application for a 345 kV Transmission Line from Brookings County, South Dakota to Hampton, Minnesota*, Docket No. ET-2/TL-08-1474, Order Granting Route Permit (*adopting* Administrative Law Judge Findings of Fact, Conclusions and Recommendation at Finding 194 [April 22, 2010 and amended April 30, 2010]) (September 14, 2010).

#### 4.2.3.1 Impacts and Mitigation

Additional noise impacts will occur during construction of the Project in the Collection Line Corridor. Noise will be emitted by the construction vehicles and equipment. The amount of noise will vary based on what type of construction is occurring at the Project on a given day. Construction-associated noise will likely be perceptible at adjacent residences (see Figure 8 – Detailed Above-Ground Collection Line for locations). The additional poles for the above-ground collection line will be a combination of direct embed and concrete foundations. For direct embed structures, an augur will create a hole for the pole and then be backfilled. An augur drill rig typically emits noise of 84 A-weighted decibels (dBA) at 50 feet (U.S. Department of Transportation [USDOT], 2017). Noise associated with this construction will be limited to the poles and will be relatively short duration (i.e., up to 4 hours per pole). For poles with concrete foundations, the augur will create a hole and a portion will be filled with concrete. Concrete mixing trucks typically emits noise of 79 dBA at 50 feet (USDOT, 2017). Similar to direct embed poles (tangent), noise associated with the concrete mixing truck will be limited to pole placements and be of relatively short duration. Finally, as described in Section 4.5.6, vegetation maintenance will need to be conducted prior to construction of the poles. Regal anticipates a chain saw would be used for vertical tree trimming, limbing, and clearing along the above-ground collection line and around proposed poles. A chain saw typically emits 84 dBA at 50 feet (USDOT, 2017). The noise from any of these construction activities would dissipate with distance and be audible at varying decibels, depending on the locations of the equipment and receptor. During construction, Regal plans to limit construction to daylight hours. No noise impacts are anticipated during operation; therefore, no mitigation measures are proposed.

Regal does not anticipate any noise from the additional above-ground collection line during Project operation; therefore, no additional mitigation measures are proposed.

### 4.2.4 Aesthetics

As discussed in Sections 4.1 and 4.2.8, land use within the Collection Line Corridor is predominantly agricultural with center-pivot irrigation and corn and potatoes being the most common crops. There are windbreaks along most roads and some property boundaries in the Project vicinity. Additionally, ECE distribution lines and 115 kV transmission lines occur within or adjacent to the Collection Line Corridor and are existing man-made focal points. There are nine residences on parcels adjacent to the Collection Line Corridor (see Figure 8 – Detailed Above-Ground Collection Line). No businesses, barns, or other agricultural structures are located within the Collection Line Corridor. Regal has sited the Collection Line Corridor to be collocated with the existing ECE distribution line or on the opposite side of the road from residences to the extent practicable. To further minimize visual impacts from the proposed above-ground collector line in the Collection Line Corridor, Regal has agreed to pay ECE's costs to bury its existing distribution line from where it begins near the northwest corner of the Land Control Area (Structure 48) to near the intersection of Halfway Crossing NW and Balsa Road.

The Collection Line Corridor crosses the Platte River along the south side of Halfway Crossing NW (see Figure 8 – Detailed Above-Ground Collection Line). As discussed further in Section 4.2.7, the Two Rivers Campground, located south of the Land Control Area, is privately owned, seasonally operated, and provides innertube rentals for tubing on the Platte River. The Collection

Line Corridor will cross the Platte River along the innertube route at the same location where Halfway Crossing NW and the existing ECE distribution line cross the river.

#### 4.2.4.1 Impacts and Mitigation

Aesthetic, or visual impacts, from the above-ground collection line will include changes to the existing aesthetics of the landscape, particularly in the Project substation siting area, which will be visible from local roadways and residences. Regal has designed the above-ground collection line to follow existing roads and parcel lines for its entire length. As described in Section 3.1.2, the line also will be collocated with the ECE distribution line between poles 38-48. By collocating with the existing ECE line, the collection line will not add a cumulative visual impact along this 0.7-mile stretch because the ECE line will be buried (see Section 4.2.9 and Figure 8 – Detailed Above-Ground Collection Line). An additional 0.3-mile of ECE distribution line between proposed Structure 38 and near the intersection of Halfway Crossing NW and Balsa Road will also be buried even though this segment of the above-ground collection line will be on the opposite side of Halfway Crossing NW. This 0.3-mile segment of the ECE distribution line crosses the Platte River. The work to bury the ECE line will be completed by ECE and the line will continue to be owned and operated by ECE. As discussed in Section 3.4, Regal anticipates the majority of approximate one-mile segment to be buried will be trenched by ECE, except for the Platte River crossing, which would likely be HDD. In locations where the collection line is not collocated with the ECE lines, Regal has sited the above-ground line on the opposite side of the road from residences. Finally, as described in Section 4.5.6, Regal has minimized the amount of vegetation maintenance along this corridor such that most existing tree lines that provide visual screening will remain.

At the Platte River crossing, users of the innertube route may notice the presence of construction crews (during the construction phase) and the above-ground collection line along the south side of the Halfway Crossing NW. However, as described above, the existing ECE line in this location runs along the north side of Halfway Crossing NW; this segment of the ECE line will be buried, thereby removing this visual impact at the Platte River crossing. The presence of the above-ground collection line on the south side of Halfway Crossing NW will be similar to the existing ECE line, but because the innertube route travels north to south along the Platte River, users will no longer see the existing ECE line at this crossing and the bridge in this location may provide screening for the new above-ground collection line. In general, the Project has been designed to minimize tree clearing, and this is true at the Platte River crossing where the existing vegetative screening present on both sides of the river at Halfway Crossing NW will remain largely intact. For these reasons, the long-term aesthetic impact to users of the innertube route would be negligible.

The Project substation, along with Minnesota Power's switching station, is located in an area with an existing aesthetic that includes multiple 115 kV transmission lines. The Project substation and Minnesota Power's switching station will be visible to adjacent residences and those traveling along local roadways. Minnesota Power's switching station will be more visible, as its closer to roads and residences and will occupy a larger footprint than the Regal substation, which is approximately 0.25-mile from Acorn Road NW and has a much smaller footprint. Based on preliminary design of the 115 kV gen-tie line, there will not be any transmission structures between the Project substation and Minnesota Power's switching station; the structures will be within each facility or directly outside of the fenced area of the Project substation or the switching station, which will minimize the visual impact.

### 4.2.5 Socioeconomics

The socioeconomic description in the Revised Application is characteristic of the Collection Line Corridor.

However, subsequent to the Original and Revised Application filings, the U.S. Census Bureau released its new Explore Census Data website and updated its QuickFacts website. To ensure the data in this application is replicable, Regal is updating the references to source data used for the socioeconomic analysis. U.S. Census Bureau 2010 Census data for Minnesota and Benton County is now available on the QuickFacts website (U.S. Census Bureau, 2019). Data from the 2017: ACS 5-year Estimates Data Profiles is now available on the Explore Census Data website (U.S. Census Bureau, 2017a, 2017b). Table 4.2-2 has been updated to reflect the most current data and provide clarification on where the data can be found.

**Table 4.2-2: Socioeconomic Characteristics of the Project Vicinity**

| State/County | Total Population (2010)[1] | Vacant Housing Units[2] | Per Capita Income (U.S. Dollars)[3] | Individuals Below Poverty Level (percent)[3] | Unemployment Rate (percent)[3] |
|---|---|---|---|---|---|
| **Minnesota** | **5,303,925** | **251,422** | **34,712** | **10.5** | **4.3** |
| Benton | 38,451 | 728 | 27,018 | 14.1 | 4.2 |

[1] U.S. Census Bureau, 2019
[2] U.S. Census Bureau 2017a
[3] U.S. Census Bureau 2017b

Information in the 2017: ACS 5-year Estimates Data Profiles regarding the total number of vacant housing units varies slightly from what was provided in the Revised Application; therefore, Regal is providing updated information for vacant housing units. According to the 2017: ACS 5-year Estimates Data Profiles, approximately 728 vacant housing units exist in Benton County and the St. Cloud metropolitan area has approximately 1,535 vacant housing units (U.S. Census Bureau, 2017a, 2017c). The Revised Application reported 1, 061 vacant housing units in Benton County and 1,899 in St. Cloud.

#### 4.2.5.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

### 4.2.6 Cultural Values

The characterization of cultural values in the Revised Application is representative of the Collection Line Corridor.

#### 4.2.6.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

### 4.2.7 Recreation

The general characterization of recreation in the Revised Application is representative of recreational opportunities in the Collection Line Corridor. No Wildlife Management Areas, MNDNR Scientific and Natural Areas, snowmobile trails, state trails, state water trails, Aquatic Management Areas, state parks, or migratory waterfowl feeding and resting areas are located within one mile of the Collection Line Corridor. Similarly, no county or city parks are located within one mile of the Collection Line Corridor.

However, the Collection Line Corridor crosses the Platte River along the south side of Halfway Crossing NW (refer to Figure 9 - Recreation). As noted in the Revised Application, the Two Rivers Campground is located southwest of the Land Control Area on the south side of 145th Street NW at the confluence of the Mississippi and Platte Rivers (Tworiverscampground.net, 2017). The campground is privately owned, seasonally operated, and provides 221 campsites, a large campground lodge, pool area, mini golf, boat access, and innertube rentals for tubing on the Platte River. For innertube trips on the Platte River, Two Rivers Campground offers shuttles to a spot off of Halfway Crossing NW that is approximately 3.5 miles north of the campground and ends at the campground beach; the Collection Line Corridor will cross the Platte River along the innertube route. The above-ground collection line cross the river on the south side of Halfway Crossing NW and the existing ECE distribution line, which currently crosses the river on the north side of Halfway Crossing NW will be buried so it will no longer be visible.

#### 4.2.7.1 Impacts and Mitigation

In general, the impacts and mitigation measures related to recreational resources that were presented in the Revised Application would not change as a result of the above-ground collection line. Impacts on Two Rivers Campground and Mississippi River access during construction would not change due to the expansion of the Land Control Area.

However, the above-ground collection line now crosses the Platte River along the innertube route used by patrons of Two Rivers Campground. Most impacts at the river crossing would be temporary and minor and related to transportation and noise. From a transportation standpoint, Regal will construct the Project facilities within the limits of the Collection Line Corridor and no road closures would be necessary during active construction. Shuttles from the Two Rivers Campground may experience temporary lane closures during construction of the Project and additional traffic on Halfway Crossing NW. If temporary lane closures on Halfway Crossing NW are necessary, Regal Solar would coordinate with Benton County and ensure all appropriate safety measures in place, such as flaggers, signage, and traffic cones. Such lane closures are anticipated to last a few hours.

As described in the Revised Application, traffic during construction is estimated to be approximately on average 50-100 pickup trucks, cars, and/or other types of employee vehicles onsite for the majority of construction. It is estimated that approximately 10-20 semi-trucks per day will be used for delivery of facility components. Semi-truck delivery will vary per day depending on time of construction and delivery timeline of equipment. Because Regal Solar will utilize laydown areas at the solar facility for above-ground collection line, construction traffic will originate at the solar site and travel the roads along the Collection Line Corridor. Construction

traffic associated with the above-ground collection line is anticipated to be less than half of the construction traffic of the main solar facility. Construction traffic will use roads along the Collection Line Corridor to access the above-ground collection line and poles. Construction crews will also travel between poles within the Collection Line Corridor (i.e., easement); doing so will limit traffic-related delays to non-construction vehicles. Other than a minor increase in traffic levels during the period of construction, the additional presence of construction equipment and vehicles at the crossing of the Platte River will be similar to the existing use of Halfway Crossing NW.

Aesthetic, or visual, impacts at the river crossing will be long-term (i.e., for the life of the Project) due to the presence of the above-ground collection line along the south side of the Halfway Crossing NW. However, as described in Section 4.2.4, the existing ECE line crossing the river along the north side of Halfway Crossing NW, will be buried. The work to bury the ECE line at the Platte River crossing will be completed by ECE and the line will continue to be owned and operated by ECE. As discussed in Section 3.4, Regal expects ECE will HDD the distribution line under the Platte River.

The presence of Regal Solar's above-ground collection line will be similar to the existing ECE line. Because the innertube route travels north to south along the Platte River, users of the innertube route will no longer see the existing ECE line at this crossing and the bridge in this location may provide some screening for the new above-ground collection line. In general, the Project has been designed to minimize tree clearing, and this is true at the Platte River crossing where the existing vegetative screening present on both sides of the river at Halfway Crossing NW will remain largely intact;. A detailed discussion of impacts on vegetation is presented in Section 4.5.6 - Vegetation. For these reasons, the long-term aesthetic impact to users of the innertube route would be negligible or, at most, equal to existing aesthetic impacts.

Finally, users of the innertube route along the Platte River may experience construction noise because of construction activities. Potential noise levels are described in Section 4.2.3.1.

During operation, impacts would be visual in nature. As discussed in above, Regal has designed the Project to minimize tree clearing, and the existing vegetative screening along roads, including Halfway Crossing NW will also remain.

### 4.2.8 Land Use and Zoning

#### 4.2.8.1 Land Use

The Collection Line Corridor is sited to be collocated with roads and parcel/field lines, which are typically characterized by previous disturbance. Many of the roads and parcel/field lines are lined with trees that provide a visual screen and serve as a wind break from drifting snow and agricultural activities. Regal has sited the Collection Line Corridor to balance avoiding impacts to landowner's irrigation systems while minimizing impacts to trees.

Similar to the Land Control Area presented in the Revised Application, the primary land use in the Collection Line Corridor is agricultural (72.8 percent; U.S. Geological Survey [USGS], 2011; Table 4.2-2; Figure 10 – Land Use). The remainder of the Collection Line Corridor consists of developed land (19.8 percent), forested land (6.4 percent), and a small amount of introduced and

semi natural vegetation (e.g., lawns and other landscaping) (0.8 percent), and shrubland (0.2 percent). Most of the agricultural land in the Collection Line Corridor is the field edge of center-pivot irrigation fields. Corners around the center-pivots are also generally farmed or hayed. Developed land within the Collection Line Corridor generally consists of public roads, namely Halfway Crossing NW, Barley Road NW, 65th Avenue NW, 70th Avenue NW, and Acorn Road NW. Forested land is a category in the USGS Gap Analysis Program (GAP) data used for Regal's environmental analysis; however, forested land within the Collection Line Corridor consists of isolated rows of relatively young trees and shrubs that grew voluntarily or were planted for use as shelter belts or wind breaks along the edges of agricultural fields and roads. A more detailed analysis of tree lines is presented in Section 4.5.6 – Vegetation. Review of the USGS GAP data did not identify areas of open water or wetlands in the Collection Line Corridor. However, other water-specific datasets and field surveys identified the presence of the Platte River and wetlands within the Collection Line Corridor; see Sections 4.5.4 and 4.5.5 for more information on surface waters and wetlands, respectively.

**Table 4.2-2 Land Use Within the Collection Line Corridor**

| Land Use Type | Acres in Collection Line Corridor | Percent of Total Acreage |
|---|---|---|
| Agricultural | 61.3 | 72.8 |
| Developed | 16.7 | 19.8 |
| Forested | 5.4 | 6.4 |
| Shrubland | 0.2 | 0.2 |
| Introduced & Semi Natural Vegetation | 0.7 | 0.8 |
| **Total** | **84.1** | **100.0** |

Source: USGS, 2011

Farmsteads are sparsely scattered throughout the Project vicinity, generally situated near public roads. Based on review of available aerial photography, there are nine occupied or occupiable residences located on parcels adjacent to the Collection Line Corridor; however, the Project will not cause displacement or relocation of residences (see Section 4.2.2).

#### 4.2.8.2 Zoning

Based on Benton County zoning data, the Collection Line Corridor is zoned as agricultural (Benton County, 2019). As noted in Section 7.1 of the Benton County Development Code, development of solar energy systems within the agricultural district is a permitted accessory use in accordance with Section 9.20.3 (Benton County, 2020). Section 9.20.3 of the Development Code applies to solar energy systems that are not otherwise subject to siting and oversight by the State of Minnesota under the Minnesota Power Plant Siting Act (Minnesota Statute 216E); because the Project requires a Site Permit from the State of Minnesota, Section 9.20.3 of the Benton County Development Code does not apply (Benton County, 2016).

#### 4.2.8.3 Land Use and Zoning Impacts and Mitigation

Regal has designed the above-ground collection line to maintain existing land use, primarily agriculture. Poles and the alignment are designed to not interfere with agricultural activities,

including center-pivot irrigation. Additionally, the Project substation is sited in an agricultural field corner outside the center-pivot area. Regal has updated its Agricultural Impact Mitigation Plan to include the Collection Line Corridor and above-ground collection line. The above-ground collection line and Project substation will not affect developed areas as both are sited outside road rights-of-way. Minnesota Power will construct and operate its switching station adjacent to the Project substation in an agricultural field outside of the right-of-way of Acorn Road and likely outside the right-of-way for the two existing 115 kV transmission lines. Regal has minimized impacts to forested areas by avoiding heavily wooded areas (siting on the opposite side of the road), collocating with roads, and minimizing the amount of vegetation maintenance (see Section 4.5.6 - Vegetation). In general, the GAP data does reflect narrow tree lines associated with field edges and roads. A more detailed discussion of impacts and mitigation measures for forested trees in forested areas and tree lines is presented in Section 4.5.6 - Vegetation.

As noted above, development of solar energy systems within the Benton County agricultural district is a permitted accessory use (Benton County, 2020). As the Regal Solar Project is subject to siting and oversight by the State of Minnesota under the Minnesota Power Plant Siting Act, the Site Permit will serve as the land use permit.

### 4.2.9 Public Services and Infrastructure

This section describes the public services and infrastructure within the Collection Line Corridor and presents a revised discussion of the impacts the Project may have on public services in the Collection Line Corridor.

**Public Services**

The characterization of public services in the Revised Application is representative of the Collection Line Corridor.

**Public Utilities**

As presented in the Revised Application, the Land Control Area is adjacent to the existing Minnesota Power Platte River Substation and the Great River Energy/East Central Energy Langola Substation. There are several distribution lines operated by Minnesota Power and ECE along the roads in the Project vicinity that provide power to rural residents (Minnesota Geospatial Commons, 2018). In particular, the Collection Line Corridor is partially collocated with an existing ECE distribution line for approximately 0.7 mile along the north side of Halfway Crossing NW. Approximate locations of the existing distribution lines are displayed on Figure 11 – Existing Infrastructure and AADT. Collection Line Corridor. One existing residential natural gas distribution line is present on the north side of Halfway Crossing NW within the Land Control Area, but this gas line is east of the Collection Line Corridor and likely serves Residence A immediately adjacent to the Land Control Area. The residential natural gas distribution line is shown on sheet C101 of Regal's Site Plan, submitted with the Revised Application as Appendix B. Fiber optic lines, and potentially other types of utility lines, are located within the road rights-of-way.

**Transportation**

The characterization of existing transportation in the Revised Application is representative of the Collection Line Corridor. However, of the 3.3 miles of above-ground collection line, the Collection Line Corridor is collocated with roads for approximately 2.1 miles (66 percent). These roads include: Halfway Crossing NW, Balsa Road, Barley Road NW, 65th Avenue NW and 70th Avenue NW. Road right-of-way widths along township roads (Balsa Road, Barley Road NW, 65th Avenue NW, and 70th Avenue) are 66 feet total, 33 feet on either side of the centerline. The right-of-way width along Halfway Crossing NW, a county road, ranges from 66 – 100 feet total, 33 feet to 50 feet on either side of the road. There are no additional Annual Average Daily Traffic (AADT) counts for these segments of road (Minnesota Department of Transportation [MNDOT], 2017). Access to the Project substation will be off of Acorn Road NW via an existing two track that may be upgraded.

The Collection Line Corridor is two miles closer to the Little Falls/Morrison County-Lindbergh Field Airport, now located approximately nine miles north. Similarly, the Collection Line Corridor is approximately 1.25 miles closer to an unregistered landing strip (Fussy), now located 1.75 miles west/southwest.

#### 4.2.9.1 Impacts and Mitigation

**Public Services**

No changes apply to the impacts on public services and mitigation described in the Revised Application.

**Public Utilities**

The above-ground collection line is collocated with the ECE distribution line between Structures 38 and 48, approximately 0.7 mile on the north side of Halfway Crossing NW. Regal has coordinated with ECE on the preliminary design; both parties will enter into a Relocation Agreement whereby ECE will bury their distribution line and Regal will replace the existing ECE poles with the above-ground collection poles and lines. Furthermore, the above-ground collection line crosses Halfway Crossing NW at Structure 38 while the ECE distribution line continues on the north side of the road. Despite not being collocated, the Relocation Agreement will stipulate that the ECE collection line is buried an additional approximately 1,500 feet to the point the ECE distribution line and Halfway Crossing NW turn north near the intersection of Halfway Crossing NW and Balsa Road. In total, approximately one mile of ECE distribution line that is currently above-ground will be buried. While ECE is burying its distribution line, customers may experience short outages when the distribution line is shut down and temporary service is being established. The timing and duration of any service interruptions would be determined and communicated by Minnesota Power and ECE; however, based on preliminary coordination with ECE, ECE estimates outages will be 15 to 30 minutes. Based on Geronimo's experience with other projects, potential outages associated with the Minnesota Power 115 kV line are anticipated to be approximately one-hour or less.

Other public utilities such as fiber optic and natural gas distribution lines may occur within the road right-of-way along Halfway Crossing NW, Balsa Road NW, or 65th Avenue NW. Regal

designed the above-line collection line to be outside of the road rights-of-way and, therefore, the Project would not affect these existing utilities. Regardless, prior to construction, Regal will have all utilities marked by Gopher State One-Call to insure known utilities are marked and avoided during construction.

**Transportation**

In all cases where the above-ground collection line is collocated with a road, the poles and collection cables will be outside of road rights-of-way, unless the collection line is crossing the road right-of-way, in which case the poles would be outside road right-of-way but the collection line would cross or span the road right-of-way. Access to the Project will be via existing county and township roads. Construction crews will access pole locations within the Collection Line Corridor via existing roadways or field entrances. The public roads that will be used to access the Collection Line Corridor are shown on Figure 11 (Existing Infrastructure and AADT). Most of the construction traffic for the Project will occur within the solar facility or the Land Control Area presented in the Revised Application. Construction traffic in the Collection Line Corridor will involve fewer vehicles traveling between pole locations along the corridor. Additionally, construction traffic for the above-ground collection line will also travel between poles in the easement (i.e., on private land). Temporary impacts are anticipated on some public roads within the vicinity of Project facilities, primarily through additional traffic and slow-moving construction vehicles; however, the volume of traffic within the Collection Line Corridor will be less and more sporadic.

## 4.3 Land-Based Economies

### 4.3.1 Agriculture

The characterization of agricultural production in the Revised Application is representative of the Collection Line Corridor.

As previously discussed in Section 4.2.8, approximately 61.3 acres of cultivated cropland is present within the Collection Line Corridor. In addition, as discussed in Section 4.5.3, 2.1 acres of prime farmland are present within the Collection Line Corridor.

#### 4.3.1.1 Impacts and Mitigation

No changes apply to the general impact and mitigation measures discussion presented in the Revised Application. Regal has designed the above-ground collection line to maintain existing land use, and agricultural land uses in particular. The alignment of the collection line and placement of poles were designed to not interfere with agricultural activities, including center-pivot irrigation. Additionally, the Project substation is sited in an agricultural field corner outside the center-pivot area. Minnesota Power's switching station will be adjacent to the Project substation, partially within an agricultural field. The 115 kV gen-tie transmission line has been sited to avoid structure placement within the agricultural field in coordination with the landowner so as not to interfere with agricultural activities, such as operation of center-pivot irrigators when practicable. For these reasons, impacts on agricultural production from construction and operation of the Project are not anticipated.

### 4.3.2 Forestry

There are no forestry resources in the Collection Line Corridor.

A minimal amount of tree clearing will be necessary for construction and operation of the Project. A detailed discussion of vegetation maintenance, including vertical tree clearing, limbing, and tree clearing, and proposed mitigation measures is presented in Section 4.5.6.

#### 4.3.2.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

### 4.3.3 Tourism

The Collection Line Corridor presented in this Addendum Application does not change the characterization of tourism in the Project Area that was presented in the Revised Application filing in September 2019.

#### 4.3.3.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

### 4.3.4 Mining

Based on MNDOT's Aggregate Source Information System and County Pit Map for Benton County, there are no gravel pits in the Collection Line Corridor (MNDOT, 2018; MNDOT, 2002). However, three gravel pits are shown between 0.1- and 0.6-mile north of the Collection Line Corridor, near the Platte River. In contrast to the MNDOT Aggregate Source Information System data and the Benton County pit map, review of aerial imagery indicates that an active gravel mining operation may exist along the western side of the Platte River, between the river and Halfway Crossing NW, approximately 400 feet north of the Collection Line Corridor.

#### 4.3.4.1 Impacts and Mitigation

The southern driveway to this potential gravel pit is within the Collection Line Corridor; however, the above-ground collection alignment and poles are sited on the south side of Halfway Crossing NW. Additionally, there is another access to the gravel pit further north off of Halfway Crossing NW. Construction and operation of the Project are not anticipated to interfere with the gravel operation.

## 4.4 Archaeological and Historical Resources

In June 2020, Area M Consulting (Area M) conducted an additional Phase I cultural resources literature review and field inventory of the 84.1-acre Collection Line Corridor. A public version of the Phase I report is provided in Appendix E.

The Phase I literature review included a review of documentation on file at the Minnesota State Historic Preservation Office (SHPO), as well as various historical maps (i.e., Century Public Land

Survey maps, Andreas maps, General Land Office maps, Trygg maps, and historic aerial photographs), to identify archaeological or historic sites, historic architectural resources, and previous cultural resource inventories within one mile of the Collection Line Corridor. Area M also reviewed the online database of archaeological data managed by the Office of the State Archaeologist and conducted extensive review of LiDAR imagery as part of the literature review. Previously recorded archaeological or historic sites, historic architectural resources, or previous cultural resources inventories were noted within one mile of the Collection Line Corridor. Table 4.4-1 provides details about the previously recorded cultural resources identified in the literature review.

**Table 4.4-1**
**Previously Recorded Cultural Resources within the Collection Line Corridor and One-mile Buffer**

| State Site ID | Site Type | Cultural Affiliation | National Register of Historic Places Eligibility |
|---|---|---|---|
| **Within Collection Line Corridor** | | | |
| 21BNh | Site Lead for location of abandoned settlement of Langola | Historic | Unevaluated |
| 21BN0003 | Habitation | Prehistoric | Listed |
| **Within 1 Mile of Collection Line Corridor** | | | |
| 21BN0005 | Habitation | Late Prehistoric/Early Historic | Recommended as Eligible |
| 21BN0010 | Not determined | Prehistoric/Woodland | Unevaluated |
| 21BN0011 | Not determined | Prehistoric | Unevaluated |

The Phase I field inventory included systematic pedestrian survey along transects spaced 3 meters apart and subsurface shovel testing along transects placed 15 meters apart. No additional cultural resources were identified as a result of survey. Regal submitted the Phase I addendum inventory report for the Collection Line Corridor to the Minnesota SHPO on July 27, 2020.

### 4.4.1 Impacts and Mitigation

The above-ground collection line crosses previously recorded site 21BN003 on the north side of Halfway Crossing NW. Site 21BN003 is a prehistoric site that is listed in the National Register of Historic Places (NRHP). Area M revisited the previously recorded site location during Phase I survey of the Collection Line Corridor. Although possible cultural materials were observed on the ground surface, extensive sub-surface testing did not identify intact cultural horizons or site integrity. Regal designed the above-ground collection line to span this site to avoid impacts to the previously recorded site boundary and an associated 50-foot buffer. Furthermore, Regal Solar would install temporary fencing to demark the 50-foot buffer area within the Collection Line Corridor during construction to further protect the site from construction traffic. Figure 12 -

Cultural Resources shows the Project's design to avoid impacts to cultural resources; due to data sensitivity, this figure is filed confidentially. Therefore, no impacts on the Site 21BN003 will occur.

The above-ground collection line also crosses through the reported location, or site lead, of the abandoned historic settlement of Langola (21BNh). Reported site locations are based on correspondence or written accounts that have not been field verified. For these reasons, the exact location of the abandoned settlement of Langola remains unknown. In addition, an historic oxcart trail associated with the Red River Trail System (Woods Trail), was previously recorded in association with Site 21BNh. Neither Langola nor The Woods Trail hold formal designation or status with SHPO. Information obtained from SHPO indicated that The Woods Trail has never been evaluated for listing on the NRHP and the majority of this trail falls north of the Collection Line Corridor, except where it crosses then stays south of the Collection Line Corridor at the location of 21BN003. The above-ground collection line spans 21BN003, so it avoids this inflection point.

No additional cultural resources were identified during Phase I inventory of the Collection Line Corridor. Because no archaeological or historic sites, or historic architectural resources were identified during Phase I survey and impacts on Site 21BN003 will be avoided, construction and operation of the Project will not impact historic properties listed in, eligible for, or potentially eligible for listing in the NRHP.

## 4.5 Natural Environment

### 4.5.1 Air

The Collection Line Corridor presented in this Addendum Application does not change the characterization of existing air quality in the Land Control Area that was presented in the Revised Application filing in September 2019.

#### 4.5.1.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

### 4.5.2 Geology and Groundwater Resources

The description of geology in the Revised Application applies to the Collection Line Corridor.

Groundwater resources are described in the Revised Application. There are no Environmental Protection Agency designated sole source aquifers or Minnesota Department of Health Wellhead Protection Areas within the Collection Line Corridor.

Based on the Minnesota County Well Index, there are no wells in the Collection Line Corridor; there are wells adjacent to the Collection Line Corridor generally associated with rural residences (Figure 11 – Existing Infrastructure and AADT).

#### 4.5.2.1 Impacts and Mitigation

No changes apply to the impacts and mitigation described in the Revised Application.

### 4.5.3 Soils and Prime Farmland

Just as in the Revised Application, Regal analyzed soil characteristics within the Collection Line Corridor using the Soil Survey Geographic Database (SSURGO) (Soil Survey Staff, Natural Resources Conservation Service [NRCS], U.S. Department of Agriculture [USDA], 2019). The SSURGO database is a digital version of the original county soil surveys developed by the NRCS for use with Geographic Information Systems. It provides the most detailed level of soils information for natural resource planning and management. Soil maps are linked in the SSURGO database to information about the component soils and their properties (USDA NRCS, 2019). Table 4.5-1 lists the soil types located within the Collection Line Corridor.

2.3 percent of the Collection Line Corridor is underlain by hydric soils or soils containing hydric inclusions, indicating few, if any, wetlands as one of many wetland characteristics is hydric soil (see Section 4.5.5). All of the soils in the Collection Line Corridor have low to moderate susceptibility to erosion by water (i.e., K-factors from 0.1 to 0.4). All soils in the Collection Line Corridor are in Wind Erodibility Group 2 or 3 which correspond to Wind Erodibility Indices of 134 tons/acre/year and 86 tons/acre/year, respectively (USDA NRCS, 2019).

Soils prone to compaction and rutting are subject to dramatic and adverse changes in soil porosity and structure as a result of mechanical deformation caused by loading equipment during construction. Compaction and rutting are related to moisture content and texture and are worse when medium and fine textured soils are subject to heavy equipment traffic when wet. Compaction and rutting are not anticipated to be significant issues because the soils are coarse textured and are typically excessively drained. None of the soils are particularly susceptible to compaction.

**Table 4.5-1 Summary of Soils within the Collection Line Corridor**

| Map Unit Symbol | Soil Name | Acres | Percent of Study Area | Farmland Designation | Compaction Prone | Hydric Soil | K-Factor | Wind Erodibility Group |
|---|---|---|---|---|---|---|---|---|
| 1011A | Fordum-Winterfield complex, 0 to 2 percent slopes, frequently flooded | 1.9 | 2.3 | Not prime farmland | No | Yes | .28 | 3 |
| D2A | Elkriver fine sandy loam, 0 to 2 percent slopes, rarely flooded | 2.1 | 2.5 | All areas are prime farmland | No | No | .28 | 3 |
| D36B | Eagleview-Menahga complex, 1 to 8 percent slopes | 5.4 | 6.4 | Not prime farmland | No | No | .10 | 2 |
| D3A | Elkriver fine sandy loam, 0 to 2 percent slopes, occasionally flooded | 1.7 | 2.1 | Not prime farmland | No | No | .28 | 3 |
| D67A | Hubbard loamy sand, 0 to 2 percent slopes | 61.6 | 73.3 | Not prime farmland | No | No | .02 | 2 |
| D67B | Hubbard loamy sand, 1 to 6 percent slopes | 11.3 | 13.5 | Not prime farmland | No | No | .02 | 2 |
| GP | Pits, gravel-Udipsamments complex | 0.1 | 0.1 | Not prime farmland | No | No | .28 | 3 |
| | | **84.1** | **100.0** | | | | | |

Source: Soil Survey Staff, NRCS, USDA, 2019.

Prime farmland and farmland of statewide importance are described in the Revised Application. Table 4.5-2 lists the soils considered prime farmland and soils of statewide or local importance within the Collection Line Corridor. Figure 13 (Farmland Classifications) depicts the distribution of prime farmland, prime farmland if drained, and not prime farmland in the Project vicinity.

**Table 4.5-2 Farmland Classifications within the Collection Line Corridor**

| Farmland Classification | Area (acres) | Percent of Land Control Area |
|---|---|---|
| Prime Farmland | 2.1 | 2.5 |
| Prime Farmland if Drained | 0.0 | 0.0 |
| Farmland of Statewide Importance | 0.0 | 0.0 |
| Not Prime Farmland | 82.0 | 97.5 |
| **TOTAL** | **84.1** | **100.0** |

Source: Soil Survey Staff, NRCS, USDA, 2019. Web Soil Survey

#### 4.5.3.1 Impacts and Mitigation

As discussed in Section 3.3, the impact footprint of each structure ranges from 3 feet to 7 feet in diameter and as such individual structures will not have a meaningful effect on soils. Additionally, within the 5.3-acre Project substation siting area soil impacts will be minor. During construction, soil compaction and localized soil erosion may occur during clearing and grading of work areas. In addition, potential soil impacts may result from the excavation, stockpiling, and redistribution of soils. As described in the Revised Application, Regal will implement measures to reduce soil compaction and will commit to decompaction of soils during restoration of Project workspaces. Impacts to soils would be temporary and minor 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. Regal will also develop a Stormwater Pollution Prevention Plan (SWPPP) that complies with Minnesota Pollution Control Agency rules and guidelines; implementation of the protocols outlined in the SWPPP will minimize the potential for soil erosion during construction.

Following construction, Regal will restore disturbed areas to pre-construction conditions to the extent practicable and revegetate with a MNDOT roadside seed mix. Soil erosion will be minimized by implementing environmental protection measures. These measures will include BMPs for erosion and sediment control, such as temporary seeding, permanent seeding, mulching, filter strips, erosion blankets, and sod stabilization.

Soil impacts from construction and operation of Minnesota Power's switching station within the 10.4-acre siting area would likely be similar in nature to those of the Project substation. As noted in Section 3.1.5.5, the switching station will be permitted and constructed by Minnesota Power and the final design of this facility is pending. The footprint of the switching station is anticipated to be approximately 5.2 acres, none of which includes prime farmland.

Regal has updated the Agricultural Impact Mitigation Plan to include the above-ground collection line and Project substation location change (Appendix F).

### 4.5.4 Surface Waters and Floodplains

The Collection Line Corridor crosses the Platte River (0.3 acre within the Collection Line Corridor), which is a MNDNR Public Waters Inventory (PWI) watercourse and impaired water. There is also a Federal Emergency Management Agency 100-year floodway (Zone AE) associated with the Platte River. The Collection Line Corridor includes 2.3 acres of floodway at the Platte River; the crossing length of the floodway is 332 feet.

#### 4.5.4.1 Impacts and Mitigation

The above-ground collection system will cross a MNDNR PWI, the Platte River. As such, Regal will obtain a utility crossing license from MNDNR after issuance of the Site Permit and prior to construction. Because there is a floodway associated with this PWI, Regal has designed the above-ground collection system to avoid impacts to the floodway and maximize the span width across the waterbody. Additionally, Regal has minimized impacts by collocating this crossing with Halfway Crossing NW. At the PWI crossing, a stringing vehicle would use the bridge along Halfway Crossing NW to string the collection lines and avoid impacting the waterbody.

### 4.5.5 Wetlands

Regal conducted a wetland delineation within the Collection Line Corridor in June 2020. There are five wetlands totaling 1.5 acres within the Collection Line Corridor, primarily associated with the Platte River (see Figure 14 – Water Resources and Appendix G). Regal submitted the wetland delineation report to the U.S. Army Corps of Engineers and Benton County on July 21, 2020.

#### 4.5.5.1 Impacts and Mitigation

Regal has designed the above-ground collection system to avoid pole placement in delineated wetlands. Furthermore, poles are situated such that access to and workspace around each structure will also avoid impacts. Delineated wetlands and the Project's design are displayed on Figure 8 – Detailed Above-Ground Collection Line. Therefore, no mitigation measures are proposed.

### 4.5.6 Vegetation

The Collection Line Corridor is characterized by agricultural fields, roadsides, tree lines that serve as wind breaks along roads and farmsteads, and the riparian corridor associated with the Platte River. Table 4.2-2 in Section 4.2.8.1 provides the total acres of each land use type within the Collection Line Corridor. Based on the GAP landcover data, the Collection Line Corridor is predominately used for agricultural production of corn. Forested land within the Collection Line Corridor is generally associated with the riparian corridor surrounding the Platte River. In addition, based on the wetland delineation discussed in Section 4.5.5, there are five wetlands located within the Collection Line Corridor. A discussion of wetland impacts is provided in Section 4.5.5.1.

As described in Section 4.2.8, the Collection Line Corridor prioritized utilizing existing corridors such as roads and parcel lines or field edges to minimize impacts to land uses and therefore, vegetation. Tree lines that serve as wind breaks for roads, parcels and agricultural fields, and residences occur along a majority of the corridor. To provide a more accurate representation of tree lines in the Collection Line Corridor than the GAP national dataset and aerial photography

(which can be tilted and/or have shadows), Regal obtained field data on the extent trees within the Collection Line Corridor. Based on this field data, there are approximately 14.9 acres of trees in the Collection Line Corridor.

There are no records of rare plants, native prairie, or native plant communities in the Collection Line Corridor (see Section 4.5.8.3).

#### 4.5.6.1 Impacts and Mitigation

Construction of the Project will result in short-term impacts to existing vegetation, including localized physical disturbance and soil compaction. Construction activities, such as site preparation and installation of poles, are anticipated to impact up to 75 feet x 75 feet (approximately 0.1 acre) of vegetation per pole. Construction activities involving establishment and use of access roads, staging, and stringing areas would also have short-term impacts on vegetation by concentrating surface disturbance and equipment use. These areas will be within Regal's easement in the Collection Line Corridor.

Construction would also result in long-term impacts to vegetation by permanently removing vegetation equal to the diameter of each pole and within portions of the Collection Line Corridor that are currently dominated by trees or other woody vegetation. Regal would permanently convert forested areas and shrub lands to low-stature vegetation by clearing woody vegetation throughout the right-of-way where it occurs. To minimize impacts to forested areas and tree lines along roads and field edges, Regal has designed the above-ground collection system such that poles along tree lines or forested corridors carry the circuits in a tangent configuration; the arms carrying the circuits are shorter and are located on one-side of the pole, thereby minimizing the width of tree clearing and/or trimming. Furthermore, while Regal has easements ranging from 75 feet to 290 feet wide, the "vegetation clear zone" to maintain electrical safety ranges from 8 feet (tangent poles and alignment) to 13 feet (dead end poles) from the poles or electrical line (see Appendix B – Typical Drawings for Tangent and Dead End Poles). Regal will only remove woody vegetation within this vegetation clear zone, which will be a combination of vertical tree trimming, branch limbing, and some tree clearing. Based on preliminary design and the field data, approximately 2.0 acres of the 14.9 acres (13.4 %) of trees in the Collection Line Corridor will require vegetation maintenance, most of which will be vertical tree trimming and branch limbing. Additionally, Regal has minimized impacts to forested areas, particularly along Halfway Crossing NW where the Applicant has easements on both sides of the road, but sited facilities to minimize impacts to trees. Siting of the above-ground collection line in this area also utilizes the existing ECE right-of-way, which is already clear of woody vegetation. Regal's minimization measures related to vegetation maintenance are displayed on Figure 15 – Vegetation Maintenance. Regal will coordinate with Benton County on the need for a land use permit for tree removal.

Regal will revegetate disturbed areas within the Collection Line Corridor with a MNDOT roadside seed mix.

### 4.5.7 Wildlife

The characterization of wildlife species, both avian and non-avian, described in the Revised Application is representative of the Collection Line Corridor.

#### 4.5.7.1 Impacts and Mitigation

Potential impacts on wildlife during construction would be primarily related to temporary disturbance and displacement; wildlife may be acclimated to human activity due to the agricultural activity within the Collection Line Corridor.

During operations, birds may be injured or killed due to either collisions with the above-ground collection line components or electrocution. Avian collision risk may be greater during certain behaviors such as flushing, courtship displays, and aerial displays; these behaviors may distract birds such that they are less aware of nearby poles. Collision risk may also be greater if a powerline is located between roosting, feeding, or nesting areas. Individuals or species with poor vision, that are young or less agile, or that are unfamiliar with the area may also be at greater risk of collision with transmission lines. Electrocutions typically result when an individual bird's wingspan is equal to or greater than the distance between two energized and/or grounded components of a transmission line (Avian Power Line Interaction Committee [APLIC], 2006).

Regal will construct and operate the Project according to Avian Power Line Interaction Committee (APLIC) recommended standards to reduce the potential for avian collisions and electrocutions (APLIC, 2006; APLIC, 2012). Additionally, to mitigate the collision risk, and based on coordination with MNDNR, Regal will install swan flight diverters on the portion of the above-ground collection line near the Platte River (see Appendix H – Agency Correspondence). Specific locations will be identified in coordination with MNDNR.

The update Project substation location is in an agricultural field; impacts described in the Revised Application are characteristic of potential impacts to wildlife in an agricultural setting.

### 4.5.8 Rare and Unique Natural Resources

As described in the Revised Application, Regal reviewed the U.S. Fish and Wildlife Service (USFWS) Information for Planning and Conservation website for the federal endangered and threatened species, candidate species, and designated critical habitat that may occur in Benton County, Minnesota (USFWS, 2019). Regal confirmed the list of federally listed species that may occur in Benton County has not changed since that review in 2019 (i.e., only northern long-eared bat [NLEB]). Because the Collection Line Corridor is within Benton County and the species list has not changed, the description of federal listed species described in the Revised Application is representative of the Collection Line Corridor.

Regal also reviewed the MNDNR's Natural Heritage Information System (NHIS) for documented occurrences of federally listed species, state-listed species, and state species of concern within one mile of the Collection Line Corridor (MNDNR, 2020a). Although these reviews do not represent a comprehensive survey, they provide information on the potential presence of protected species and habitat (refer to Table 4.5-3). In addition to Regal's review of licensed NHIS data, Regal submitted an updated NHIS request to MNDNR for the Collection Line Corridor on July 17, 2020. The loggerhead shrike and lark sparrow both had records within one mile of the Land Control Area; those records are still within one mile of the Collection Line Corridor, in addition to one additional loggerhead shrike record and two additional lark sparrow records. New NHIS records associated with the Collection Line Corridor and one-mile buffer include three special concern

species: cerulean warbler (bird), blunt sedge (plant), and Drummond's campion (plant). During field visits in late June 2020, none of these species were observed.

Regal Solar notes that the original NHIS letter from MNDNR, dated October 11, 2018, included conservation measures for loggerhead shrike and lark sparrow that were incorporated into the Original and Revised Applications. The Collection Line Corridor includes these species or is closer to these species' records; Regal Solar anticipates the MNDNR will again recommend the same conservation measures for loggerhead shrike and lark sparrow for the Collection Line Corridor as was recommended in the NHIS letter for the original site permit boundary. As noted below, Regal Solar will adopt these conservation measures and continue to work with MNDNR.

**Table 4.5-3**
**State-Listed Species Documented within One Mile of the Collection Line Corridor**

| Common Name | Scientific Name | Habitat | Within One Mile of Collection Line Corridor | Within Collection Line Corridor | Status [1] | |
|---|---|---|---|---|---|---|
| | | | | | State [2] | Federal [3] |
| ***Birds*** | | | | | | |
| Cerulean Warbler | *Setophaga cerulea* | Breeding habitat is mature, mesic deciduous forests with large trees, and a closed, or semi-closed canopy (MNDNR, 2020b) | Yes | No | SC | None |
| Loggerhead Shrike | *Lanius ludovicianus* | Breeding habitat is upland prairies, agricultural fields, and grasslands with scattered shrubs and trees. In winter, migrates to southern U.S. and Mexico (Minnesota Breeding Bird Atlas [MNBBA], 2019a) | Yes; 2 records | No | E | None |
| Lark Sparrow | *Chondestes grammacus* | Breeding habitat includes oak savannas, dry grasslands, and pastures with scattered shrubs and trees. In winter, occurs in Texas through Central America (MNBBA, 2019b) | Yes; 3 records | Yes | SC | None |

**Table 4.5-3**
**State-Listed Species Documented within One Mile of the Collection Line Corridor**

| Common Name | Scientific Name | Habitat | Within One Mile of Collection Line Corridor | Within Collection Line Corridor | Status [1] | |
|---|---|---|---|---|---|---|
| | | | | | State [2] | Federal [3] |
| ***Plants*** | | | | | | |
| Blunt Sedge | *Carex obtusata* | Inhabits native grasslands on dry, sandy, or gravelly soil (MNDNR, 2020c) | No | Yes | SC | None |
| Drummond's Campion | *Silene drummondii spp.* | Inhabits dry, sandy, prairie or prairie-like habitats where conditions are semi-arid (MNDNR, 2020d). | No | Yes | SC | None |

[1] E = Endangered, T = Threatened, SC = Special Concern
[2] MNDNR, 2020a
[3] USFWS, 2019

#### 4.5.8.1 Federal Listed Species

NLEB is the only federal listed species with potential to occur in Benton County. This species is described in the Revised Application. Similar to the Land Control Area, during the active season (April 1 through October 31), NLEB may roost in the trees within the Collection Line Corridor or may fly through the Collection Line Corridor to forage in larger forested areas near the Mississippi and Platte Rivers.

#### 4.5.8.2 State Listed Species

State-listed species with documented occurrences within one mile of the Collection Line Corridor are shown in Table 4.5-3. Based on Regal's NHIS review, there are two records of a state-endangered loggerhead shrike within a mile of the Collection Line Corridor. Three species of special concern records partially overlap the Collection Line Corridor: lark sparrow, blunt sedge, and Drummond's campion. Additionally, there is one record of special concern cerulean warbler within one mile of the Collection Line Corridor.

Loggerhead shrike occur in grasslands, agricultural fields, and upland prairies with suitable perches for hunting for prey and scattered shrubs and trees for nesting. Farms with fence lines, shelterbelts, and hedgerows may be particularly suitable. Loggerhead shrike nest within narrow windbreaks and hedgerows or in isolated trees near grasslands, pastures, and agricultural fields. The diet of loggerhead shrike includes large insects and small mammals, birds, and reptiles; prey is often impaled on barbed wire or a thorny shrub prior to consumption (MNBBA, 2019a). Habitat for the loggerhead shrike is likely present within the Collection Line Corridor, given the

predominance of agriculture along with the isolated rows of trees along the edges of agricultural fields and roads.

The lark sparrow is an edge-dependent species of open-country habitats, including dry grasslands, oak savannahs, and pastures with scattered small trees and shrubs. The species is often present in small flocks even in the breeding season. It typically nests on the ground at the base of a small woody plant or forb or in small trees and shrubs. The lark sparrow is an omnivore that eats primarily arthropods and seeds (MNBBA, 2019b). Habitat for the lark sparrow may be present in the forested corridor along the Platte River within the Collection Line Corridor.

In central Minnesota, cerulean warbler typically occur in upland oak, maple, and/or basswood dominated forests, usually in tracts with numerous wooded potholes or wet meadow openings within the forest (MNDNR, 2020b). Cerulean warblers have strong preference for large, unfragmented forest tracts. This species is typically present from early to mid-May until August before migrating and wintering in the Andes of South America. Habitat for the cerulean warbler may be present within a mile of the Collection Line Corridor associated with the large tracts of forested corridor along the Mississippi River.

In Minnesota, blunt sedge is an uncommon inhabitant of sandy prairies. Intact prairies of any kid have become rare in the state, and the dry sandy prairies inhabited by blunt sedge are amongst the rarest. The species is usually found on sandy alluvial terraces, sandy outwash plains, or beach ridges of Glacial Lake Agassiz (MNDNR, 2020c). There are no native prairies within the Collection Line Corridor; as such, there is no habitat for blunt sedge.

Drummond's campion occurs in dry, sandy soil and direct sunlight of relatively high-quality native plant communities of dry prairies and dry savannas; it does not occur on roadsides, agricultural land, gravel pits, or other habitats that have been created incidental to human activity (MNDNR, 2020d). There are no native plant communities within the Collection Line Corridor, and thus, there is no habitat for Drummond's campion.

#### 4.5.8.3 MNDNR High Value Areas

The MNDNR issued guidance for commercial solar sites entitled Commercial Solar Siting Guidance (May 2016) (Solar Guidance) that recommends identification of high value resources during Project development. High value resources include (1) rare species and native plant communities (NPCs); (2) native prairie; (3) species and habitats included in the Wildlife Action Network and Minnesota Wildlife Action Plan; (4) lakes, wetlands, streams, and rivers; (5) large block habitats; (6) public conservation and recreation lands; and (7) properties in government programs or with conservation easements (MNDNR, 2016). Each of these is described in detail in the Revised Application.

Rare species including federal- and state-listed species are discussed in Sections 4.5.8.1 and 4.5.8.2. This includes records of federal and state-listed species tracked by the MNDNR in the NHIS database. There are no native plant communities, native prairie, large block habitats, Species of Greatest Conservation Need (SGCN) identified in Minnesota's State Wildlife Action Plan, public conservation or recreation lands, or properties in government programs or conservation easements in the Collection Line Corridor. The Collection Line Corridor crosses the Platte River.

#### 4.5.8.4 Impacts and Mitigation

**Federal Listed Species**

As described in the Revised Application, the USFWS published a final 4(d) rule for the NLEB on January 14, 2016. In the final 4(d) rule, the agency limited prohibitions for the species to those that would protect the bat in white-nose syndrome (WNS)-affected geographic areas during the most vulnerable stages in the species' life history—specifically, during hibernation, spring staging, fall swarming, and pup rearing (USFWS, 2016a). The Collection Line Corridor is located within the USFWS-designated WNS Zone (USFWS, 2018). Per the USFWS Final 4(d) for the NLEB, within the WNS Zone, incidental take due to tree removal is prohibited as follows:

- If it occurs within 0.25 mile of a documented hibernaculum, or
- If it involves a documented maternity roost tree or other trees within 150 feet of the documented maternity roost tree during June or July.

In addition, all take within known hibernacula is prohibited (USFWS, 2016a).

Records of documented hibernacula and roost trees are maintained in the MNDNR's NHIS. Based on a review of NLEB NHIS records, Regal determined that there are no documented NLEB maternity roost trees within 150 feet or hibernacula within 0.25 mile of the Collection Line Corridor. Although there are no records of NLEB, the species may still be present in the Collection Line Corridor and tree clearing will be required. Under Section 7(a)2 of the federal Endangered Species Act, federal action agencies may rely upon the Programmatic Biological Opinion for the Final 4(d) Rule developed by USFWS on January 5, 2016 to meet its Section 7 consultation responsibilities for the NLEB (USFWS, 2016b). Under the Programmatic Biological Opinion, Project proponents may use a streamlined approach involving an online NLEB 4(d) rule determination key and consultation form. After submittal of the consultation form, the USFWS has 30 days to respond. If no response is received, the federal action agency can assume that the Project may affect but is not likely to cause prohibited take of individual NLEB, and consultation requirements for the species under Section 7(a)2 are complete. Regal will use the streamlined approach and Programmatic Biological Opinion for the Final 4(d) rule and will submit an online NLEB consultation form for the Regal Solar Project prior to construction.

Overall, Regal does not anticipate that the Project will impact NLEB during construction or operation. NLEB may be temporarily disturbed during construction activities due to human presence or noise if they are roosting in the trees within the Collection Line Corridor, but Regal anticipates that any impacts due to noise and human presence would be insignificant.

**State Listed Species**

Based on Regal's NHIS review, one state-endangered species, the loggerhead shrike, was documented within one mile of the Collection Line Corridor (refer to Table 4.5-3). Potential impacts on the loggerhead shrike would be related to tree clearing and disturbance from equipment or humans during construction. Tree-nesting birds such as the loggerhead shrike may be affected during tree clearing if nests with eggs or chicks are present in the trees that are cleared. If tree clearing needs to occur during the breeding season, typically April through July, Regal work with

MNDNR to identify suitable habitat and avoid clearing in those areas. These avoidance measures will avoid impacts to nests. Loggerhead shrike in the area are acclimated to human activity and equipment because of the predominant agricultural land-use in the Collection Line Corridor and surrounding areas. Regal will implement the BMPs for the loggerhead shrike recommended by the MNDNR in their October 11, 2018 letter on the Project. Regal will report any loggerhead shrike sightings to the MNDNR. Overall, impacts on loggerhead shrike due to the Project are expected to be insignificant.

Regal's review of MNDNR's NHIS records showed records of three state species of special concern within the Collection Line Corridor, lark sparrow, blunt sedge, and Drummond's campion; there is one record of state species of special concern cerulean warbler within one mile of the Collection Line Corridor (refer to Table 4.5-3). The state's designation as a species of special concern for these two species does not afford protections under the Minnesota Endangered Species Statute (Minnesota Statutes, Section 84.0895). Similar to loggerhead shrike and consistent with MNDNR guidance, Regal will avoid clearing trees in suitable lark sparrow habitat in the Collection Line Corridor during the breeding season. Regal does not expect any impacts on cerulean warbler, as forested tracts in the Collection Line Corridor are heavily fragmented by roads and the species has not been observed for nearly fifty years. Similarly, Regal does not anticipate impacts to blunt sedge and Drummond's campion because the Collection Line Corridor lacks native prairie and native plant communities for which these plant species require.

**MNDNR High Value Areas**

Federal- and state-listed species are described above. The additional above-ground collection line will cross the Platte River. As described in Section 4.5.4, this crossing has been designed to maximize the span width across the waterbody and collocate the crossing paralleling Halfway Crossing NW. There are no additional MNDNR High Value Areas in the Collection Line Corridor, including NPCs; native prairie; SGCN species; large block habitats; lakes and streams; public conservation and recreation lands; and properties in government programs or with conservation easements. As such, impacts to MNDNR High Value Areas will be minimal and no mitigative measures are proposed.

## 4.6 Unavoidable Impacts

As described in the Revised Application, Regal developed the Project to avoid impacts to environmental resources whenever possible. In some cases, impacts to environmental resources could not be entirely avoided, but could be minimized by implementation of mitigation measures. A detailed discussion of the environmental impacts of the proposed Project, as well as the mitigation measures that would be used to minimize impacts is presented in Sections 4.1 through 4.5 of this Addendum. Environmental impacts that would be minimized by the use of mitigation measures, but not entirely avoided are provided below. Most of these unavoidable impacts would occur during construction of the Project and would resolve with the completion of construction.

Unavoidable impacts related to the Project that would last only as long as the construction period include:

- noise emitted from vehicles and equipment during construction that will be audible to neighboring landowners, including the Two Rivers Campground;
- increased traffic on roads that bisect the Land Control Area and Collection Line Corridor;
- minor air quality impacts due to fugitive dust;
- potential for soil erosion; and
- disturbance to and displacement of some species of wildlife.

Unavoidable impacts related to the Project that would last as long as the life of the Project would include changes to existing aesthetics of landscape, particularly in the Project substation siting area, which will be visible from local roadways and residences.

# 5.0 AGENCY AND PUBLIC OUTREACH

This section describes additional coordination Regal has conducted with state and local agencies. This engagement provided Regal Solar with valuable feedback regarding development of Project facilities.

## 5.1 Minnesota Department of Natural Resources

Regal contacted the DNR on June 30, 2020 to provide and update on the Project. The DNR indicated a license to cross public waters will be required to span the Platte River and that swan diverters are recommended for the portion of the above-ground collection in the same area.

Regal also submitted an updated NHIS request for the Collection Line Corridor on July 17, 2020.

## 5.2 Benton County

Regal contacted Benton County on June 25, 2020 to provide an update on the Project. Regal will continue coordination with Benton County on required tree clearing approvals and the utility crossing agreement prior to construction.

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