SNOWSHOE ENERGY STORAGE PROJECT

Application to the Minnesota Public Utilities Commission for a Site Permit

Alternative Permitting Process
MPUC Docket No. IP-7138/ESS-24-279

October 2024

Application to the Minnesota Public Utilities Commission for a Site Permit

Snowshoe Energy Storage Project

Kalmar Township, Olmsted County, Minnesota

MPUC Docket Number: IP-7138/ESS-24-279

Prepared for:

Snowshoe BESS, LLC
7480 Flying Cloud Dr, Suite 425
Eden Prairie, MN 55344

Prepared by:

Westwood Professional Services, Inc.
12701 Whitewater Drive, Suite 300
Minnetonka, MN 55343

October 2024

Project Name:	Snowshoe Energy Storage Project
Project Location:	Kalmar Township, Olmsted County, Minnesota
Applicant:	Snowshoe BESS, LLC
Authorized Representative:	Peter Rood, Chief Development Officer
Signature:	
Company:	Snowshoe BESS, LLC
Address:	2916 N. Miami Ave., Suite 830 Miami, FL 33127 c/o Mary Matze, Project Developer: 7480 Flying Cloud Dr, Suite 425 Eden Prairie, MN 55344
Phone:	786-321-9379
Email:	Prood@spearmintenergy.com cc: mmatze@spearmintenergy.com
Website:	www.snowshoebess.com
Preparer of Application:	Eric Hansen, Environmental Lead
Signature:	
Company:	Westwood Professional Services, Inc.
Address:	12701 Whitewater Drive, Suite 300 Minnetonka, MN 55343
Phone:	952-937-5150
Email:	eric.hansen@westwoodps.com

Table of Contents

Images

Tables

Figures (Attached)

Appendices

Acronym/Term	Definition
AADT	Annual Average Daily Traffic
AC	Alternating Current
Applicant or Snowshoe BESS	Snowshoe BESS, LLC
Application	Site Permit Application
AQI	Air Quality Index
ARMER	Allied Radio Matrix for Emergency Response
BCC	Birds of Conservation Concern
BCR 22	Eastern Tallgrass Prairie Bird Conservation Region
BESS	Battery Energy Storage System
BGEPA	Bald and Golden Eagle Protection Act
BMPs	Best Management Practices
BMS	Battery management system
BOP	Balance of Plant
CAA	Clean Air Act
CN	Certificate of Need
CO	Carbon monoxide
CO2	Carbon dioxide
COD	Commercial operations date
Commission or MPUC	Minnesota Public Utilities Commission
County	Olmsted County
CSAH	County State Aid Highway
CWA	Clean Water Act
dB	Decibel
dBA	A-weighted decibel
DC	Direct Current
DME Rail	Dakota Minnesota & Eastern Railroad
DOC	Minnesota Department of Commerce
DWSMA	Drinking Water Supply Management Area
ECS	Ecological Classification System
EJ	Environmental Justice
EJScreen	Environmental Justice Screening and Mapping Tool
EMF	Electric and magnetic field
EPA	U.S. Environmental Protection Agency

Acronym/Term	Definition
EPC	Engineering, Procurement, and Construction
ERCOT	Electric Reliability Council of Texas
ERP	Emergency Response Plan
ESA	Endangered Species Act
ESS	Energy Storage System
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
GHG	Greenhouse Gas
GIA	Generator Interconnection Agreement
GIS	Geographic Information System
GLUP	Olmsted County General Land Use Plan
HVAC	Heating, ventilation, and air conditioning
IFC	International Fire Code
IPaC	Information for Planning and Consultation
kV	Kilovolt
L_{10}	10% of any hour
L_{50}	50% of any hour
L_{eq}	Equivalent Sound Level
LFP	Lithium Iron Phosphate Lithium-ion Battery
Mbps	Megabytes per second
MBS	Minnesota Biological Survey
MBTA	Migratory Bird Treaty Act
MDH	Minnesota Department of Health
mG	MilliGauss
Minn. R.	Minnesota Rules
Minn. Stat. §	Minnesota Statutes Section
MISO	Midcontinent Independent System Operator
MLCCS	Minnesota Land Cover Classification System
MN DEED	Minnesota Department of Employment and Economic Development
MnDNR	Minnesota Department of Natural Resources
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency

Acronym/Term	Definition
MW	Megawatt
MWac	Megawatts Alternating Current
MWh	Megawatt hours
NAC	Noise Area Classification
NFPA	National Fire Protection Association
NHIS	Natural Heritage Information System
NIEHS	National Institute of Environmental Health Sciences
NLEB	Northern Long-eared Bat
NMC	Nickel Manganese Cobalt Oxide Lithium-ion Battery
NO_2	Nitrogen Dioxide
NPC	Native Plant Community
NPDES	National Pollutant Discharge Elimination System
NPMS	National Pipeline Mapping System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSA	Noise sensitive receptor/area
NWI	National Wetlands Inventory
O&M	Operations and Maintenance
O_3	Ozone
OP	Observation Point
OSA	Office of the State Archaeologist
PCS	Power conversion systems
PM	Particulate Matter
POI	Point of Interconnection
PPA	Power Purchase Agreement
Preliminary Development Area	The approximately 22.9 acres of land within the Project Area where Snowshoe BESS proposes to build the Project facilities, including all areas within the fence line, grading areas, permanent stormwater basins, and Project access. The Preliminary Development Area may also include additional land needed to construct an access road if Snowshoe BESS is unable to utilize an existing access road owned by SMMPA.
Project	The Snowshoe Energy Storage Project, an up to 150 MWac capacity BESS and associated systems in Kalmar Township, Olmsted County, Minnesota.
Project Area	Approximately 27.2 acres of privately-owned agricultural land for which Snowshoe BESS has a lease to allow siting and construction of the Project. The Project Area also includes an alternate access easement corridor, which may be used to access the Project if Snowshoe BESS is unable to

Acronym/Term	Definition
	utilize an existing access road owned by SMMPA. The term is synonymous with Project Site.
Project Tap Line	Overhead 161 kV Tap Line.
PWI	Public Waters Inventory
RCPs	Representative Concentration Pathways
RCRA	Resource Conservation and Recovery Act
ROW	Right-of-way
SCADA	Supervisory Control and Data Acquisition
SGCN	Species in Greatest Conservation Need
SHPO	Minnesota State Historic Preservation Office
SMMPA	Southern Minnesota Municipal Power Agency
SNAs	State Scientific and Natural Areas
SO_2	Sulfur Dioxide
SPCC Plan	Spill Prevention, Control, and Countermeasure Plan
Spearmint Energy	Spearmint Renewable Development Company, LLC
SWAP	State Wildlife Action Plan
SWCD	Soil and Water Conservation District
SWPPP	Stormwater Pollution Prevention Plan
UL	Underwriters Laboratories
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VMP	Vegetation Management Plan
WCA	Minnesota Wetland Conservation Act
WHPA	Wellhead Protection Area
WMA	Wildlife Management Area
WPA	Waterfowl Production Area
WQC	Water Quality Certification

1.0 INTRODUCTION

Snowshoe BESS, LLC (Snowshoe BESS or Applicant), a wholly owned indirect subsidiary of Spearmint Renewable Development Company, LLC (Spearmint Energy), proposes to construct and operate the Snowshoe Energy Storage Project (Project), a battery energy storage system (BESS) with a nominal power rating of up to 150 megawatt (MW) alternating current (AC) with approximately 600 megawatt-hours (MWh) of energy capacity on a site of approximately 28 acres in Kalmar Township, Olmsted County, Minnesota (**Figure 1**). In addition to battery energy storage enclosures, the Project will consist of inverters and transformers, electrical feeder lines, a tap line, a substation, storage and parking areas, access roads, fencing, and other minor equipment and subcomponents as are typical of a BESS project. Snowshoe BESS may construct an operations and maintenance (O&M) facility at the site or may lease existing space nearby for an O&M facility.

The design assumptions in this application accommodate a variety of battery technologies to allow flexibility during equipment selection at the time of construction. The preliminary design is largely based on Tesla battery technology because this technology currently has the largest size requirements, which drives the development area in terms of spacing, visual impacts, and augmentation (battery upgrades to accommodate degradation over years of operation). However, the specific equipment or technology to be used has not been established and will be dependent upon market conditions, equipment availability, battery efficiency, and site impacts at the time of construction. Therefore, the Project has been designed to accommodate a variety of technologies and has adequate room for placement of necessary equipment and supporting elements. The Applicant is anticipating construction to begin in the first quarter of 2027 with commercial operation in the fourth quarter of 2027.

Snowshoe BESS submits this Site Permit Application (Application) to the Minnesota Public Utilities Commission (Commission or MPUC) for a Site Permit for an Energy Storage System (ESS) pursuant to the Minnesota Power Plant Siting Act (Minnesota Statutes [Minn. Stat.] Chapter 216E) and Minnesota Administrative Rules (Minn. R.) Chapter 7850. The Minnesota Legislature requires that the Commission utilize applicable provisions of Minn. R. Chapter 7850 when considering whether to issue a site permit for energy storage systems until energy storage system specific rules are promulgated, except the Minnesota Legislature specifically exempted energy storage systems, such as the Project, from Minn. R. 7850.4400, subp. 4 (prime farmland exclusion) (Laws of Minnesota 2023, chapter 60, article 12, section 67(b)).[1] The Site Permit is the only land use approval needed for construction of the Project (Minn. Stat. § 216E.10, subd. 1). The Site Permit Completeness Checklist is provided in **Appendix A**. See **Section 1.3.1** for additional information.

Pursuant to Minn. Stat. § 216E.04, subd. 2(9), Snowshoe BESS seeks approval of its Application under the alternative review process provided for under Minn. Stat. § 216E.04 and Minn. R.

[1] Minnesota Session Law 2023, chapter 60, article 12, section 67(b) provides that "Minnesota Rules, Part 7850.4400, subpart 4, does not apply to energy storage systems." Accordingly, the Project is not subject to the Prime Farmland Rule.

7850.2800 to 7850.3900. The Applicant filed a Notice of Intent to Submit a Site Permit Application under the Alternative Permitting Process to the Commission on August 19, 2024.

The Project or Site encompasses 27.2 acres (Project Area) of predominantly agricultural land together with an existing access road owned by SMMPA and a 6.9-acre area encompassing an easement area Snowshoe BESS could utilize for Project access if the existing access is unavailable for Project use (see **Figure 2**). The Project Area refers to all the land under a lease agreement and access easement with a local landowner. Snowshoe BESS has coordinated with Southern Minnesota Municipal Power Agency (SMMPA), the owner of the SMMPA-Maple Leaf Substation and existing access road, regarding the Applicant's use of the existing access road to access the Project (see **Appendix B** and **Section 6.4**). SMMPA has indicated its willingness to allow use of the existing access road but would like to wait until the Project is closer to construction prior to execution of any agreement between SMMPA and Snowshoe BESS regarding use of the existing access road. If SMMPA allows use of the existing access road, that access road area would also become part of the Project and Project Area.

The Applicant also has a separate access easement that could be utilized if SMMPA and Snowshoe BESS are unable to reach a mutual agreement regarding shared use of the existing access road (**Figure 2**). Accordingly, Snowshoe BESS has included both the preferred existing access road and the alternate access road easement corridor in the design of the Project. When the Project proceeds to construction, the final design will indicate which access road corridor will be used for the Project.

Based on the preliminary site plan, the Project expects to occupy 22.9 acres (Preliminary Development Area) of the Project Area and includes the gravel pad containing permanent Project infrastructure in addition to the stormwater management ponds, proposed grading areas, access road connection to the existing SMMPA road, and parking and storage areas outside the fence line (**Figure 2**). The portions of the Project Area outside of the Preliminary Development Area do not currently house Project infrastructure, unless Snowshoe BESS is unable to enter into a shared-use agreement for the use of the existing SMMPA access road, in which event, a new access road would be constructed on the area adjacent to the existing SMMPA access road and the new access road corridor would also become part of the Preliminary Development Area. As further described herein, references to the Preliminary Development Area apply to the area hosting battery energy storage facilities and associated systems located within the overall fenced area, as well as the access point extending beyond the Project fence line to the existing SMMPA access road. Project facilities and systems will include a Project substation, BESS pad (housing batteries, inverters, and skid-mounted medium voltage transformers), an overhead 161 kilovolt (kV) tap line connecting the facility to the existing SMMPA-Maple Leaf Substation (Project Tap Line), a potential O&M facility, access roads, storage and parking areas, a temporary construction laydown yard, and fencing (**Figure 2**). **Figure 2** depicts both the alternative access corridor proposed for the Project, and the preferred access to the Project using the existing SMMPA access road. Snowshoe BESS may construct an operations and maintenance (O&M) facility at the site (as shown in **Figure 2**) or may lease space nearby for an O&M facility.

The Project will interconnect to the existing SMMPA-Maple Leaf Substation via a bi-directional 161 kV tap line. The Project substation and associated infrastructure will be permitted, constructed, and owned by Snowshoe BESS (**Figure 2**).

1.1 Purpose and Need

The Project will provide up to 150 MW of charging (consuming power from the grid) and discharging (generating power onto the grid) capacity for up to four (4) hours of reliable, deliverable on-peak energy. By way of example, the Project has the potential to store enough energy to provide electricity for approximately 100,000 households for up to four hours based on the average household's annual electricity consumption. The Project is being developed, designed, and permitted to meet or exceed applicable state and local design and operating requirements and be consistent with current industry best practices.

Battery storage is essential for an efficient, low-cost, and reliable electric grid.[2] Battery storage facilities such as the Project allow for storage of excess electricity generated by other power producers during periods of low electricity demand, with the ability to send the electricity back to the grid when demand increases.

The proposed Project is expected to contribute to Minnesota's transition to a carbon-free electricity supply by allowing wind and solar projects to continue to produce clean energy when they would otherwise be curtailed due to low demand. For example, often in the overnight hours high winds allow for significant generation from wind turbines across Minnesota and, at times, this generation potential exceeds the load and some wind generation is curtailed by the grid operator to maintain the stability of the grid; the Project could, by charging its BESS, reduce the need for curtailment by storing this energy when it is available to be generated and then, during the daytime or evening hours when demand is higher discharge this stored energy back to the grid supplementing existing generation and, potentially, reducing the need for the use of traditional thermal (e.g. natural gas) generation. This shifting of energy from periods of low demand to higher demand not only increases the availability of renewable energy to ratepayers but also, for renewable projects located in Minnesota, could also increase the production tax benefits of such facilities.

In addition to the Project's energy shifting capabilities the Project will provide valuable ancillary and reliability services required to safely and reliability operate the grid. The Project will use state-of-the-art battery, inverter, and other technologies which will allow it to provide critical services to assist the grid operator with maintaining the voltage and frequency of the transmission system. As load and generation change moment to moment (e.g. an air conditioner switching on, increasing load, or a cloud passes over a solar project, decreasing generation) the grid operator must increase or decrease the production from other generators to maintain the grid frequency as close to 60.00 Hz as possible since, if the frequency deviates significantly from 60 Hz, more drastic actions, such

[2] American Clean Power Association. 2024. Clean Energy Storage Facts (available at https://cleanpower.org/facts/clean-energy-storage/)

as load-shedding (the intentional temporary disconnection of significant numbers of customers) may be required to maintain overall system reliability and prevent damage to grid infrastructure. Currently the majority of this moment-to-moment frequency management is provided by "throttling" up and down the output of certain natural gas generators (similar to pushing down or letting up on the gas pedal of a gasoline car); BESS will not only provide this same service more efficiently (by responding instantly) but do so at an expected lower cost and could also reduce the need to burn natural gas or other fossil fuels.

The impact to the grid from the integration of a BESS will be positive, including:

- **Supports integration of renewable energy:** The integration of BESS enables higher and more efficient use of existing and new renewable energy sources, which are the lowest cost sources of energy**.**
- **Frequency response and regulation:** Strong BESS infrastructure provides moment-to-moment stability of the electrical system more efficiently than existing natural gas resources.
- **Reduces energy waste:** BESS stores energy when there is excess supply and discharges that energy back onto the grid when supply is low.
- **Grid Resiliency:** BESS can support recovery from storms and other grid emergencies by more efficiently using the operating portions of the grid and providing the grid operator and utility additional flexibility while they work to restore the system.

The Project will also benefit the local community through investment in construction spending, long-term property and business tax receipts, and landowner lease payments, with minimal operational demand on public service infrastructure.

The Project will provide cost-effective energy storage to Minnesota and regional ratepayers by providing specific energy, capacity, and ancillary services on the wholesale power market on merchant basis. Benefits to rate payers are derived indirectly through enhancement and stabilization of the regional electrical transmission grid without other system enhancements such as new lines or reconductoring existing lines. Storage of energy generated at times of surplus that can then be released at times of high demand also off-sets the need for additional peak generating capacity.

Unlike many renewable projects, which typically sell all generated energy to one or more offtaker(s) in the form of a long-term Power Purchase Agreement (PPA), the complex and dispatchable nature of a BESS project is often better suited for the merchant market and other contracting structures. Snowshoe BESS anticipates entering into a Tolling Agreement with its affiliated merchant energy business or similar third-party market participant. Under a toll structure, the power stored by the Project and its other services, will be offered to wholesale customers, including Minnesota utilities and cooperatives that have identified a need for additional energy and capacity, and corporate and industrial customers that have set clean energy goals. For example,

a data center that wishes to use 100% clean energy may purchase wind energy from the Project that has been previously stored in the BESS to supplement the supply of renewable energy directly from wind and solar projects; M-RETs, a renewable resource tracking platform that tracks and manages the activity of a diverse variety of environmental attributes and other energy commodities, including renewable energy certificates in Minnesota, is developing additional tracking capabilities to allow for the tracking of renewable energy from its source (wind or solar project), into a BESS such as the Project for storage, and then the subsequent supply of that energy from the BESS to the ultimate consumer to provide the same renewable energy verification.

It is also possible the Project could operate under a different revenue structure including fully or partially contracting with a utility for capacity, energy, and/or ancillary services. For example, the Project or Snowshoe BESS could be sold to a utility, in which event the utility could use the Project to manage its own electrical load, and an enforceable mechanism for the sale of the power stored by the facility may not be applicable for the Project to operate or sell its stored power.

Applicant Information

The following provides information concerning the Applicant, Permittee, and ownership of the Project.

1.1.1 Permittee and Contact Information

The Permittee for the Site Permit will be:

Snowshoe BESS, LLC
2916 N. Miami Ave., Suite 830
Miami, FL 33127

The contact persons regarding this Application are:

Mary Matze
Snowshoe BESS, LLC
7480 Flying Cloud Dr, Suite 425
Eden Prairie, MN 55344Telephone: 786-321-9379
Email: mmatze@spearmintenergy.com

Jeremy Duehr
Fredrikson & Byron, P.A.
60 South Sixth Street, Suite 1500
Minneapolis, MN 55402
Telephone: 612-492-7000
Email: jduehr@fredlaw.com

1.1.2 Ownership at Time of Filing

Snowshoe BESS is a limited liability company authorized to do business in Minnesota. Snowshoe BESS is a wholly owned indirect subsidiary of Spearmint Energy.

Spearmint Energy is a next-generation renewable energy company enabling the clean energy revolution through developing and installing battery storage facilities. Spearmint Energy currently operates a 150 MW/300 MWh BESS project located in West Texas, and is also developing over 20 projects, totaling over 10 gigawatt hours of capacity, across 10+ states in four regions of the United States. Headquartered in Miami, Florida with an additional office in Minneapolis, Minnesota, Spearmint Energy is comprised of over 50 seasoned industry professionals across development and corporate functions and aims to be the preeminent green merchant energy company.

Spearmint Energy develops, owns, operates, and optimizes around BESSs with the aim of reducing grid volatility, increasing system resiliency, and helping minimize carbon emissions in a responsible and efficient way.

Snowshoe BESS is the owner of the Project at the time of filing of this Application and has secured all necessary land rights for construction and operation of the proposed Project through a lease agreement. Under the lease, land used for the Project would be returned to the underlying landowner upon completion of the operational life of the Project. A lease agreement has been secured with Jessup and Angela DeCook—private landowners that live in the area. An easement agreement has also been secured with the DeCook's for the alternate access corridor. The primary access corridor is on land owned by SMMPA. Snowshoe BESS anticipates reaching an agreement with SMMPA to use its existing access road for Project access. The land under lease and easement is currently farmed by the landowners and is adjacent to the existing SMMPA-Maple Leaf Substation.

1.1.3 Proposed Ownership after Commercial Operations

Snowshoe BESS will own, operate, and maintain the Project following the start of the commercial operations date (COD), which is anticipated to be in the fourth quarter of 2027. While not planned at this time, Snowshoe BESS reserves the right to sell or assign the Project to another qualified entity at any time before, during, or after the Project is constructed. Any sale or assignment of the Site Permit would require approval by the Commission. Any future buyer or assignee will be required to meet Site Permit conditions. As indicated above, Snowshoe BESS plans to permit, own, and operate the Project.

1.2 Project Schedule

Snowshoe BESS anticipates receiving Commission approval of the Site Permit for the Project in the third quarter of 2025. Construction is currently anticipated to begin in the first quarter of 2027, with COD currently anticipated by the fourth quarter of 2027. To meet the anticipated COD, the

following schedules are anticipated for the various phases of Project development. The schedule provided assumes Midcontinent Independent System Operator (MISO) interconnection study completion according to dates posted by MISO. Delays to the MISO schedule will result in delays to the overall Project schedule.

- **Land Rights:** Snowshoe BESS has secured land rights and acquired the necessary lease agreement for development of the entire Project. All land required for the Project, except for the access road, will be leased, with all equipment being owned by the Snowshoe BESS. Snowshoe BESS has coordinated with SMMPA, the owner of the SMMPA-Maple Leaf Substation and existing access road, regarding Snowshoe BESS's use of the existing access road to access the Project (see **Appendix B** and **Section 6.4**). As noted in **Section 1.0**, SMMPA has indicated its willingness to allow use of the existing access road but would like to wait until the Project is closer to construction prior to execution of any agreement between SMMPA and Snowshoe BESS regarding use of the existing access road. Regardless, Snowshoe BESS also has a separate access easement that could be utilized if SMMPA and Snowshoe BESS are unable to reach a mutual agreement regarding shared use of the existing access road. Accordingly, Snowshoe BESS has included both the existing access road and the alternate access road easement corridor in the design of the Project for site permitting purposes (see **Figure 2**). When the Project proceeds to construction, the final design will indicate which access road corridor will be used for the Project.
- **Site Permit:** Snowshoe BESS anticipates that the Site Permit for the Project will be issued by the Commission in the third quarter of 2025.
- **Other Permits:** Snowshoe BESS is responsible for obtaining permits and approvals necessary for construction and operation of the Project (see **Section 1.3**). Snowshoe BESS is working with applicable regulatory staff and anticipates pertinent permits/approvals to be issued by the fourth quarter of 2026, prior to the start of construction.
- **Equipment Purchase:** Snowshoe BESS anticipates procuring Project equipment starting in 2025 and continuing through 2027. Final equipment and contractor selections will be made contingent on the Site Permit issued by the Commission.
- **Financing:** Snowshoe BESS will secure financing for all necessary Project stages, and financial ability has been obtained for the Project. Prior to the start of construction, Snowshoe BESS will obtain additional financing once all regulatory approvals have been secured for the Project. The decommissioning financing schedule will be built around the required Project escrow payments along with other relevant information (see **Section 4.4**).
- **Construction:** Snowshoe BESS will oversee the primary contractors performing construction of the Project. These construction activities will include site preparation; grading; and access road, energy storage and associated equipment modules, electrical cabling, transmission, and communications equipment installation work. Construction is anticipated to occur between the first quarter of 2027 to the third quarter of 2027.

Snowshoe BESS anticipates beginning construction of the Project after obtaining a Site Permit from the Commission, fulfilling necessary Site Permit pre-construction compliance requirements, securing other required approvals, and securing an interconnection agreement for the Project.

- **Testing and Commissioning:** Testing and commissioning will occur at the end of construction and prior to the COD. This is currently anticipated to occur in the fourth quarter of 2027.
- **Operation:** As indicated above, the COD of the Project is anticipated to occur in the fourth quarter of 2027, after construction and testing/commissioning activities are completed.
- **Decommissioning**: Snowshoe BESS will determine at the end of the Project's operational life if the Applicant will either take necessary steps to continue the operation of the Project (such as re-permitting or retrofitting) or will decommission the Project and remove facilities. Should the Applicant choose to decommission, the anticipated start of the decommissioning process will be the fourth quarter of 2057.

1.3 Required Project Permits

Development of the proposed Project will likely require several federal, state, and local permit approvals prior to starting construction. Potential permits, with respect to their prospective applicability and expected timing, are detailed in **Section 1.3.2** below (**Table 1.3-1**).

1.3.1 Minnesota Public Utilities Commission Site Permit

The Project will be considered an ESS by the Commission. As defined by Minn. Stat. § 216E.01, subd. 3a, an ESS means "equipment and associated facilities designed with a nameplate capacity of 10,000 kilowatts or more that is capable of storing generated electricity for a period of time and delivering the electricity for use after storage."

A Site Permit is required for an ESS. As noted in **Section 1.0**, the Minnesota Legislature requires that the Commission utilize applicable provisions of Minn. R. Chapter 7850 when considering whether to issue a Site Permit for energy storage systems until ESS specific rules are promulgated.

As such, the Project will require a Site Permit from the Commission prior to construction. Pursuant to Minn. Stat. § 216E.04, subd. 2(9), Snowshoe BESS seeks approval of its Application under the alternative review process provided under Minn. Stat. § 216E.04 and Minn. R. 7850.2800 to 7850.3900. Snowshoe BESS filed a Notice of Intent to Submit a Site Permit Application under the Alternative Permitting Process to the Commission on August 19, 2024.

1.3.2 Potential Permits and Approvals

Development and construction of the Project will require several federal, state, and local permit approvals prior to construction. Snowshoe BESS will obtain all permits, licenses, and approvals

that are required for the Project concurrent with or following issuance of the Site Permit. Potential permits and approvals, with respect to their prospective applicability and expected timing, are included in **Table 1.3-1** below.

Table 1.3-1: Potential Permits/Approvals

Agency	Permit / Approval	Applicability / Purpose	Permit Status and Timing
Federal			
U.S. Environmental Protection Agency (EPA)	Spill Prevention, Control, and Countermeasure (SPCC) Plan	An SPCC Plan will be required for Project facilities with above ground oil storage exceeding 1,320 gallons.	To be written prior to construction, as needed
State			
MPUC	Site Permit	A Site Permit is required for construction and operation of an ESS.	To be obtained prior to construction
Minnesota Pollution Control Agency (MPCA)	National Pollutant Discharge Elimination System General Permit (NPDES) and Stormwater Pollution Prevention Plan (SWPPP)	An NPDES permit will be required for construction activity that disturbs one or more acres of land.	To be obtained/prepared prior to construction
Minnesota Department of Labor and Industry	Request for electrical inspection	An electrical inspection is necessary to comply with state electrical codes.	Inspection to be conducted during construction and prior to operation
Minnesota State Historic Preservation Office (SHPO)	Cultural and Historic Resources Review; State and National Register of Historic Sites Review	This review is required for projects that require state permits or affect state registered properties, or that require Section 106 compliance.	Obtain concurrence on Phase I inventory prior to construction
Minnesota Department of Transportation (MnDOT)	Application for Utility Accommodation on Trunk Highway Right-of-Way (ROW)	This permit is required for installation of utilities along, across, or within trunk highway ROW.	To be obtained prior to installation of utilities within MnDOT ROW, if needed
	Oversize/Overweight Permit	An Oversize/Overweight Permit is required for vehicles delivering equipment, materials, and supplies that exceed applicable MnDOT height, length, and weight limits.	To be obtained prior to equipment deliveries, as needed
County/Local			
Olmsted County	Access Permit	An Access Permit is required for creation of a new driveway access to county roads.	To be obtained prior to construction of new driveway access, as needed
	Utility Permit	A Utility Permit is required for installation of utility infrastructure in a county road ROW.	To be obtained prior to installation, as needed
	Oversize/Overweight Permit	An Oversize/Overweight Permit is required for use of overweight or oversized vehicles on county roadways.	To be obtained prior to equipment deliveries, as needed

1.4 Permits Not Required

1.4.1 Certificate of Need

Under Minn. Stat. § 216B.243, subd. 8(9), a certificate of need (CN) is not required for energy storage systems. Therefore, a CN is not required for the proposed Project.

1.4.2 Local Discretionary Approvals

Pursuant to Minn. Stat. § 216E.10, subd. 1, the issuance of a Site Permit is the sole-land use approval required to be obtained for the Project. The Site Permit supersedes and preempts all zoning, building, and/or land use rules, regulations, or ordinances promulgated by regional, county, local, and special purpose government.

Snowshoe BESS consulted with local officials early in the development process and will continue to strive to incorporate feedback and reasonable recommendations of local stakeholders into the final design of the Project. A summary of agency and public outreach is described in **Section 6.0** of this Application.

1.4.3 Transmission Route Permit

No transmission infrastructure exceeding the voltage and length requirements of a "high-voltage transmission line" under Minn. Stat. § 216E.01, subd. 4, are proposed for the Project. Therefore, the proposed Project will not trigger the need for a separate Route Permit, pursuant to Minn. Stat. § 216E.03, subd. 2, from the Commission for planned Project interconnection facilities.

1.4.4 Wetland Permits

A section 404 U.S. Army Corps of Engineers (USACE) permit will not be required for this Project as there are no wetlands present on the Project Area. Similarly, no Minnesota Wetland Conservation Act or Public Waters permits are required due to the absence of wetlands or public waters in the Project Area. A wetland delineation of the Project Area has confirmed no wetlands or water courses are present (see **Section 5.5.5**).

2.0 PROJECT INFORMATION

The following sections describe the proposed Project Area and Project, including land control, preliminary Project design, interconnection, equipment selections, prohibited areas, alternatives, and costs.

2.1 Overall Project Description

The Project is an energy storage facility. As a storage facility, the Project does not produce electricity but serves as an adjacent facility to the existing electrical grid. BESS contributes to balancing energy demand and optimizing grid conditions by taking in surplus electrical energy from the grid during times of excess production and releasing this energy during times of peak demand. This process optimizes grid stability through load leveling and frequency stabilization.

The Project will also have the capability to provide critical ancillary services to the local grid, including voltage regulation (helping the local grid maintain its design voltage of 161 kV) and frequency regulation (helping to maintain a steady 60 hertz).The final design is expected to occupy approximately 23 acres of the Project with the remaining four acres either reverting to the landowner for its continued farming operation or planted to perennial vegetation. However, if a new Project access road is necessary, it may be constructed adjacent to the existing SMMPA access road in which event the Project could occupy an additional 0.7 acres.

Snowshoe BESS plans to construct the Project on a schedule with COD by the fourth quarter of 2027. To allow for optimization in the final design, equipment selection, and unanticipated discoveries through the permitting process, Project impacts described in this Application are representative of the largest potential Project Preliminary Development Area and are therefore greater than what is expected to occur from the actual construction and operation of the Project. The Preliminary Development Area and facilities are included in **Figure 2.**

2.2 Project Location

The Project is located approximately one mile east of the city of Byron, 2.1 miles west of the city of Rochester, and just north of U.S. Highway 14 in Olmsted County. The Project location is provided in **Table 2.2-1-1** and shown in **Figure 1**.

Table 2.2-1: Project Location

Township Name	Township	Range	Section(s)
Kalmar Township	107N	15W	35

The Applicant believes that the selected Project location in Olmsted County is feasible and prudent for BESS development based upon the proximity to existing electric transmission infrastructure, minimal impact to natural resources, and consistency with existing land uses.

2.3 Facility and Interconnection Description

2.3.1 Facility

To demonstrate Project viability, this Application provides typical assumptions about Project facilities and associated equipment. Details of Project facilities and equipment specifications will be finalized during procurement. As further detailed in **Section 4.0** (Engineering and Operational Design) below, Project facilities and equipment are expected to include:

- Lithium-Ion battery cells permanently enclosed in modules which are then installed in racking within a custom storage equipment enclosed in custom designed enclosures;
- Integrated battery management systems and telemetry devices;
- Power Conversion Systems (PCS), which consists of inverters and transformers, or inverters integrated into the enclosures and standalone transformers;
- Switchgear and/or switchboards;
- Electrical and communications wiring;
- Electrical feeder lines;
- Security fencing and gates;
- Access roads;
- Stormwater collection basins;
- Heat, smoke, and gas detection and mitigation systems;
- Supervisory Control and Data Acquisition (SCADA) system;
- Project substation, including power transformer(s), switching, and overcurrent protection;
- Overhead 161 kV Project Tap Line (approximately 300 feet in length);
- Metering equipment; and
- Ancillary equipment or O&M buildings, as necessary.

Project facilities and related equipment are shown in **Figure 2**.

2.3.2 Project Substation, Project Tap Line, and BESS Facilities Description

The Project is designed to connect to the adjoining SMMPA-Maple Leaf Substation and transfer grid-based electricity out of and into the SMMPA-Maple Leaf Substation through a series of Project facilities, including: the Project Tap Line, transformers, inverters, and battery storage modules within equipment enclosures. All Project electrical facilities are bi-directional. Energy flow between the Project and the SMMPA-Maple Leaf Substation will be based on real-time regional energy demand and grid conditions.

The transfer of electrical energy to and from the grid and the batteries includes several steps. The Project will be connected to the existing SMMPA-Maple Leaf Substation via an approximately 300-foot, single span Project Tap Line. The Project Tap Line is connected to switches and protection devices to a high-voltage power transformer that transforms the voltage from 161 kV to 34.5 kV and from 34.5 kV to 161 kV, depending on the travel direction of the flow of electricity. Additional breakers, switches, and cables connect the high-voltage power transformers to the PCS, which may include medium-voltage transformers and pad mount inverters, depending on final equipment selection, unless the battery technology chosen includes string inverters within the battery BESS enclosures and standalone transformers. The 34.5 kV feeder lines connect the PCS to convert the power from medium-voltage AC to direct current (DC) electricity. The energy is then stored in battery modules on racking systems within the BESS enclosures.

As an example, when power is collected from the grid and stored in the Project batteries, electricity will flow from the SMMPA-Maple Leaf Substation, through the Project Tap Line to the Project substation where the power is stepped down from 161 kV to 34.5 kV, and then to the PCS within the BESS facilities. The stepped-down power is then transformed from AC to DC energy via the inverters and stored in the batteries until released back to the grid. When grid energy demand occurs, the Project will dispense the stored energy in a reverse manner. Electricity flows from the battery modules in the BESS enclosure and is changed from DC to AC energy via the same inverters. The AC energy will flow from the inverters through the medium-voltage transformers, then through 34.5 kV feeder lines and back to the bi-directional 34.5 kV to 161 kV transformers at the Project substation. The transformers step up the energy to 161 kV to be delivered to the SMMPA-Maple Leaf Substation through the Project Tap Line. At that point, energy flows on the grid to electricity users' loads.

The anticipated connection and layout of the described Project infrastructure is shown in **Figure 2**. The typical flow of a BESS facility is shown below in **Image 1**.

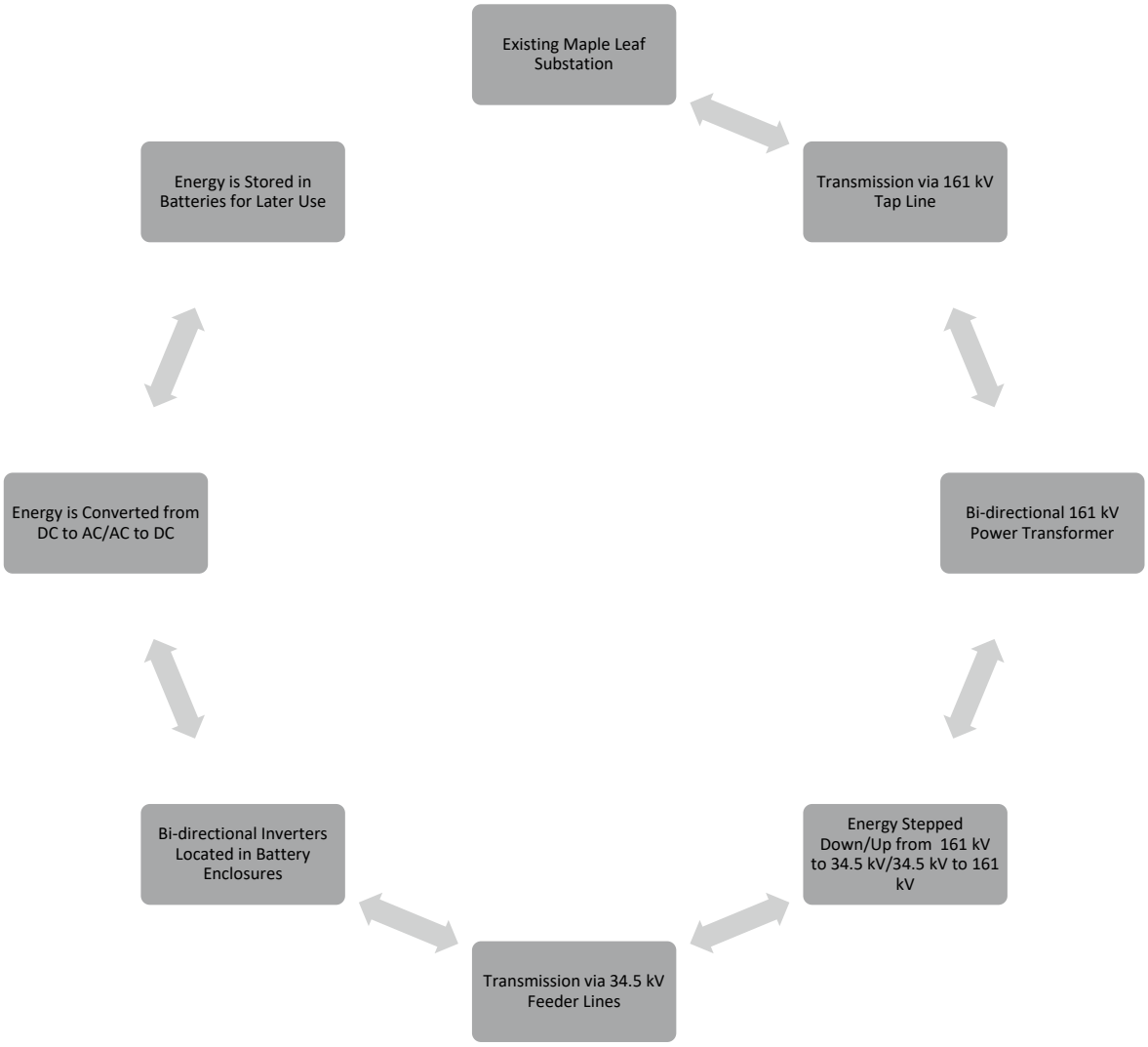

Image 1: Bi-directional Flow of a Typical BESS Facility

The Applicant filed a Generator Interconnection Agreement (GIA) application with MISO for 150 MW. MISO is an independent, not-for-profit organization that delivers electric power across 15 states. Approval from MISO through a GIA is required to connect the Project to the electrical transmission system. The Applicant entered the interconnect request into the MISO Definitive Planning Phase study process in 2022. The Applicant expects to sign a GIA in the first quarter of 2026.

2.4 Size and Capacity

The Project is proposed within a 27.2-acre leased Project Area together with either an existing access road owned by SMMPA or a new access road within an easement corridor parallel to the existing SMMPA access road (see**Figure 2**). Snowshoe BESS estimates that approximately 23 acres of the Project Area are necessary to accommodate the final design and engineering of the

proposed Project (i.e., the Preliminary Development Area), but the full 27.2 acres may be utilized in the final design for a combination of permanent and temporary construction facilities, with a portion of these temporary areas being returned to natural condition or agricultural use following the completion of construction. If a new access road must be constructed for Project access, an additional 0.7 acres of land will be necessary for the new access road. The Preliminary Development Area includes the gravel pad containing Project infrastructure in addition to two stormwater management ponds, proposed grading areas, access road connection to the existing SMMPA access road, and parking and storage areas external to the fence line.

The Project will utilize lithium-ion or similar battery technology to provide up to 150 megawatts alternating current (MWac) to the electrical grid for up to four continuous hours as measured at the Point of Interconnection (POI). This preliminary design and Project layout take into account applicable energy loss (approximately 8%–10% losses) and would allow for a maximum of 150 MWac of energy storage and transmission onto the grid. An interconnection request for 150 MW has been submitted to MISO, and all assumptions about development and construction activities are contingent on signing a GIA prior to construction of the Project. Accordingly, the Applicant is requesting a Site Permit for the Project with sufficient capacity to deliver up to 150 MW as measured at the POI. The current layout and proposed equipment are preliminary and subject to change as the design advances.

2.5 Cost Analysis

Snowshoe BESS estimates the total installed capital cost for the entire Project will be approximately $214 million, as broken down in **Table 2.5-1** below. Actual capital costs depend on various factors, such as construction labor, Project equipment and materials, electrical and communication systems, taxes/tariffs, and final design considerations (e.g., Project substation, etc.). Refer to **Section 1.2** of this Application for the proposed Project schedule.

Operating costs are estimated at approximately $8.2 million per year, which includes labor, materials, and lease payments for the entire Project (BESS and interconnection facilities). The primary costs of O&M for the Project are associated with maintenance of BESS and Balance of Plant (BOP) components and applicable inspections. Initial O&M costs for the Project Tap Line and electrical system will be nominal for the first few years of operation because the lines will be new and minimal maintenance should be required.

Table 2.5-1: Estimated Project Costs

Task	Cost
Planning and State Permitting	$550,000
Acquisition and “Downstream” Permits	$7,000,000
Design	$1,300,000
Procurement	$130,000,000
Construction	$71,000,000
Operation	$246,000,000
Decommissioning	$900,000
Project Total	**$456,750,000**

3.0 PROJECT SITE SELECTION & CONSTRAINTS ANALYSIS

Snowshoe BESS conducted a detailed analysis of several areas to identify the proposed POI location and site location for development. Site search and selection were based on several factors described in further detail in the following sections. For a BESS facility, finding open space where substations and transmission lines have capacity for the Project to connect and supply energy narrowed down feasible sites.

Snowshoe BESS identified the SMMPA-Maple Leaf Substation as having available capacity and low interconnection costs. Snowshoe BESS then screened available land within the area of the proposed POI to reduce the financial burden of constructing a longer transmission line (i.e., construction cost, easement acquisition cost, and electrical losses). Lands within the area of the POI were determined potentially suitable if they were: cleared and otherwise undeveloped; not currently encumbered by other easements (e.g., wind farms, pipelines); and contained minimal wetlands, streams, transmission lines, pipelines, roads, or other obstacles that would limit the buildable land or lead to irregularly shaped development areas. Snowshoe BESS also screened the areas for geotechnical risks, habitat for endangered species, proximity to culturally sensitive areas, other potential environmental risks such as pollutants, steep slopes, flood zones, current land use conflicts, and a clear and uncontested title. Following this screening, Snowshoe BESS approached landowners to negotiate a voluntary lease and easement.

The Project Area was chosen for its proximity to the POI, a supportive landowner, and limited competition with other potential renewable energy storage projects.

3.1 Prohibited and Exclusion Sites

Minn. R. 7850.4400, subp. 1, prohibits the placement of energy facilities in certain locations, including: national parks; national historic sites and landmarks; national historic districts; national wildlife refuges; national monuments; national wild, scenic, and recreational riverways; state wild, scenic, and recreational rivers and their land use districts; state parks; nature conservancy preserves; state scientific and natural areas (SNAs); and state and national wilderness areas. Accordingly, none of these prohibited sites are located within or near the Project Area as discussed below.

In addition, Minn. R. 7850.4400, subp. 3, prohibits the placement of energy facilities in certain exclusion areas unless there is no feasible and prudent alternative. These exclusion areas include: state registered historic sites; state historic districts; state Wildlife Management Areas (WMAs); county parks; metropolitan parks; designated state and federal recreational trails; designated trout streams; and state water trails. None of these exclusion sites are located within or near the Project Area as further discussed below.

Although pursuant to Laws of Minnesota 2023, chapter 60, article 12, section 67, the Project is not subject to Minn. R. 7850.4400, subp. 4 (prime farmland exclusion), the 27-acre site proposed for the 150 MW Project does not exceed the 0.5 acre per MW use of prime farmland identified the Rule.

3.1.1 Factors Driving Choice of Region

The region of Minnesota, in which the Project is located, was selected after searching for regions in Minnesota that were suitable for an energy storage facility to further state and national goals of supplying reliable energy to the grid. Based on several factors—including renewable energy projects in region, environmental constraints, land availability, and costs—Snowshoe BESS identified the southeast region of the state for further exploration to develop an energy storage project.

Existing transmission interconnection feasibility was also a factor in determining the Project's location. Four existing transmission lines ranging from 69 kV to 161 kV are located in the Project vicinity—all of which are associated with the SMMPA-Maple Leaf Substation adjoining the western boundary of the Project Area. Snowshoe BESS is proposing to construct a new Project substation in the southern portion of the Project Area. This substation will be constructed, owned, and operated by Snowshoe BESS and will serve as a POI.

The Project requires sufficient acreage to host facilities that is conducive to development with respect to the energy resources, topography, interconnection, and environmental constraints. The Project will be located on land that is not expected to limit or constrain the development of an ESS and related infrastructure. These factors are described below and are specific to the Project.

3.1.2 Mitigations and Offsetting Benefits

In addition to the minimization measures described throughout this Application, the Project includes mitigation measures for visual impacts, including existing vegetative screening and topography. This is described further in **Section 5.2.1**.

3.1.2.1 Vegetation Management

The Project temporarily utilizes 22.9 acres for the energy storage facility and related infrastructure, together with additional land to host the access road to allow access to the Project (see **Figure 2** and **Section 1.0**). A Preliminary Vegetation Management Plan (VMP) has been prepared and can be found in **Appendix C**. Based on the Project's size and configuration, landscaping will generally include four elements:

- Rock surfacing within the fenced area and a five-foot area outside the fence with weed barriers and/or herbicidal vegetation management used in these hardscaped areas;
- Gravel surfaced access roads and parking areas;
- Perennial plantings typified by low-growing grasses to ensure soil stabilization; and

- Open stormwater ponds.

3.2 Alternatives Considered but Rejected

In accordance with Minn. Stat. § 216E.04, subd. 2(9), the Project qualifies for the alternative review process under Minn. R. 7850.2800 to 7850.3900 because it is an ESS. As such, pursuant to Minn. R. 7850.3100, Snowshoe BESS is not required to analyze alternative sites unless it rejected alternative sites. Snowshoe BESS selected the proposed Project Area due to minimal environmental impacts, proximity to the electrical grid and existing transmission infrastructure, willing landowner participation, and available capacity on the grid to which the Project will interconnect.

3.3 Future Project Expansion

The Applicant has no anticipated plans to expand the proposed Project footprint beyond the current Project Area, except for the access road corridor ultimately utilized for the Project. As noted above, the Project Area encompasses approximately 27.2 acres of privately-owned land for which Snowshoe BESS has secured easement and lease agreements from the landowner. Land used for development of the Project, except for the access road corridor, will be leased from one landowner for up to 35 years. Additionally, Snowshoe BESS has made an interconnection request from MISO for up to 150 MWac, which is the planned Project energy output at the POI. The Project has been designed to specifically address current and predicted future electricity needs for its service area. Therefore, no expansion of the Project is anticipated.

Should Snowshoe BESS seek to expand the Project in the future, Snowshoe BESS may upgrade the BESS technology to increase nameplate capacity or may expand the Project outside of the fenced area. Snowshoe BESS would seek necessary permits and, if necessary, additional leases, required for any expansion of the Project.

4.0 ENGINEERING AND OPERATIONAL DESIGN

The following describes current assumptions on viable preliminary Project design, facility equipment, BOP components, security fencing, and access to the Project. Facility layout and equipment will be finalized prior to construction. The preliminary Project design is shown in **Figure 2**.

4.1 Design

The Project's primary components include BESS enclosures, a PCS consisting of inverters and transformers, a Project substation, a potential O&M facility, a Project Tap Line, switching and protection for interconnection to the SMMPA-Maple Leaf Substation, fencing, and access roads. All Project primary components are bi-directional and utilized based on directional flow of energy to and from the BESS. The specific equipment or technology to be used has not been established at the time of filing of this Application and will be dependent upon market conditions and equipment availability at the time of construction. The assumptions in this Application are largely based on Tesla battery technology and standard industry battery technology to reflect a likely development scenario The preliminary design of the facility accommodates a variety of technologies and has adequate room for placement of necessary equipment and supporting elements, such as equipment storage, stormwater management, and parking.

4.1.1 BESS Facilities

A BESS can help balance the delivery of power generated by electric generation sources by charging from the electrical grid when demand is low and distributing electricity back into the grid during outages or when demand is high. A BESS can help maximize the function of the regional network by dispatching stored power during times when less energy is being produced, as described more fully in **Section 2.0**.

Technology related to battery storage is advancing at a rapid pace. Similar to other infrastructure components, the options available for the BESS when the Snowshoe BESS begins procuring infrastructure could be significantly more advanced or offered in a wider selection than those currently available. Therefore, Snowshoe BESS will analyze current market offerings during final engineering to select the specific battery system model but is currently designing the Project to accommodate a variety of Lithium Iron Phosphate (LFP) battery technologies. For the purposes of this Application, Snowshoe BESS reviewed several battery storage systems to determine feasible infrastructure options. Of the systems available to the market, Tesla Megapack 2 XL units were modeled as this technology has a larger potential impact (i.e., Project footprint). The actual footprint of the BESS enclosures may be smaller depending on options available during final engineering.

The preliminary design for the BESS incorporates a modular layout of enclosures based on currently available technology of the Tesla Megapack 2 XL, the location of the BESS enclosures

area is currently planned on approximately 1.6 acres within the 4.3 acre fenced area at the center of the Project Area. Each BESS enclosure will be comprised of battery cells, integrated with battery management systems into battery modules placed in racks, and installed within a weather-proof enclosure (**Image 2**). These enclosures do not allow internal ingress for safety reasons as described in **Section 5.2** below.

The BESS will include inverters and medium voltage transformers to transfer the energy to and from the batteries. Each BESS enclosure will be connected to pad-mounted switchgear, step up/down transformer(s), and a power distribution system via 34.5 kV underground cables. Stabilized gravel will cover the entire surface area within and up to five feet beyond the perimeter fencing.

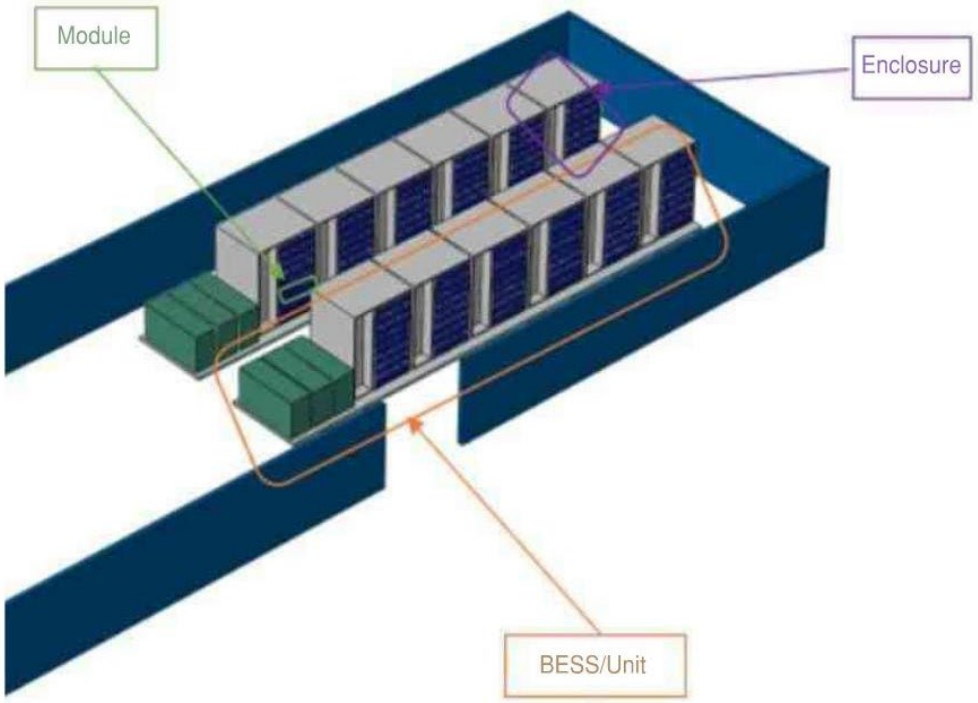

Image 2: Representative BESS Enclosure

The BESS industry is currently deploying two main types of lithium-ion battery cell chemistries: nickel manganese cobalt oxide (NMC) and Lithium Iron Phosphate (LFP). Snowshoe BESS intends to use LFP due partially to its improved safety profile when compared to NMC. LFP batteries are more stable than NMC and have a lower risk of thermal runaway. Thermal runaway occurs when a battery cell's internal temperature heats to a temperature above the design temperature to maintain a controlled reaction resulting in a cascading chemical reaction which produces additional heat. This typically leads to breakdown of internal separators within the battery cell which results in additional reactions. Due to the high temperatures involved, this can

also result in fire in nearby combustible components.[3] In the unlikely event of a battery cell thermal runaway event, due to the use of less reactive substances in LFP cells, the likelihood of both thermal runaway occurring and spreading is reduced in comparison to other lithium-ion chemistries including NMC. Potential hazards and safety considerations are discussed in more detail in **Sections 5.2.5.5** and **5.2.5.6**, below.

Over the life of the Project, the batteries will lose some of their capacity. Under current MISO market rules, a BESS is accredited capacity based in part on its ability to provide the energy equivalent of its claimed capacity for a minimum of at least four continuous hours each day. To maintain the facility's rated capacity, the BESS will undergo augmentation either through the addition of battery modules within the existing enclosures or the addition of supplemental battery enclosures. The augmentation schedule to maintain overall Project functionality will be determined during the design process after final equipment selection and will be based on the projected degradation of the batteries. Snowshoe BESS has designed the site to accommodate future augmentation units within the fenced area. Specific installation timing will vary based on capacity monitoring during operations. Snowshoe BESS has included the planned augmentation units in the design of the Project as displayed in **Figure 2**. Accordingly, the initial construction of the BESS Facility will not include all battery enclosures displayed in **Figure 2**, with augmentation units added during the life of the Project. Snowshoe BESS respectfully requests the Site Permit expressly allow the addition of augmentation units, as depicted in the final site plan, without a need for a Site Permit Amendment or minor alteration approval from the Commission.

Visually, the impact of the BESS would not be out of character with the existing SMMPA-Maple Leaf Substation. The modeled enclosures are neutral in color, relatively low in height (approximately 10 feet, including foundations), and approximately 22.9 feet long.

4.1.2 Project Substation and Interconnection

The Project substation is proposed in the southern part of the Project Area (**Figure 2**). The Project substation is estimated to occupy approximately 1.4 acres of land and have a footprint of approximately 62,500 square feet (250 feet by 250 feet). The Project substation will consist of high voltage electrical structures (i.e., pole structures), breakers, a three phase, three-winding 161 kV step-up/step-down bi-directional transformer, metering and related equipment for connecting to the existing SMMPA-Maple Leaf Substation immediately west of the Project Area, lightning protection, and control equipment according to the specifications of the GIA with MISO and Snowshoe BESS.

Snowshoe BESS will connect the Project to the grid via a new 161 kV Tap Line of approximately 300 feet between the Project substation and SMMPA's existing Maple Leaf Substation. Energy from the grid will be stepped down from the 161 kV interconnection voltage at the bi-directional

[3] Ovrom, Andrew. 2023. Comparing NMC and LFP Lithium-Ion Batteries for C&I Applications. Mayfield Renewables (available at https://www.mayfield.energy/technical-articles/comparing-nmc-and-lfp-lithium-ion-batteries-for-ci-applications/#:~:text=Nickel%20Manganese%20Cobalt%20(NMC)%20and%20Lithium%20Iron%20Phosphate%20(LFP,long%2Dterm%20reliability%20are%20paramount) Accessed September 2024.

transformers located at the Project substation and then delivered through underground 34.5 kV feeder lines. to the BESS system inverters that will make the electricity available for storage at the battery. When stored energy from the batteries is required, the same inverters will convert the energy to DC and will be transmitted via the underground 34.5 kV feeder lines to the Project substation. The 34.5 kV collector system voltage will then be stepped up to the interconnection voltage of 161 kV by the bi-directional transformers located at the Project substation and transmitted to the SMMPA-Maple Leaf Substation via the overhead Project Tap Line.

The ultimate number of poles and length of the Project Tap Line are pending final engineering and design. The current preliminary design includes 1 to 2 poles and a Project Tap Line that is approximately 300 feet in length. Typical dead-end structures are made of steel and are 60–90 feet tall (**Image 3**).

Image 3: Typical Overhead Transmission Line Structure

The Project substation location will be graded and the ground surface dressed with crushed rock. Secondary containment for the transformer will be installed as necessary. The Project substation will be fenced with a six-foot-tall chain-link fence topped with one to two feet of barbed wire in accordance with applicable electrical code requirements for security and safety purposes. As noted above, the area within the fenced area will be brought to finished grade using crushed rock to provide step-and-touch protection, which also minimizes vegetation growth and reduces fire risk. The Project substation will be secured with a lockable gate and will only be accessible to qualified, trained Project operational personnel or those escorted by such personnel at all times.

4.1.3 Operations and Maintenance Building

The Project may include the construction and use of an O&M facility consisting of a building, gravel parking area, and a perimeter security fence (**Figure 2**). The O&M facility, if utilized, will be located near the southern portion of the BESS facility. The building will be used to conduct maintenance and repair of Project equipment, store parts and other equipment, and store other operation and maintenance supplies (e.g., fuses, jumper wires, etc.), excluding large quantities of batteries. The O&M facility will be locked when not in use by Project staff. A parking area will be located adjacent to the O&M facility for staff use. The location of the O&M facility is currently planned on 0.1 acre in the eastern portion of the Project Area, east of the Project substation (**Figure 2**).

An alternative to the construction of an O&M facility on the Site is to rent an existing space. Under this scenario, a suitable warehouse or commercial space will be identified in reasonable proximity to the Project. Necessary equipment or tools will be stored there, and the space will serve as a base of operation for the on-site technicians.

During construction of the Project, one temporary laydown yard will be located in the northern portion of the Project Area. Upon completion of Project construction, the laydown yard will be regraded and seeded with a perennial mixture for slope stabilization (see **Appendix C**).

4.1.4 Fencing

Permanent security fencing will be installed along the perimeter of the BESS facility (**Figure 2**) to comply with applicable electrical codes, including the National Electrical Code, in NFPA 70.[4] Fencing will consist of a six-foot-tall chain link fence, with one to two feet of barbed wire. High voltage warning signs and lockable gates will also be installed on the fencing.

4.1.5 Access Roads/Transportation System

Access to the Project is planned to a point on the western Project Area boundary from an existing SMMPA access road off 14th Street Northwest (County Road 134) (**Figure 2**). While the utility has indicated that they are open to sharing this road, Snowshoe BESS has secured an alternative access route to the northern boundary of the Project Area should there be any issues with the SMMPA road (**Figure 2**). This route will utilize the same county road access as the SMMPA road and will be designed during final facility engineering if needed.

The final length of the access roads will depend on the equipment selected and final engineering. The surface space between BESS enclosures and the fence will be completely covered by gravel. This will allow for drivable access to the enclosures around the perimeters and between rows, as well as access to the Project substation. These internal spacings/drive lanes will be approximately 24 feet wide during construction and operation. The entry road apron from the existing SMMPA

[4] NFPA 70, 2023. National Electrical Code. Quincy: National Fire Protection Association.

access road will be approximately 165 feet wide during construction and operation to allow safe turning radii for trucks. The road will narrow to 24 feet as it enters the facility. See **Image 4** for typical access roads profiles. The access road may be temporarily wider during construction, and then reduced in width for long-term site access upon completion of construction. Entrances will have locked gates.

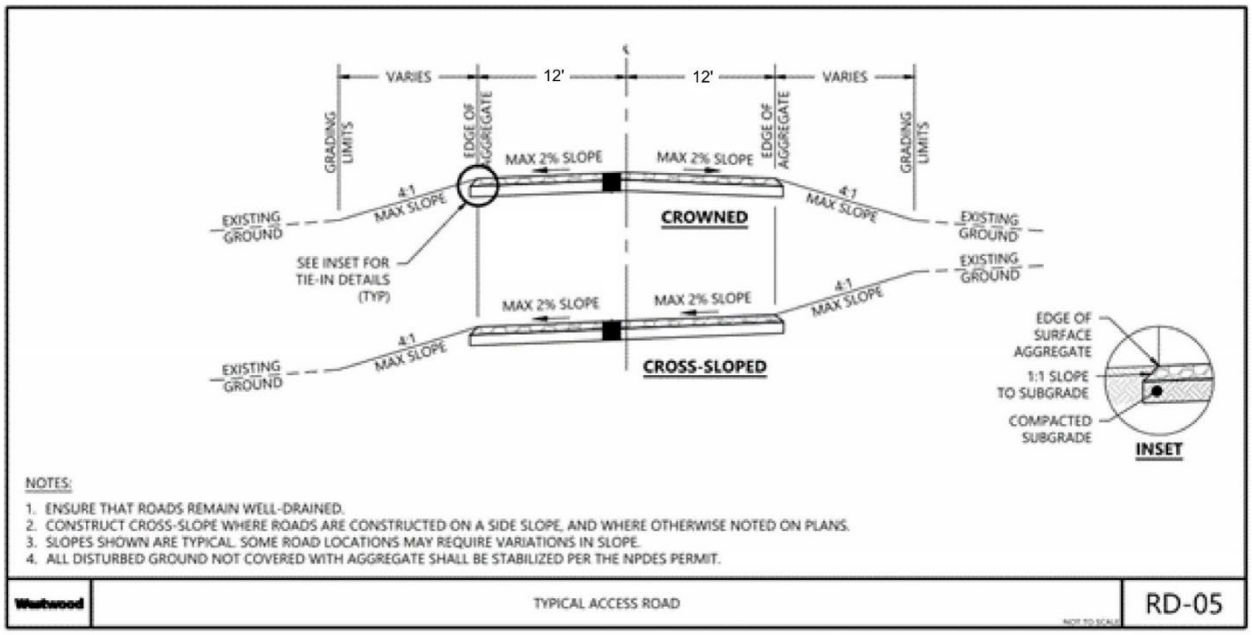

Image 4: Typical BESS Access Road Profile

Because the BESS equipment is similar to the existing SMMPA-Maple Leaf Substation, it is unlikely that upgrades or other modifications to the public roads will be required for construction or operation of the Project; however, Snowshoe BESS will engage with Township and County staff to clearly establish an understanding of their required road standards. Should conditions along chosen delivery routes require upgrades or changes, those could include, but are not limited to, road improvements (lane widths, road profile depths, intersection radii), additional aggregate, and driveway changes. If the use of the proposed alternative route shown in **Figure 2** is required, the Applicant will obtain any required access permits. Snowshoe BESS will continue to coordinate with Township and County road authorities as the Project develops.

Snowshoe BESS will obtain relevant permits from road authorities to accommodate construction related activities.

4.2 Project Layout

The Project's final layout will optimize electrical storage and efficiency of the proposed Project while avoiding and minimizing human settlement, environmental, cultural resources, and infrastructure impacts. The Project's facilities will be sited with consideration of Township and

County setback requirements (as described in **Section 4.2.1**), as well as other local, state, and federal regulatory standards. The preliminary site plan can be found in **Figure 2**.

4.2.1 Setbacks

As described above, the Project is considered an ESS, as defined by Minn. Stat. § 216E.01, subd. 3a and is permitted by the Commission under Minn. Stat. § 216E.04 and Minn. R. 7850.2800 to 7850.3900. To date, the Commission has not issued a site permit for a standalone ESS. Accordingly, no precedent has been established at the State level relating to setbacks for the Project. In designing the preliminary Project layout, Snowshoe BESS reviewed applicable setbacks and related requirements. While applicable rules and regulations for siting the Project do not require projects to meet local ordinances, Snowshoe BESS has tried to comply with Kalmar Township and Olmsted County setbacks and applicable ordinances in addition to meeting applicable State requirements.

Neither the Olmsted County Zoning Ordinance nor the Kalmar Township Zoning Ordinance has specific ESS requirements. The Project Area predominantly consists of cultivated land and is zoned in the Agricultural Protection District (A-1) according to Olmsted County and Kalmar Township zoning information. As energy storage systems are not specifically contemplated in either ordinance, the general setbacks for the zoning district were reviewed.

Olmsted County and Kalmar Township setback regulations and distances for the A-1 Agricultural Protection District are included in **Table 4.2-1** and also shown on the Preliminary Facility Design in **Figure 2**. Where setbacks differed for the same feature, Snowshoe BESS used the most stringent setback when possible.

As indicated in **Table 4.2-1** below, the preliminary Project design setbacks meet or exceed the Kalmar Township and Olmsted County setback requirements applicable to the A-1 Agricultural Protection District.

Table 4.2-1: Setback Requirements

Setback Type	County Setback Distance (feet)	Township Setback Distance (feet)	Preliminary Project Design Setback from Fence (feet)
US/State Highway Centerline	95	N/A[+]	202
County Road Centerline	95	N/A[+]	N/A
Side street yard*	45	45	N/A[+]
Front yard*	45	45	1,555
Side yard	25	25	39
Rear yard	25	25	117

[*] On federal, state, and county roads which have a ROW of less than 100 feet, such yard shall be measured from a point being 50 feet from and parallel to the centerline of said highway (Kalmar Ordinance Sec. 10.30(A)(1), (B)(1); Olmsted Ordinance Sec. 10.30(A)(1), (B)(1)).
[+] Kalmar Township does not have setbacks specified for US highways or county roads or there is no Side Street present at the Project.

Additionally, Snowshoe BESS implemented its own internal Best Management Practices (BMPs) applicable to setbacks and road widths in **Table 4.2-2**. Setbacks are calculated as the distance from the nearest BESS facility (**Figure 2).**

Table 4.2-2: Project Initiated Requirements

Setbacks and Design Standards	Preliminary Project Design Requirement (feet)
Main Access Road Width	24
Minimum Intersection Turning Radius	40
Distance from Fence to Equipment	44
Equipment to Property Boundary	105
100-year High-Water Level	Avoided 100-year Flood Zone

4.2.2 Project Development Area

Table 4.2-3 describes the Project facilities' estimated acreages within the approximately 23-acre Preliminary Development Area based on the preliminary Project design (**Figure 2**).

Table 4.2-3: Estimated Project Facility Acreages in Preliminary Development Area

Preliminary Development Area*	Acres
Access Roads	0.7†
Basin Areas	2.02
BESS Pads	1.62
Laydown Yard	2.23
O&M facility	0.11
Project Substation Area	1.43
BESS Area (Fenced Area) Gravel Pad	4.38
Area Inside Preliminary Development Area not Housing Infrastructure	11.02
Preliminary Development Area Total	**22.95**

* The Preliminary Development Area includes the permanent development area that is hosting BESS equipment, as well as the access road within the lease area. The Project will also utilize either an existing access road owned by SMMPA or a newly constructed access road parallel to the existing SMMPA access road. The Preliminary Development Area, based on the Project's preliminary design, includes access roads, buried electrical feeder lines, O&M facility, Project substation, BESS, stormwater basins, and a temporary laydown yard.

† The approximate acreage of access roads under either the preferred existing or alternative access road scenario. *Note: some addends may not sum due to rounding.*

4.3 Construction, Commissioning, Restoration, Operation and Maintenance

A variety of activities must be completed to carry the Project through construction and into operation. Below is a preliminary list of activities necessary to develop the Project. Pre-construction activities will be completed between submittal of this Application and the start of construction. Pre-construction, construction, and post-construction activities for the Project will utilize best current practices which typically include:

Pre-construction

- Geotechnical investigation;
- Underground utility identification and location;
- Initiate soil/vegetation stabilization in areas with no disturbance;
- Design Project substation;
- Design BESS facility;
- Design access roads and electrical systems; and
- Procure necessary facility components (inverters, BESS, and transformers).

Construction

- Site preparation, grubbing, and grading;
- Maintain perennial vegetation established during preconstruction activities;
- Establish temporary or permanent (seasonally dependent) vegetation in disturbed areas, as practical;
- Construct laydown area and set up temporary job site trailers;

- Construct stormwater basins;
- Civil construction of access roads;
- Construct fencing;
- Install below-ground electrical systems including conduit, electrical feeder cables, other electrical cables, and communications cabling;
- Install electrical enclosure/inverter;
- Install BESS enclosures and batteries;
- Construct Project substation;
- Construct Project Line Tap; and
- Construct O&M facility (if utilized).

Post-construction

- Restore disturbed areas not intended for permanent above-ground facilities;
- Maintain and restore established vegetation;
- Replace temporary vegetation with perennial vegetation as applicable;
- Conduct training as outlined in ERP with local first responders;
- Energize and test facility; and
- Begin commercial operation.

4.3.1 Construction and Construction Management

Construction will begin after the necessary permits are obtained and the electrical interconnection process is finalized with MISO. Project construction will begin with workforce mobilization and the initial site preparation work, including establishment of staging/laydown area, grading, and vegetation removal. Preliminary engineering analysis indicates that approximately 17 acres of the Preliminary Development Area will require grading. Approximately 109,000 cubic yards of cut and 89,000 cubic yards of fill is estimated for the Project. Final cut and fill volume estimates for the access roads, stormwater management ponds, BESS pad, and other Project facilities will be established with the final site design.

In this first phase of construction, general site improvements will be made, such as access road improvements and preparation of the staging/laydown area. A temporary staging/laydown area will be located in the northwestern portion of the Project Area. The staging/laydown area will be used for storage of construction materials and shipped equipment containers, receiving construction deliveries, and temporary parking for Project-related vehicles. Temporary construction offices will also be located on-site during construction.

The BESS (battery enclosures, PCS, and electrical systems) will be installed next in conjunction with internal drive lanes. These drive lanes are differentiated from other on-site access roads in that there will not be a separate road within the fenced area. That area will be graveled in its entirety

with no specifically designed road profile or area, so traffic will move in lanes between the BESS enclosures. Construction work for the proposed BESS will begin by scraping and segregating topsoil and placing it in a designated location. Additional site preparation will include installation of substructures and electrical equipment. Installation of pile foundations (driven piles or helical piles) and embedment for equipment will require the use of trenching machines, pile drivers, forklifts, boom trucks, and cranes. Below-ground medium voltage (34.5 kV) cables from this equipment will run from the PCS to the Project substation. The Project will include individual BESS enclosures, PCS (skids including inverters and medium voltage transformers), switchboards, cabling, switchgear, junction boxes, and various panelboards and control cabinets. Crushed rock will be placed between and among installed BESS equipment, and adequate lighting will be installed around the BESS site for worker safety during construction and operation.

Construction of the Project substation will take place simultaneously with the BESS. Grading for the Project substation, foundations, and future internal drive lanes will have already been completed with the grading that will be completed for other areas of the Project. The grounding grid and underground conduit will be installed in conjunction with the foundations for the transformer, control house(s), and high voltage structures. The Project substation equipment will then be delivered to the site and installed on the prepared foundations. Secondary containment areas for the transformer will be constructed as required by the Project-specific SPCC Plan, and final grading will occur around the Project substation. The last construction activities associated with the Project substation include stringing the electrical wires, installing the perimeter fence, and placing coarse, clear, crushed rock throughout the interior of the fenced area and extending to approximately five feet outside the fence.

On-site construction personnel will consist of laborers, tradespersons, supervisory personnel, construction management personnel, and administrative and support staff. Snowshoe BESS will contract with one or more Engineering, Procurement, and Construction (EPC) contractors to construct the Project. Snowshoe BESS will require the selected EPC contractor(s) to work with subcontractors and other vendors to implement to maximize local hiring and local economic benefits for the Project, while ensuring the Project is safely built on time and on budget. If multiple contractors are hired to work on separate portions of the Project (e.g. different contractors for the BESS facility and Project substation), coordination between the contractors will be required to maintain compliance with all applicable permitting requirements.

Typical on-site construction staff levels will depend on the number of concurrent tasks being performed and the phasing of the Project. The Project will create approximately 75 jobs during the peak construction and installation phases, and one to two full-time jobs during the operations phase.

Snowshoe BESS estimates that there will be between five and ten semi-trucks used daily for equipment delivery during construction. This volume of traffic will be limited to several weeks during delivery of battery module enclosures and transformer skids; truck traffic will decrease

once these components are delivered. Light duty trucks will also be used daily for transportation of construction workers to and from the Project.

Typical construction equipment, such as scrapers, bulldozers, dump trucks, watering trucks, motor graders, vibratory compactors, and backhoes, will be used during construction. Specialty construction equipment that may be used during construction will include:

- Skid steer loader;
- Pile driver;
- Light and medium duty cranes;
- All-terrain forklift;
- Concrete truck and boom truck;
- High reach bucket truck; and
- Truck-mounted auger or drill rig.

Upon completion of construction, heavy equipment will be removed from the Project.

4.3.2 Commissioning

Equipment inspections will be conducted prior to commercial operations of the proposed Project and in compliance with applicable Site Permit conditions. Inspection and testing will occur for each component of the BESS, as well as the associated communication, feeder lines, and SCADA systems. Testing, inspections, and commissioning will occur at periods during construction and upon completion of the construction phase.

4.3.3 Restoration

As portions of the Project near completion, the temporary 2.2-acre laydown area and other temporary disturbance areas will be restored. The Project will be graded to natural contours, where possible, and topsoil stockpiled during construction will be respread over these areas. Disturbed areas outside of the Preliminary Development Area and temporary disturbance areas inside the Preliminary Development Area will be de-compacted and reseeded and re-vegetated with specific seed mixes in accordance with BMPs identified in the VMP (**Appendix C**) and the SWPPP that will be developed at the time of construction. These seed mixes are designed to be used in conjunction with the vegetation management practices of mowing and selective herbicide application. Alternatively, some areas outside the fenced area may be returned to agricultural use. All areas undergoing restoration will be stabilized with erosion control measures such as silt fences, hydro-mulch, and sediment control logs until vegetation is established. Additionally, a temporary cover crop will be planted with the perennial mixes to stabilize the soil and prevent erosion during the time it takes for the seeds to establish. Vegetation is expected to be fully established during the sixth growing season (Year 5) after perennial seed mix is planted. Snowshoe

BESS anticipates that the post-construction clean-up and site restoration activities will take approximately two to four months.

The VMP provides a guide to site preparation, installation of prescribed seed mixes, management of invasive species and noxious weeds, and control of erosion/sedimentation. The required restoration management is designed to continue for five years. Snowshoe BESS will use an adaptive management approach for vegetation management. Monitoring vegetation during the active growing season (May-November) is a key aspect of adaptive management and will be useful in identifying issues, tracking progress, and reevaluating management needs.

The VMP outlines several vegetation maintenance strategies that may be implemented at the Project, including manual removal of weeds and herbicide use inside fenced areas, rock covered areas adjacent to the fences, and access roads. Vegetated areas within the Preliminary Development Area will be maintained in a variety of ways to ensure establishment and longevity of the planted species. Areas outside of the Preliminary Development Area will be maintained in a manner consistent with the surrounding land use, which may include continued agricultural use.

4.3.4 Operations and Maintenance

Following commissioning and commercial operation, the care, custody, and control of the Project facilities transfers from the construction team to the operations staff. The construction manager works with the operations staff, the equipment suppliers, and other construction and maintenance personnel to ensure a smooth transition from the start of construction to the COD of the Project. The operations staff will have full responsibility for the facility to ensure O&M are conducted in compliance with approved permits, prudent industry practices, and the equipment manufacturer's recommendations.

The Project will be professionally maintained and operated by Snowshoe BESS, an affiliate, and/or a qualified contractor. Primary tasks include regularly scheduled inspection(s) of electrical equipment, vegetation management, as well as snow removal on access drives and within the BESS area, as needed.

The expected operational life of the Project is 30 years, after which, Snowshoe BESS reserves the right to extend operations of the Project consistent with any necessary permits or permit amendments. Should Snowshoe BESS decide to continue operation, a decision will be made as to whether the Project will continue with the existing equipment or to upgrade the facilities with newer technologies.

Snowshoe BESS estimates that the Project will result in one to two full-time positions to operate and maintain the Project facilities. A maintenance plan will be created for the Project to ensure the performance of the BESS facilities, including a scheduled check of the main items and a predictive maintenance approach of the devices subjected to derating/degradation. Derating/degradation refers to the known process of components losing some capacity, efficiency or otherwise degrading

over the course of the Project's life cycle. Like all technology and physical components, a certain amount of this is unavoidable, and Snowshoe BESS will plan for it and maintain the facility as needed. Once construction is complete, the BESS facility is expected to see one delivery truck on-site monthly, with potentially more personnel on-site at intervals associated with scheduled maintenance, up to daily visits with passenger vehicles. The main scheduled activities are described in more detail in **Table 4.3-1** in **Section 4.3.4.2** below.

All maintenance activities will be performed by qualified personnel and will be performed during the day to the extent practicable.

4.3.4.1 Supervisory Control and Data Acquisition System

Performance monitoring of the Project will be conducted by Snowshoe BESS and consist of real-time and continuous assimilation of the data acquired by the energy meter and SCADA. The SCADA system provides data on BESS energy storage, availability, meteorology, and communications. The BESS modules will communicate directly with the SCADA system for remote performance monitoring, energy reporting, and troubleshooting. Operators will be notified immediately of any abnormalities allowing for timely corrective action which may be performed remotely or may require personnel to enter the site.

4.3.4.2 Equipment Inspection

Inspection of the main equipment will occur at regular intervals, including:

- **BESS**: Performance verification, check of air filters, HVAC system, and monitoring;
- **Life Safety Systems:** Testing and certification of smoke, heat, and gas detectors and operation of emergency devices (e.g. active venting);
- **Inverters, transformer, and electrical panels:** Visual check of the devices, including connection equipment and the grounding network; check for presence of water and dust; check fluid levels for oil-filled transformers, if applicable;
- **Electrical check:** Check of the main switches and safety devices (fuses);
- **Noise:** Check of abnormal sounds;
- **Cabling and wiring**: Visual check of electrical lines (where visible) and connection box to verify their status;
- **Project Tap Line, structures, and components**: Routine visual inspection (maintenance of structures may be performed by the on-site personnel or an independent contractor); and
- **Project substation**: Scheduled visual inspections.

4.3.4.3 Performance Monitoring

Performance monitoring of the Project facilities will consist of real-time telemetry of the data acquired by the SCADA system (energy stored, alarms, faults, etc.) and analysis by operators, remote company employees, to identify under performance or other abnormal conditions.

4.3.4.4 Facility Maintenance

Housekeeping of the Project facilities will include, as required, access road maintenance, snow removal, vegetation maintenance (method dependent on plant type and seasonality; likely traditional herbicides), fence and gate inspection, and lighting system checks.

4.3.4.5 Maintenance Frequency

Table 4.3-1 provides more information on the anticipated frequency of the O&M tasks associated with the Project. The table represents the anticipated formal frequency of these tasks. The frequency of inspection may be varied based on facility demands and experience with performance of certain components and Project features and will include regular informal inspections by on-site O&M staff.

Table 4.3-1: Project Operations & Maintenance Tasks and Frequency

Plant Device	Task	Preliminary Frequency
BESS	System Visual Inspection	Once Yearly
	Filter Inspection	Once Yearly
	Battery condition check	Continuous – remote
	Breaker check	Once Yearly
	Cooling system check	Once Yearly
Electric Boards	Case visual check	Once Yearly
	Fuses check	Once Yearly
	Surge arresters check	Once Yearly
	Torque check	Once Yearly
	DC voltage and current check	Once Yearly
	Grounding check	Once Yearly
Inverter	Case visual inspection	Once Yearly
	Air intake and filters inspections	Once Yearly
	DC voltage and current check	Once Yearly
	Conversion efficiency inspection	Once Yearly
	Data logger memory download	Once Yearly
	Fuses check	Once Yearly
	Grounding check	Once Yearly
	Torque check	Once Yearly
Support Structures	Visual check	Once Yearly
MV Transformers	Visual Check	Once Yearly

4.4 Decommissioning and Repowering

The objective of decommissioning is to restore the site to a condition that will facilitate its pre-construction use at the end of operation. At the end of the Project's operational life, Snowshoe BESS will either take necessary steps to continue operation of the Project (such as re-permitting and retrofitting) or will decommission the Project and remove facilities. A draft Project Decommissioning Plan is included in **Appendix D**.

4.4.1 Decommissioning

At the end of commercial operations, Snowshoe BESS will be responsible for removing all BESS components and associated facilities. At the end of the Site Permit term, Snowshoe BESS reserves the right to extend operations of the Project by applying for an extension of the permit, if necessary, and continuing operation. Should Snowshoe BESS decide to continue operation, a decision will be made as to whether the Project will continue with the existing equipment or to upgrade the facilities with newer technologies.

Decommissioning of the Project at the end of its operational life (30 years) would include removing the battery storage enclosures (which include batteries and other auxiliary equipment), steel foundation posts and beams, transformers, underground cables and lines, equipment pads and foundations, equipment enclosures, ancillary equipment, fencing, and the associated Project substation. Standard decommissioning practices will be used, including dismantling and repurposing, salvaging/recycling, or disposing of the BESS improvements, and restoration. Snowshoe BESS will provide written notice to the Commission, landowners, and local units of government prior to the start of decommissioning activities. These parties will again be notified once decommissioning activities have been completed. A draft Decommissioning Plan is provided in **Appendix D** and is generally summarized below.

4.4.1.1 Timeline

Decommissioning is estimated to take approximately 12 weeks to complete, and Snowshoe BESS will ensure that all equipment and materials are recycled or disposed of properly.

4.4.1.2 Financial Resource Plan

Snowshoe BESS will be responsible for all costs to decommission the Project and associated facilities. Decommissioning of the Project is expected to cost approximately $902,415 with an estimated scrap/salvage value of $400,830. Snowshoe BESS anticipates establishing a financial assurance in the form of an escrow account or surety bond equal to 125% of the costs to ensure proper decommissioning, less the estimated scrap/salvage value, with Olmsted County listed as the beneficiary. Consistent with Department of Commerce (DOC) Energy Environmental Review and Analysis, recommendations, Snowshoe BESS anticipates posting a bond no earlier than the 10th anniversary of the Project COD.

Snowshoe BESS will submit a revised Decommissioning Plan every five years, or any time there is a change in ownership or permit amendment. Each revised plan will reflect advancements in construction techniques, reclamation equipment, and decommissioning standards. The amount of the financial assurance will be adjusted accordingly to offset any increases or decreases in decommissioning costs and salvage values determined during each plan reassessment. At that time, Snowshoe BESS will either enter into a surety bond agreement and create an escrow account or create a reserve fund for decommissioning purposes. Snowshoe BESS will abide by the applicable Site Permit condition(s) and ensure the Project is decommissioned in accordance with the Site Permit. Additional information on financial resource plans and assurances can be found in the draft Decommissioning Plan in **Appendix D**.

4.4.1.3 Removal and Disposal of Project Components

Typical construction equipment to be used during decommissioning will include, but is not limited to, truck-mounted cranes, loaders, bulldozers, dump trucks, and decompaction equipment. The following removal and disposal methods are typical for lithium-ion BESS used industry wide; however, the Decommissioning Plan will be updated in the event the technology evolves or changes. The removal and disposal details of the Project components are found below:

- **Battery and Battery Enclosures:** The BESS enclosures will be discharged to the manufacturer's recommended level for transport, removed from the foundations and disposed of per the Permit requirements. No disassembly of battery modules will be required on-site. The lithium-ion batteries will be shipped to a qualified facility for dismantling and recycling of separated components. The refrigerant/coolant from HVAC units will be collected into separate enclosures on-site and can be reused or recycled after processing. All electrical equipment will be disconnected and disassembled to be reconditioned and reused, sold as scrap, recycled, or disposed of appropriately. Foundations and underground cables and duct banks will be removed to a depth of four feet. Topsoil will be reapplied to the disturbed area. Soil and topsoil will be de-compacted, and the site will be restored to the pre-construction condition and re-vegetated.
- **Steel Foundation Posts, Equipment Foundation, and Ancillary Foundations:** All structural foundation steel posts will be pulled out to full depth, removed, processed to appropriate size, and shipped to a metal recycling facility. The posts can be removed using backhoes or similar equipment. During decommissioning, the area around the foundation posts may be compacted by equipment and, if compacted, the area will be de-compacted in a manner to adequately restore the topsoil and sub-grade material to a density consistent to promote plant growth. All materials will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at the Project Applicant's sole discretion, consistent with applicable regulations and industry standards.
- **Underground Cables and Lines:** All underground cables and conduits will be removed to a depth of four feet. Facilities deeper than four feet may remain in place to limit vegetation and surface disturbance. Prior to any excavation, topsoil will be segregated and

stockpiled for later use, and the subsurface soils will be staged next to the excavation. The subgrade will be compacted to a density similar to the surrounding soils to promote plant growth and maintain drainage. Topsoil will be redistributed across the disturbed area.

- **Transformers and Ancillary Equipment:** All electrical equipment within the Project substation will be disconnected and disassembled. Any oil containing devices not designed to be shipped with fluids will be drained into appropriate sealed containers for recycling. All parts will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at Snowshoe BESS's sole discretion, consistent with applicable regulations and industry standards.
- **Operations and Maintenance Building:** If constructed for the facility operation, the O&M building will be demolished. Building materials and foundation materials will be recycled or disposed at a solid waste facility in accordance with state and local regulations. As an option, the landowner will be contacted to assess the interest in keeping the building on the property for continued use after decommissioning.
- **Fence:** All fence parts and foundations will be removed from the site and reconditioned and reused, sold as scrap, recycled, or disposed of appropriately, at Snowshoes BESS's sole discretion, consistent with applicable regulations and industry standards. Fence posts can be pulled out using skid-steer loaders or other light equipment. The surrounding areas will be restored to pre-construction conditions to the extent feasible.
- **Access Roads:** Facility access roads will be used for decommissioning purposes, after which removal of roads will be discussed with the landowner, using one the following processes:
    - After final clean-up, roads may be left intact through mutual agreement of the landowner and Snowshoe BESS unless otherwise restricted by federal, state, or local regulations; and
    - If a road is removed, aggregate will be excavated and loaded in dump trucks using front loaders, backhoes, or other suitable excavation equipment, and shipped from the site to be reused, sold, or disposed of appropriately at Snowshoe BESS's sole discretion, consistent with applicable regulations and industry standards. Clean aggregate can often be used as "daily cover" at landfills for no disposal cost. Another disposal option is to provide the aggregate to local landowners as clean fill. All internal drive lanes are constructed with geotextile fabric and eight inches of aggregate over compacted subgrade. Any ditch crossing connecting access road to public roads will be removed unless the landowner requests it remain. The subgrade will be de-compacted using a chisel plow or other appropriate subsoiling equipment. All large rocks will be removed.

4.4.1.4 Restoration/Reclamation of Facility

Snowshoe BESS will restore and reclaim the site to a pre-construction condition, as practicable, consistent with the requirements of the Project lease agreements. Snowshoe BESS currently assumes that most of the site will be returned to farmland and/or pasture after decommissioning

and will implement appropriate measures to facilitate such uses. However, the landowner may choose to redevelop the land for other uses depending upon the landowners' desires and the development opportunities in the area at the time of decommissioning. If no specific use is identified, Snowshoe BESS will plant unvegetated portions of the site with a perennial seed mix. The goal of restoration in that instance will be to maintain natural hydrology and the plant communities growing on the site during operation of the Project to the greatest extent practicable while minimizing new disturbance and removal of existing vegetation.

The decommissioning effort will implement BMPs to minimize erosion and to contain sediment on the Project to the extent practicable, and the following reclamation activities will be performed:

1. Minimize new disturbance and removal of existing vegetation to the greatest extent practicable.
2. Remove BESS equipment and all access roads up to a minimum depth of four feet, backfill with subgrade material, and cover exposed subgrade material with suitable topsoil as necessary to allow adequate root penetration for plants, and so that subsurface structures do not substantially disrupt groundwater movements.
3. Any topsoil that is removed from the surface for decommissioning will be stockpiled to be reused when restoring plant communities or when restoring agricultural uses. Once decommissioning activity is complete, topsoil will be respread to assist in establishing and maintaining plant communities.
4. Stabilize soils and return them to agricultural use or other beneficial use according to the landowner direction.
5. During and after decommissioning activities, install erosion and sediment control measures, such as silt fences, bio-rolls, and ditch checks, in all disturbance areas where potential for erosion and sediment transport exists, consistent with stormwater management objectives and requirements.
6. Remediate any petroleum product leaks and chemical releases from equipment operation and electrical transformers prior to completion of decommissioning.

Decommissioning and restoration activities will be completed within 12 weeks after the end of commercial operations.

4.4.1.5 Post-Restoration Monitoring

Decommissioning of the Project will comply with NPDES Permit, SPCC Plan, and SWPPP, if grading activities are necessary and exceed applicable permit thresholds. Decommissioning may include post-restoration monitoring as required by the NPDES Permit and SWPPP and other applicable requirements. In addition, Snowshoe BESS's Field Representative assigned to decommissioning monitoring will stay in contact with the landowner, including on-site check-ins until the NPDES Permit is closed.

4.4.2 Repowering

As the energy storage market continues to produce less expensive and more efficient BESS modules, repowering the Project may be a viable option as the Project ages. Potential triggers for initiating a repower may be aging or faulty equipment, maintenance costs, extending the operational life of the Project, or increasing the generation output of the Project. Snowshoe BESS will continually evaluate the Project's generation output, maintenance costs, and other contributing factors in conjunction with available technology upgrades to determine if repowering the Project is a worthwhile investment. Any proposed repowering of the Project will abide by all local, state, and federal regulations. A new Site Permit may be necessary and will be sought out if required.

5.0 ENVIRONMENTAL INFORMATION

For existing conditions within the portions of land under Snowshoe BESS's control, area calculations are based on the Project Area. This reflects the fact that final design may necessitate development in areas within the overall Project Area and not simply the Preliminary Development Area as previously defined. Additionally, for any discussions of resources that are located outside of the Project Area (such as parks, trails, and other natural resources), the Project Area boundary is used to discuss the proximity of these features to the Project.

5.1 Environmental Setting

The Project Area is located on slightly rolling fields conducive to BESS facility development in a rural area between Byron and Rochester, Minnesota and immediately east of SMMPA's Maple Leaf Substation (**Figure 2**). Land use in the area is dominated by agricultural fields (predominately corn, pasture, and soybeans planted in row crops) with scattered rural residences. There are no wetlands, waterbodies, or flowlines mapped within the Project Area. Further discussion of the environmental setting can be found in **Sections 5.5.1** through **5.5.8.**

There are no other BESS facilities within the immediate Project vicinity and no other standalone BESS facilities yet constructed in Minnesota. The nearest permitted BESS facility is at the Lake Wilson Solar Energy Center[5] located near Lake Wilson, approximately 165 miles west of the Project Area. The MPUC permitted the Lake Wilson Solar Energy Center and accompanying BESS, but the project has not been constructed at the time of this application.

Except for U.S. Highway 14 to the south, roads that surround the Project Area are county, township, or private roads. The Project Area is bordered on its western side by the SMMPA access road and 14th Street Northwest is located 0.25 mile to the north. The Dakota Minnesota & Eastern Railroad (DME Rail) runs along the southern border of the Project Area between the Project boundary and U.S. Highway 14. The existing Xcel Energy Tap 139572 to the Maple Leaf 69 kV transmission line follows the SMMPA access road to the west of the Project Area, terminating at the SMMPA-Maple Leaf Substation located immediately west of the Project Area. The proximity of the substation allows for a short overhead Project Tap Line (approximately 300 feet) from the proposed Project substation to the SMMPA-Maple Leaf Substation (**Figure 2**).

According to the Natural Resources Conservation Service (NRCS) Land Resource Region and Major Land Resource Area (MLRA), the Project Area is located within the northern part of the Central Feed Grains and Livestock Region. This region is in the northern part of the Upper Mississippi River bedrock-controlled uplands and valleys and is characterized by native tallgrass

[5] MPUC, Order Granting Certificate of Need and Site Permit, eDocket ID: 20244-205861-01; *see also*, MPUC. n.d. Minnesota Wind Farm and Solar Projects. (available at https://minnesota.maps.arcgis.com/apps/webappviewer/index.html?id=af93f569169a435cbe07f741c340fedb) Accessed June 2024.

prairies, deciduous forests, and river floodplains.[6] The Central Feed Grains Region is generally level, agricultural land with wooded areas.

The Minnesota Department of Natural Resources (MnDNR) and the U.S. Forest Service have developed an Ecological Classification System (ECS) for ecological mapping and landscape classification in Minnesota that is used to identify, describe, and map progressively smaller areas of land with increasingly uniform ecological features. Through the ECS, the State of Minnesota is split into Ecological Provinces, Sections, and Subsections. The Project is located within the Eastern Broadleaf Forest Province (222), Paleozoic Plateau Section (222L), and the Rochester Plateau Subsection (222Lf).[7]

The Rochester Plateau Subsection is located in the southeastern corner of Minnesota and consists of an old plateau covered by windblown silt (loess) along the eastern border and pre-Wisconsin age glacial till in the central and western parts. The western portion is a gently rolling glacial till plain that is covered by loess in places. Depth of drift over bedrock in this subsection varies from 100 to 200 feet in the west to 10 to 100 feet in the east, and soils are made up of predominantly loess soils with thicknesses varying from one foot up to 30 feet. Annual precipitation ranges from 29 inches in the west to 34 inches in the southeast, with 11 to 16 inches of growing-season precipitation. The growing season typically lasts between 136 to 156 days. Fire was the most common natural disturbance before settlement and was important to the wellbeing of upland prairie and oak savannah communities. Causes of recent disturbances include tornadoes and ice storms. Pre-settlement vegetation was primarily tallgrass prairie and bur oak savanna. Currently, the predominant land use in this subsection is agriculture; there are few remnants of pre-settlement vegetation remaining.[8]

5.2 Human Settlement

5.2.1 Aesthetics

The Project Area is located in a rural, rolling, agricultural setting and is generally naturally screened from 14th Street Northwest to the north, east, and west by the existing topography. Existing rows of trees and shrubs provide substantial screening from U.S. Highway 14 to the south of the Project Area.

The Project Area and surrounding land are typical of agriculturally and semi-forested dominated landscapes with minimal recreational opportunities or scenic views in the surrounding area. Viewsheds in this area are generally limited by trees or topography. The area is also shaped by the

---

6 United States Department of Agriculture (USDA) NRCS. 2022. Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin (available at https://www.nrcs.usda.gov/sites/default/files/2022-10/AgHandbook296_text_low-res.pdf)

7 MNDNR. 1997. Ecological Classification System (available at https://www.dnr.state.mn.us/ecs/index.html) Accessed July 2024.

8 MNDNR. n.d.-a Rochester Plateau Subsection (available at https://www.dnr.state.mn.us/ecs/222Lf/index.html#:~:text=The%20west%20boundary%20consists%20of,%2Dblown%20silts%20(loess)) Accessed July 2024.

built environment. The settlements in the vicinity are residences and farm buildings scattered along rural county roads. Horizontal elements in the vicinity include U.S. Highway 14, county and township roads, and the DME Rail. Vertical elements, such as a radio tower west of the Project Area, a cellular tower southwest of the Project Area, and the Xcel Energy 161 kV transmission line along U.S. Highway 14, can be visible from considerable distances and are the tallest and the most dominant visual features on the landscape. Additionally, the existing SMMPA-Maple Leaf Substation, as well as numerous electrical transmission and distribution lines that parallel county and township roads, contribute to the existing visual elements (**Section 5.2.8**).

Farmsteads are sparsely scattered outside of the Project Area and generally situated near public roads. Based on review of available aerial photography, there are five residences located on parcels adjacent to the Project Area, with the closest residence located over 1,200 feet to the north of the Preliminary Development Area. There are no farmsteads or buildings within the Project Area.

There are no designated Minnesota Scenic Byways in Olmsted County.[9] While U.S. Highway 14 is designated as the Laura Ingalls Wilder Historic Highway, it is not designated as a Minnesota Scenic Byway. There is an existing row of trees and shrubs along the north side of the U.S. Highway 14 that provides partial screening to the existing SMMPA-Maple Leaf Substation and will provide similar screening to the Project.

There are five locations within a quarter-mile buffer of the Project Area that were considered to have potential visual impacts, including one residence, three roads, and one railroad. **Table 5.2-1** provides approximate distances from the five locations to the Preliminary Development Area and to the edge of BESS enclosures based upon the current preliminary design. None of the locations have a direct or significant sight line to the Project.

[9] MnDOT. n.d.-a Minnesota Scenic Byways (available at https://www.dot.state.mn.us/scenicbyways/) Accessed July 2024.

Table 5.2-1: Proximity of Locations to the Project

	General Location	Distance to Preliminary Development Area (feet)	Distance to BESS (feet) [1]
Location 1	Residence: Located to the north of the Project Area just south of 14th Street Northwest. This residence has existing buildings and vegetative screening around four sides of the residences, including the south side, which faces the Project. A topographic rise between the residence and the Project obstructs a direct sightline. The property owner for the residence is the same as the owner from which Snowshoe BESS has leased land for the Project. The current resident is the property owner's family member.	1,220.4	1,584.3
Location 2	Public Road: Located north of the Project Area, 14th Street Northwest travels generally east to west. This road is partially screened on the south side by trees and farmsteads.	1,319.9	1,660.7
Location 3	SMMPA Access Road: Located adjacent to the western Project boundary. This unnamed private road does not have any screening from the Project but will be incorporated as an access road through an agreement with the owner.	12.8	203.7
Location 4	Public Road: Located south of the Project, U.S. Highway 14 travels generally east to west. The highway has vegetative screening to the north between the Project and the highway. The DME Rail is also located between the Project and the highway.	203.1	792.7
Location 5	Railroad: Located south of the Project, the DME Rail travels generally east to west. The railroad has vegetative screening to the north between the Project and the railroad.	80.2	613.8
[1] Based on Project preliminary design.			

5.2.1.1 Impacts and Mitigative Measures

Snowshoe BESS anticipates minimal adverse visual impacts from the Project to the nearby residential properties and, while the Project will create additional infrastructure when compared to the current agricultural uses in the area, the visual impact from other existing public areas is expected to be limited.

BESS enclosures will occupy 1.6 acres of the Project Area. The majority of the remaining Preliminary Development Area will be gravel for access roads or buffer areas between the BESS enclosures. Most of the BESS facility will be a non-descript neutral color, with the majority of components being less than 10 feet in height. The Project substation is anticipated to be less than 50 feet in height, with the tallest portion of the Project anticipated to be a 60–90-foot-tall pole for construction of the Project Tap Line. The Project is situated adjacent to the existing SMMPA-Maple Leaf Substation. BESS enclosures will be approximately 10 feet tall and likely not be visible from 14th Street Northwest to the north or neighboring residential homes due to the site topography and existing vegetative screening.

Exterior security lighting will be installed at the Project substation. Lights will be used if work or maintenance is required after dark and as needed by maintenance personnel. Switch activated lights will be placed near each BESS enclosure for repair purposes. There is only one residence

within a quarter mile of the Project, but this residence is screened from the Project by topography. Impacts to light-sensitive land uses are not anticipated given the rural Project location coupled with minimal required lighting for operation of the Project.

Some Project infrastructure may be visible from U.S. Highway 14 to the south; however, since the Project Area and vicinity contain rolling hills, and due to existing trees along U.S. Highway 14 to the south, the visual impact of the Project is expected to be limited.

5.2.2 Cultural Values

Cultural values include perceived community beliefs or attitudes in a given area which provide a framework for community. According to the U.S. Census Bureau, the majority of the population in Olmsted County identifies as White with an ethnic background of European origin.[10] The population is comprised of 77.8% White, followed by 6.7% Black or African American, 6.3% Asian, 5.6% Hispanic or Latino, with the remaining 3.5% consisting of American Indian, Native Hawaiian/Other Pacific Islander, and other origins. The region surrounding the Project has cultural values tied to the area's German, Norwegian, Irish, and Native American heritage, as well as the agricultural economy. There are several organizations dedicated to "collecting and preserving the history" and heritage of Olmsted County, including the History Center of Olmsted County, the Byron Area Historical Society, and other local historical societies, libraries, and museums.[11] Cultural representation in community events is reflected in the arts, cuisine, agricultural produce, and holidays. Annual local and regional events, festivals, and fairs typically do not have a primary focus of ethnic heritage.[12] These events generally take place within municipalities; no events were identified in the unincorporated area surrounding the Project. Construction of the proposed Project is not expected to conflict with the cultural values or ethnic heritage of the area.

Through its strategic and land use planning initiatives, Olmsted County has prioritized environmental sustainability and sustainable practices. The County's 2024-2028 Strategic Plan includes a climate action plan that addresses mitigation and adaptation strategies focusing on "reducing greenhouse gas emissions and adapting to climate change in ways that reduce vulnerabilities and ensure an equitable and resilient community." Activities under the plan include upgrading existing county buildings with energy efficient and renewable energy systems, as well as encouraging residents and businesses to adopt practices that take "actions toward preventing climate change effects and responding to climate impacts already occurring."[13]

---

[10] U.S. Census Bureau. 2020a. Profile of General Population and Housing Characteristics: *DP1 Table* (available at https://data.census.gov/table/DECENNIALDP2020.DP1?g=040XX00US27_050XX00US27109&d=DEC%20Demographic%20Profile)

[11] History Center of Olmsted County. 2024 (available at https://www.olmstedhistory.com/) Accessed June 2024.

[12] Olmsted County Fair. 2024. (available at https://www.olmstedcountyfair.com/) Accessed June 2024.

[13] Olmsted County, 2024. Climate Action Plan (available at https://www.olmstedcounty.gov/government/about-olmsted-county/climate-mitigation-and-adaptation#energy-use6

In its 2022 Land Use Plan, Olmsted County listed energy farm siting, along with organic and hobby farming, among the top "emerging trends [that] appear to be driving future agricultural land use."[14] The Plan identified the ideal siting for renewable developments and also established considerations to limit where they may be located. It noted that "southeastern Minnesota has high suitability ratings for two renewable sources, solar and wind," and that the "land best suited for solar energy siting often has prime agricultural soils."[15] When the suitability of prime farmland is being considered for conversion to solar "the developer should be able to, in good faith, make the case that all other potential [agricultural land use] options have been exhausted."[16] Because of its potential to cause indirect and environmental impacts, solar and wind energy development often requires "extensive land and buffer areas." To meet these requirements, the installations typically must be "located outside urban areas" and "should be separated from existing or planned residential areas."[17] The potential benefits of siting solar farms in agricultural areas include "protect vulnerable groundwater, preserve current soil quality via perennial vegetation, create pollinator habitat, and be co-located with other agricultural uses such as grazing. They generate a stable source of income for farmers and provide tax relief eligibility."[18] Construction of the proposed Project aligns with goals and initiatives described in the Olmsted County strategic and land use plans.

5.2.2.1 Impacts and Mitigative Measures

As the Project Area is located on private land, adjacent to similar existing uses, and sufficiently setback from public ROWs, construction and operation of the Project would align with the environmental goals and standards for energy farm siting that are stated in the Olmsted County strategic and land use plans. No impacts to cultural values or community events are anticipated, and therefore, no mitigation measures are proposed.

5.2.3 Displacement

As previously indicated, the Project is located in a predominantly agricultural area, adjacent to the existing SMMPA-Maple Leaf Substation, with relatively few residences and widely dispersed farmsteads among row crop farm fields (**Figure 2**). The nearest structures are outbuildings and grain bins associated with a farmstead approximately 960 feet north of the Project Area. The nearest residence is associated with the farmstead and is located approximately 1,200 feet from the Project Area boundary (**Figure 4**).

---

[14] Olmsted County. 2022. Olmsted County Land Use Plan, 5.17 (Available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf

[15] Olmsted County Land Use Plan (available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf 5.16-5.18)

[16] Olmsted County Land Use Plan (available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf 5.20)

[17] Olmsted County Land Use Plan (available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf 8.5)

[18] Olmsted County. 2022. Olmsted County General Land Use Plan (available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf) 5.20

5.2.3.1 Impacts and Mitigative Measures

Because none of the structures associated with the farmstead will be removed, there will be no displacement and no mitigation is proposed.

5.2.4 Environmental Justice

Environmental Justice (EJ) refers to the fair treatment and meaningful involvement of communities of color, Indigenous communities, and low-income communities, to the enjoyment of a healthy environment, and to fair treatment with respect to the development, adoption, implementation, and enforcement of environmental laws, regulations, and policies.[19] Minority and/or low-income communities are often concentrated in small geographical areas within the larger geographically and/or economically defined population. Minority communities and low-income communities may constitute a very small percentage of the total population and/or geographical area.[20]

Minnesota Statute defines an environmental justice area as an area in Minnesota that, based on the most recent census data meets one or more of the following criteria:

(1) 40 percent or more of the area's total population is nonwhite;

(2) 35 percent or more of households in the area have an income that is at or below 200 percent of the federal poverty level;

(3) 40 percent or more of the area's residents over the age of five have limited English proficiency; or

(4) the area is located within Indian Country, as defined in United State Code, title 18, section 1151.[21]

These criteria are required for the Commission's identification and review of environmental justice areas in relation to the Project. Midwater BESS LLC has reviewed these criteria for the Project and are described below.

The MPCA maintains the Minnesota Areas of Environmental Justice Concern interactive map, which identifies areas of EJ concern within the state of Minnesota.[22] The MPCA uses U.S. Census Bureau's 2023 Cartographic Boundary File, the five-year (2017–2021) American Community Survey data, and MnDOT's Tribal Government data in preparing the map. A census tract is considered an area of concern if it has higher concentrations of low-income residents, people of color, or limited English proficiency.

---

19 MPCA. n.d.-a Environmental Justice (available at https://www.pca.state.mn.us/about-mpca/environmental-justice) Accessed June 2024.

20 Environmental Protection Agency (EPA). 1998. Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses (available at https://www.epa.gov/sites/default/files/2015-04/documents/ej-guidance-nepa-compliance-analyses.pdf) Accessed June 2024.

21 Minn. Stat. § 216B.1691, subd. 1(e).

22 MPCA. 2021a. Understanding Environmental Justice in Minnesota Story Map (available at https://mpca.maps.arcgis.com/apps/MapSeries/index.html?appid=f5bf57c8dac24404b7f8ef1717f57d00) Accessed June 2024.

The MPCA refers to the U.S. Census Bureau and U.S. Department of Health and Human Services to define poverty, a threshold which is calculated using a family's household size and composition. Because the MPCA is using data from 2017–2021, the poverty threshold is calculated based on the 2021 data for census tract 27109001901, in which the Project is located. In 2021, an individual in the U.S. was considered to be in poverty with an income of $13,788 or less, according to the 2021 Poverty Threshold Data Table,[23] therefore, 200% of the poverty level would be calculated at $27,576 per person.

Based on the MPCA EJ criteria, the Project is not within any MPCA-identified area of concern for EJ as shown in **Table 5.2-2**.

Table 5.2-2: Environmental Justice Areas of Concern Criteria in relation to the Project Area

MPCA EJ Area of Concern Criteria	Project Area (census tract 27109001901)
At least 35% of people reported income less than 200% of the federal poverty level	14.84% (+/- 11.78% margin of error) reported income less than the 200% federal poverty level.
40% or more people of color	5.27% (+/- 2.28% margin of error) are people of color.
Federally recognized Indian Tribes	No
At least 40% of people have limited English proficiency	0.64% (+/- 0.58% margin of error) are reported as residents with limited English proficiency
Note: The margin of error is accounted for in determining environmental justice areas of concern. For example, if a census tract has an estimated population of 36% people of color with a 5% margin of error, then the MPCA would count that census tract as an environmental justice area of concern. Note: Environmental Justice area criteria listed in Minn. Stat. § 216B.1691, subd. 1(e) uses Indian Country, as defined in United State Code, title 18, section 1151. However, the MPCA EJ Area of Concern Criteria uses Federally recognized Indian Tribes defined and listed by the U.S Department of the Interior, Office of Indian Affairs Trust. The MPCA EJ Area of Concern Criteria is not required by statute for a Site Permit Application but have been included in Midwater BESS LLC's siting analysis for the Project.	

Areas outside of the Project Area with one or more of the MPCA defined EJ criteria are located around the city of Rochester located 2.1 miles east of the Project. Listed criteria in the city are at least 35% of people reported income less than 200% of the federal poverty level and 40% or more people of color. The Rochester communities that are considered an EJ area are not located near enough to the Project for any potential effects to take place.

In addition to the screening criteria by the MPCA, Snowshoe BESS used the EPA's Environmental Justice Screening and Mapping Tool (EJScreen) to review the demographic socioeconomic and environmental information for the Project Area and a two-mile buffer around the Project Area, Olmsted County, and state. EJScreen uses publicly available data to combine environmental and demographic indicators into EJ indexes, including 13 environmental indicators, seven socioeconomic indicators, 13 EJ indexes, and 13 supplemental indexes. Results for a two-mile

[23] U.S. Census Bureau. 2021. Poverty Thresholds for 2021 by Size of Family and Number of Related Children Under 18 Years (available at https://www.census.gov/data/tables/time-series/demo/income-poverty/historical-poverty-thresholds.html)

buffer around the Project Area indicate that overall, 8% report low income, 11% are people of color, there are no federally recognized tribes, and 0% of households have limited English proficiency.[24] Olmsted County reported 20% report low income, 22% are people of color, there are no federally recognized tribes, and 2% of households have limited English proficiency. Compared to the state, most environmental and socioeconomic indicators at the Project Area and county levels are similar with a few exceptions—one being county levels were slightly higher in some pollution and source categories and another being state values are considerably higher, such as toxic releases to air and traffic proximity.

Combined, the environmental justice screening criteria used by the MPCA and the data embedded in the EJScreen report indicate there are no environmental justice communities within or adjacent to the Project Area.

Section 5.2.10 (Socioeconomics) summarizes population, race, housing, income, and poverty for the township, county, and state levels.

5.2.4.1 Impacts and Mitigative Measures

Because the Project is not within or adjacent to an EJ area of concern, no mitigation measures are proposed.

5.2.5 Public Health and Safety

Public health and safety are a priority for the Project, and the Applicant intends to proactively address potential issues relating to construction activities, electrocution, and environmental hazards.

5.2.5.1 Environmental Contamination

The Applicant conducted a preliminary review of the EPA "MyEnvironment" database and map to identify federally listed sites that may have previously documented environmental impacts. A review of this information indicates that three hazardous waste designated sites associated with the Resource Conservation and Recovery Act (RCRA) are in a one-mile buffer of the Project Area. No RCRA sites were identified within the Project Area.[25] The closest identified site is located approximately 0.6 mile from the Project Area.

Data from the MPCA "What's in My Neighborhood" website was accessed on June 24, 2024. This online application offers a way to access a wide variety of environmental information about a given site and location. The website provided data on:

[24] EPA. 2024a. EJScreen EPA's Environmental Justice Screening and Mapping Tool, V. 2.3 (available at https://ejscreen.epa.gov/mapper/) Accessed July 2024.

[25] EPA. 2022. MyEnvironment (available at https://enviro.epa.gov/myenvironment/) Accessed June 2024.

- **Potentially contaminated sites**: A searchable inventory dating back to the 1980s of contaminated properties, sites that have already been cleaned up, and those currently being investigated or cleaned up; and
- **Environmental permits and registrations**: A searchable inventory of businesses that have applied for and received different types of environmental permits and registrations from the MPCA.

Review of the database indicated there are 34 mapped records within one mile of the Project Area.[26] While there are no mapped records within the Project Area, the records occurring on sites found in a one-mile buffer of the Project Area are listed below:

- 7 Construction stormwater sites;
- 7 Feedlot sites;
- 5 Hazardous waste sites;
- 3 Solid waste sites;
- 2 Underground storage tank sites;
- 1 Aboveground storage tank site;
- 1 Air quality site;
- 1 Environmental review site;
- 1 Hazardous waste, minimal quantity generator site;
- 1 Industrial stormwater site;
- 1 Permitted solid waste facility site;
- 1 RCRA remediation site;
- 1 Site assessment;
- 1 Solid waste utilization project; and
- 1 Wastewater site.

The records listed above are located outside of the Project Area and will not be impacted by the Project. A Phase I Environmental Site Assessment was conducted for the Project Area. No recognized environmental conditions were identified.

5.2.5.2 Impacts and Mitigative Measures

Construction and operation of the Project will have minimal impacts on the health and safety of the general public. As described in **Section 4.1.4** (Fencing), permanent security fencing with lockable gates will be installed along the perimeter of the BESS facility to comply with applicable

[26] MPCA. 2024a. What's in My Neighborhood (available at https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=9d45793c75644e05bac197525f633f87) Accessed June 2024.

electrical codes. Only authorized personnel, or those escorted by authorized personnel, will be allowed entry, and signs will be posted to warn unauthorized persons not to enter fenced areas. Additionally, signage at the Project substation will warn of high voltage equipment due to the potential dangers associated with unauthorized entry. These precautions are intended to prevent accidental electrocution from happening to someone who may have otherwise unintentionally wandered onto the site. All equipment, tools, and substances that will be used for the Project will be properly stored, maintained, and monitored in the O&M Building or the nearby O&M rented space.

Grounding of electrical equipment, lines, and other applicable infrastructure will be completed in adherence to federal and state standards to prevent injury and ensure proper infrastructure functionality. Inspection of grounding will be done prior to operation. Any changes or failures in grounding electrical infrastructure will be identified through the Project's active monitoring system.

Health and safety concerns during construction of a BESS project are typical to any electrical substation and include injuries due to falls, equipment malfunction and/or misuse, and electrocution. To prevent health and safety incidents, Snowshoe BESS requires all parties involved with the Project to create comprehensive health and safety plans and protocols. During construction, an emergency incident or accident may occur and would be addressed as needed by Project personnel and local responders as further discussed in **Section 5.2.7.2** (Emergency Services). Snowshoe BESS will ensure workers have proper training to successfully complete required construction activities while reducing risks associated with it.

During operations, the Project will not require the use or storage of large quantities of hazardous materials that might otherwise have the potential to spill or leak into area groundwater. To avoid potential impacts to water and soil resources, all hazardous materials stored outdoors will be stored within secondary containment. Secondary containment will contain leaks in the event that they occur.

An SPCC Plan will be required for the main power transformers located in the Project substation, as well as for oil-filled operational equipment (e.g., inverter/transformer) or bulk oil storage at the O&M facility. If used, the SPCC Plan will detail the appropriate storage, cleanup, and disposal of oil products associated with the Project. The transformers will be properly contained per U.S. EPA requirements. Any monitoring, transportation, or handling of materials will be conducted by trained and qualified personnel utilizing established procedures and proper equipment and in accordance with applicable laws. The SPCC Plan will be completed prior to construction and kept on-site during construction and will meet all EPA requirements. If needed for the operational phase of the Project, a separate SPCC Plan will be completed prior to Project operations.

Snowshoe BESS will coordinate with all emergency and non-emergency response teams for the Project, as needed. Emergency services for responding to public health and safety emergencies are further described in **Section 5.2.7.2** (Emergency Services).

5.2.5.3 Electromagnetic Field

Any electrical device will have electric and magnetic fields (EMF) present. Electric fields arise from the voltage or electrical charges, while magnetic fields arise from the flow of electricity or current that travels along transmission lines, power feeder lines, substation transformers, house wiring, and electrical appliances. The intensity of the electric field is related to the voltage of the line, and the intensity of the magnetic field is related to the current flow through the conductors (wire). EMF can occur both indoors and outdoors.

According to the U.S. National Cancer Institute, there is no consistent evidence demonstrating an association between any source of non-ionizing EMF and cancer.[27] Further, the Minnesota State Interagency Working Group on EMF Issues conducted literature reviews and research on EMF, concluding that "the current body of evidence is insufficient to establish a cause and effect relationship between EMF and adverse health effects."[28] Considering the available evidence on EMF exposures to date, the Commission has found that "there is no demonstrated impact on human health and safety that is not adequately addressed by the existing State standards for exposure."[29]

The sources of EMF related to the Project include electrical feeder lines within the facility, the transformers installed at each inverter, and the Project Tap Line connecting the Project substation with SMMPA's Maple Leaf Substation. EMF from electrical feeder/collection lines and transformers dissipates rapidly with distance from the source. Generally speaking, higher voltage electrical lines produce higher levels of EMF at the source before dissipating with distance. Presently, there are no Minnesota regulations pertaining to magnetic field exposure. The International Commission on Non-Ionizing Radiation Protection has established accepted guideline for the general public exposed magnetic fields is 833 milligauss (mG).[30] Further, there is no federal standard for transmission line electric fields. The Commission, however, has imposed a maximum electric field limit of 8 kV per meter measured at one meter (3.28 feet) above the ground. The standard was designed to prevent serious hazards from shocks when touching large objects parked under AC transmission lines of 500 kV or greater.

---

27 National Cancer Institute. 2019. Electromagnetic Fields and Cancer (available at https://www.cancer.gov/about-cancer/causes-prevention/risk/radiation/electromagnetic-fields-fact-sheet) Accessed August 2024.

28 The Minnesota State Interagency Working Group on EMF Issues. 2002. A White Paper on Electric and Magnetic Field (EMF) Policy and Mitigation Options (available at https://apps.commerce.state.mn.us/eera/web/project-file?legacyPath=/opt/documents/EMF%20White%20Paper%20-%20MN%20Workgroup%20Sep%202002.pdf) Accessed August 2024.

29 OAH Docket No. 7-2500-20283-2, ALJ Findings of Fact, Conclusions and Recommendations at Finding 216 (April 22, 2010 and amended April 30, 2010)

30 National Institute of Environmental Health Sciences (NIEHS). 2002. Electric and Magnetic Fields Associated with the Use of Electric Power (available at https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf) Accessed June 2024.

5.2.5.4 Impacts and Mitigative Measures

Project-specific EMF levels were not modeled for the proposed electrical lines or inverters; however, studies have documented EMF levels for similar equipment. A Canadian study of electrical lines at a wind facility with a project substation measured the magnetic fields of the wind farm's 27.5 kV buried electrical lines—slightly lower voltage than the electrical feeder lines proposed for the Project. The study found magnetic fields associated with buried electrical collection lines to be within background levels at one meter above ground and up to 16.5 mG directly beneath overhead 27.5 kV lines.[31] As demonstrated by the study, magnetic fields will be well below the Minnesota guidelines for electric fields (8 kV/meter) and international guidelines of 833 mG for magnetic fields. Additionally, since the transformers are enclosed in a grounded metal case (i.e., shielded), the transformers typically emit small, if any at all, EMF. The battery side of the system operates in DC, with the cells operating at approximately 50v, depending on the technology chosen. DC electricity does not emit an electric field due to the frequency of DC electricity being zero hertz. Rather DC electricity creates a stationary magnetic field that degrades at an exponential rate. Based on the system voltage, no measurable magnetic field will be created beyond the Project fence line.

The National Institute of Environmental Health Sciences (NIEHS) provides typical EMF levels for 230 kV transmission lines. Typical EMF levels for a 230 kV transmission line electric field directly below the transmission line were reported at 2.0 kV/meter before dissipating to 1.5 kV/meter at 50 feet (approximate edge of ROW). Similarly, average magnetic fields directly below the transmission line were reported at 57.5 mG before dissipating to 7.1 mG at 100 feet.[32] The proposed 161 kV Project Tap Line operates at a lower voltage and will have lower EMF and magnetic field density levels, therefore it will have equal or lesser impacts than the reference safety guidelines. In addition, the Project Tap Line is not located in close proximity to any residences or known occupied structures, thereby reducing any potential exposure to EMF.

Stray voltage is often a concern in agricultural areas—particularly for dairy farms. Stray voltage is an unintended transfer of electricity between two grounded objects and is typically caused by improperly grounded electrical equipment in farm buildings or by a faulty utility connection at the distribution level. All electrical components of the Project, including inverters and transformers, are incorporated into the regional transmission grid and will be grounded in accordance with National Electric Safety Code. As such, the potential for stray voltage as a result of the Project will be negligible. Should a fault occur during operation of the Project, it would be identified by Project monitoring systems and corrected.

---

31 McCallum L.C., Whitfield Aslund M.L., Knopper L.D., Ferguson G.M., Ollson C.A. 2014. Measuring electromagnetic fields (EMF) around wind turbines in Canada: is there a human health concern? Environ Health. 2014 Feb 15;13(1):9 doi: 10.1186/1476-069X-13-9. PMID: 24529028; PMCID: PMC3943383 (available at https://pubmed.ncbi.nlm.nih.gov/24529028/) Accessed June 2024.

32 National Institute of Environmental Health Sciences (NIEHS). 2002. Electric and Magnetic Fields Associated with the Use of Electric Power (available at https://www.niehs.nih.gov/health/materials/electric_and_magnetic_fields_associated_with_the_use_of_electric_power_questions_and_answers_english_508.pdf) Accessed June 2024.

The nearest occupied residence is approximately 1,568 feet from the proposed electrical equipment (i.e., nearest inverter). At this distance, both electric and magnetic fields would have dissipated to background levels. As such, impacts will be negligible, and no mitigation measures are proposed.

5.2.5.5 BESS Construction and Operational Safety

Safety will be Snowshoe BESS's foremost principle during construction and operation of the Project. Safe design and operation of the substation and BESS begins with selecting safe equipment and compliance with safety codes, regulations, and industry recommendations. Continued advances in technology, applicable codes/standards, and emergency response procedures have reduced the likelihood fire for all electrical generation projects and specifically for battery thermal runaway induced events for BESS. These advances also lessen the impact of events when they do occur. Key safety issues include contact with medium or high voltage circuitry, overheating of equipment, and fires.

5.2.5.6 Impacts and Mitigative Measures

Mitigation measures to minimize the likelihood and potential impacts of these events include:

- Physical spacing of equipment from fences and other equipment
- Site-wide 24/7 remote monitoring;
- Heating, ventilation, and air conditioning (HVAC) for thermal management;
- Heat and smoke detection;
- Automatic stop and response personnel alerts;
- Gas detection and ventilation systems;
- Deflagration venting; and
- System-specific training for local fire departments and emergency response teams.

Snowshoe BESS has incorporated safety precautions into the preliminary design protocols of the proposed Project. The lithium-ion batteries modeled for the Project will be stored in weather-proof enclosures, similar in size to shipping containers. Each enclosure includes a fully integrated system of air-cooled or liquid-cooled HVAC for temperature control, sensors, and controls for remote monitoring, and built-in fire, smoke, and gas detection. No off-gassing or air emissions are produced in day-to-day operations. In addition, Snowshoe BESS's layout and installation of the equipment will incorporate appropriate spacing to minimize risk of fire propagation between equipment, and between the equipment and surrounding landscape. Transformers and other electrical equipment on site will comply with industry standards to reduce the chance of fire and spill events.

5.2.5.6.1. Testing and Certification

The BESS equipment will be designed and tested to industry standards. At present, these include certifications for Underwriters Laboratory (UL) UL1973, UL9540, and Institute of Electrical and Electronics Engineers 1547. The BESS equipment will also be certificated or compliant with relevant safety standards in place at the time of final design, including National Fire Protection Association (NFPA) 68, NFPA 69, and NFPA 855. The Project shall also comply with the applicable version of the International Fire Code (IFC), the National Electric Code (NFPA 70), and the practices recommended in NFPA 850 for Electric Generating plants and High Voltage Direct Current Converter Stations and IEEE 979 Guide for Substation Fire Protection.

Any BESS equipment proposed for the Project will be required to perform the UL 9540A "Test Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems," which determines the BESS enclosure's behavior during an initiated thermal runaway event and ensures minimal risk of fire propagation. The evaluation is performed by a third-party recognized by the Occupational Safety and Health Administration's Nationally Recognized Testing Laboratory. This resulting test data outlines the thermal runaway behavior observed and quantified, including gas generation/composition. These tests and reports provide an industry standard baseline and provides confidence that the potential hazards posed by the specific batteries to ensure that the appropriate safety features are incorporated based upon the results, as required by NFPA 855 and the IFC.

Snowshoe BESS will stay abreast of new codes and standards to ensure its equipment vendors and designs comply with industry standards and best practices.

5.2.5.6.2. BESS Monitoring and Reporting Systems

The BESS will include a monitoring system that monitors many different aspects of the system. Each battery system is equipped with cell level, module level, rack level, and system level monitoring points. These points produce real-time data that feed into automatic control logic housed in the battery management system and the site controller, an off-site person charged with site monitoring. The battery management system and site controller ensure that BESS components of the Project are operating within the original equipment manufacturer's operating parameters and warranty requirements. If any operating limit is exceeded or an alarm is triggered, either a fault signal is sent to the whole battery string to disconnect from the inverter, or the rack contacts will open to disconnect individual racks. This real-time, automated system is designed to identify operational malfunctions or other safety hazards immediately and prevent incidents. Detected faults, abnormal conditions, and gas detection will also be transmitted to remote operators and/or on-site status indicators.

Snowshoe BESS plans to house the BESS in separate enclosures rather than in one building. Utilizing separate enclosures provides natural segmentation and spatial separation of the BESS components, easing heat management and greatly reducing the risk of fire propagation at the Project. Although this design requires a larger overall footprint than a single building, it is an appropriate consideration for safety because it allows the components to be farther apart to isolate

and contain any unlikely incident. The enclosures will be non-walk-in with only external access and will include auxiliary equipment for fully autonomous thermal management systems. Typical enclosures, such as those anticipated for the Project, consist of component battery cells that are sealed within the enclosures, which cannot be accessed from the exterior and are not accessible to non-authorized personnel. Enclosure design that allows installation and servicing from the exterior –and does not involve human entry into an enclosure—is an important safety design consideration to allow access to the batteries in the event of an emergency situation.

Snowshoe BESS is committed to providing training resources for local responders, as well as the collaborative development of an emergency response plan (ERP) specific to this Project. Snowshoe BESS will coordinate development of a site-specific ERP with local responders prior to energization of the Project. The Project's ERP will require quarterly safety drills for the Project team and will make annual safety training available to local first responders. The ERP for this Project will cover a wide breadth of possible incidents at the site and include emergency procedures to be followed in case of fire, medical emergencies, and other potential situations.

5.2.6 Noise

Noise is defined as unwanted sound. It may be made up of a variety of sounds of different intensities, across the entire frequency spectrum. Noise is measured in the unit of decibels (dB) on a logarithmic scale to match human perception of noise. Additionally, human hearing is not equally sensitive to all frequencies of sound from low to high. To account for this, A-weighting (dBA) is used to reflect the typical sensitivity of human hearing. Common sound sources in an agricultural or rural environment include, but are not limited to, sound from farm equipment, traffic noise from nearby roads and highways, various noise from wildlife, and wind rustling through vegetation. A graphic showing common indoor and outdoor noise levels is provided in **Image 5** below.

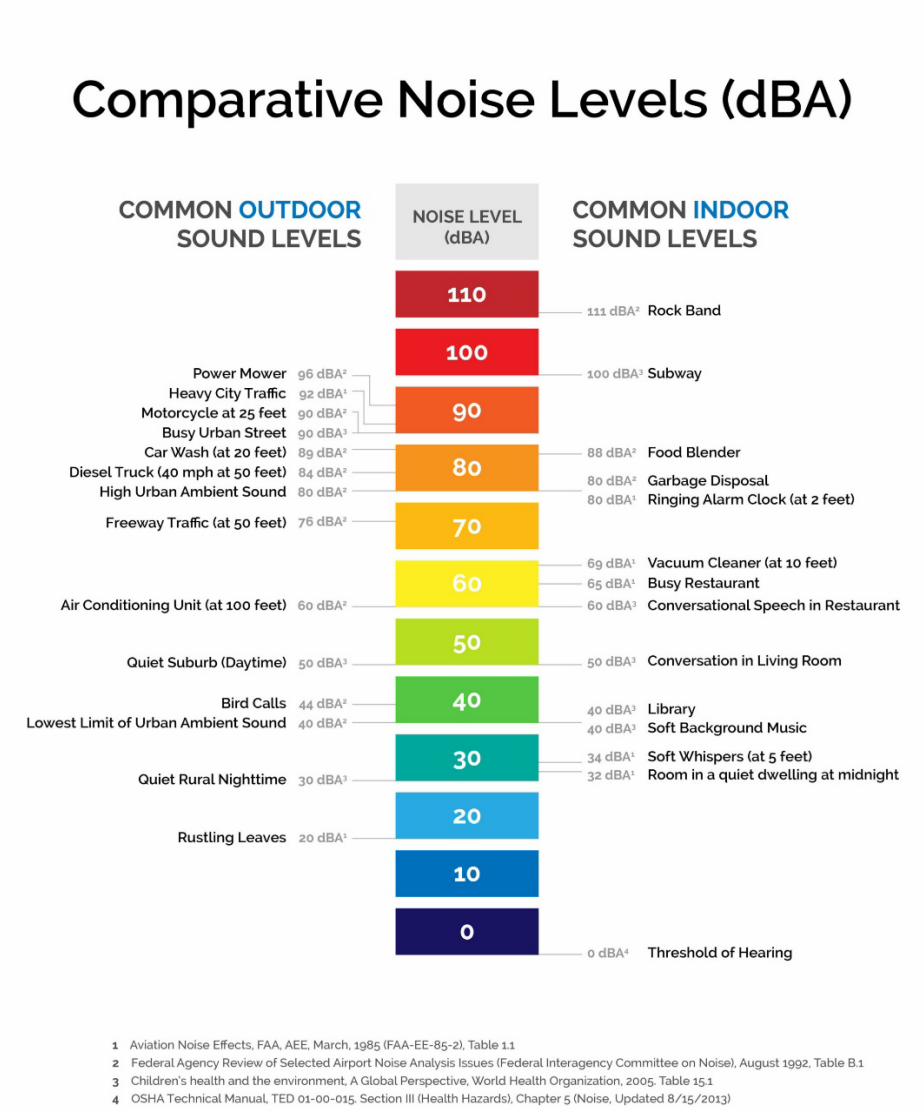

Image 5: Common Indoor and Outdoor Noise Levels

5.2.6.1 Description of Existing Noise Sources

According to the American National Standards Institute/Acoustical Society of America S12.9-2013/Part 3, rural residential areas have a typical day/night average sound level of less than 45 dB.[33] Existing sources of background noise in the Project vicinity include the SMMPA-Maple Leaf Substation, traffic on U.S. Highway 14 and local roads, DME Rail, farming equipment/operations, wind, vehicle traffic, and birdsong. The SMMPA-Maple Leaf Substation is immediately west of the Project Area, U.S. Highway 14 and a railroad are immediately south of the Project Area, and there are county roads near the Project Area to the north, with average daily traffic as described in **Section 5.2.7.1**.

[33] American National Standards Institute/Acoustical Society of America. 2013. S12.9-2013/Part 3 (available at https://dis.puc.state.oh.us/ViewDocument.aspx?DocID=cf574aa4-a15a-4cf1-b329-09b771c8d810&No=3)

In Minnesota, noise standards are based on *noise area classifications* (NAC) corresponding to the location of the listener, referred to as a receptor. NACs are assigned to areas based on the type of land use activity occurring at that location. Household units, designated camping and picnicking areas, resorts and group camps are assigned to NAC 1; recreational activities (except designated camping and picnicking areas) and parks are assigned to NAC 2; agricultural and related activities are assigned to NAC 3. A complete list is available at Minnesota Rule 7030.0050.

Noise standards are expressed as a range of permissible dBA over a one-hour period. L_{10} may be exceeded 10 percent of the time, or six minutes per hour, while L_{50} may be exceeded 50 percent of the time, or 30 minutes per hour. Standards vary between daytime and nighttime hours. There is no limit to the maximum loudness of a noise. **Table 5.2.3** provides current Minnesota noise standards.

Table 5.2-3: Minnesota Noise Standards

Noise Area Classification	**Daytime Limit (dBA) (7:00 a.m. to 10:00 p.m.)**		**Nighttime Limit (dBA) (10:00 p.m. to 7:00 a.m.)**	
	L_{10}	L_{50}	L_{10}	L_{50}
1	65	60	55	50
2	70	65	70	65
3	80	75	80	75
Note: There is no noise standards set for NAC 4 which includes undeveloped and unused land.[34]				

Noise modeling is most accurate predicting L_{eq} levels, which is the overall average of a measurement period. L_{10} levels are, on average, three dBA above L_{eq}, while L_{50} values are lower than L_{eq}. Thus, modeled L_{eq} can be compared to the L_{50} limits to ensure full compliance and conservatism. The use of L_{50} limits is appropriate for a BESS facility based on the continuous operation of the facility when active. The visual relationship between the L_{eq}, L_{10}, and L_{50} metrics is shown on **Image 6**.[35]

[34] MPCA. 2015. A Guide to Noise Control in Minnesota (available at https://www.pca.state.mn.us/sites/default/files/p-gen6-01.pdf)

[35] Federal Highway Administration. 2017. Sound Level Descriptors (available at https://www.fhwa.dot.gov/environment/noise/resources/fhwahep17053.pdf)

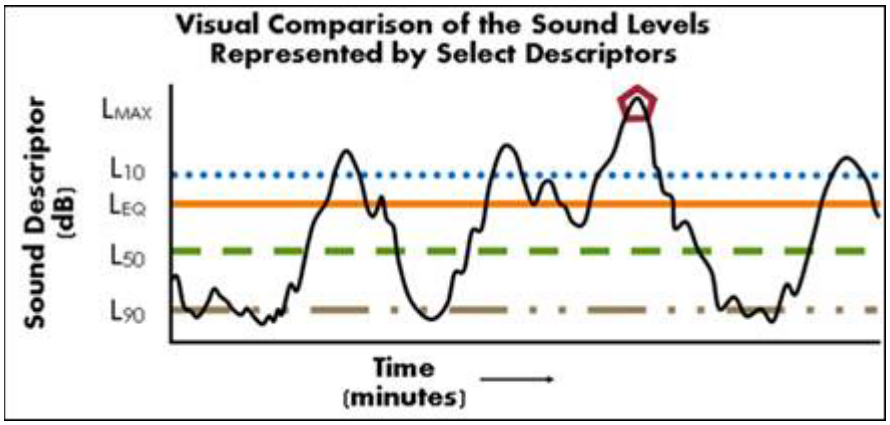

Image 6: Comparison of Sound Level Metrics[36]

5.2.6.2 Projected Operational Sound Levels

Potential noise sensitive receptors/areas (NSAs) near to the Project (i.e., within 3,200 feet) consist of rural residential homes. Households are classified under NAC-1 per Minn. R. Chapter 7030.0050, subp. 2.

Nineteen NSAs were identified from recent aerial photography within 3,200 feet of the Project Area, which were categorized by distance from the Project Area, shown in **Table 5.2-4** below.

Table 5.2-4: NSA Distance Distribution

Distance from Project Area	# of NSAs
<800'	0
800' - 1600'	5
1600' - 3200'	14

The primary noise sources with the Project include the power transformer in the substation, inverters, and the cooling system in the cabinets. These systems generate noise during active system operation or power transfer into and out of the BESS. Project noise levels were predicted using CADNA-A, a noise modeling software in conformance with International Organization for Standardization 9613-2, Attenuation of Sound During Propagation Outdoors – Part 2: General method of calculation. Continuous operation was assumed to represent the variable timing of BESS operation. As Minn. R. 7030 refers to total noise (ambient plus Project-generated noise), an ambient level of 45 dBA was assumed for conservatism and added to Project noise within the model. For modelling purposes, the BESS enclosures were modelled with a 90 dBA sound power level integrated BESS unit.

[36] Federal Highway Administration. 2017. Sound Level Descriptors (available at https://www.fhwa.dot.gov/environment/noise/resources/fhwahep17053.pdf).

Since BESS facilities potentially operate at all hours of the day, the modelling was done against the nighttime noise level limits as those are the most restrictive. Results of the modelling are shown in **Table 5.2-5** and predicts compliance with the nighttime limit of 50 dBA set forth for NAC-1 in Minn. R. Chapter 7030.

Table 5.2-5 Nighttime Modeling Results

Receptor ID	Project Noise (L_{eq} dBA)	Total Noise assuming 45 dBA ambient (L_{eq} dBA)
NSA-01	39.8	46.1
NSA-02	44.7	47.8
NSA-03	45.8	48.4
NSA-04	41.8	46.7
NSA-05	42.0	46.8
NSA-06	42.0	46.7
NSA-07	39.5	46.1
NSA-08	40.1	46.2
NSA-09	43.1	47.1
NSA-10	43.9	47.5
NSA-11	44.5	47.7
NSA-12	38.1	45.8
NSA-13	38.3	45.8
NSA-14	44.8	47.9
NSA-15	44.7	47.8
NSA-16	47.7	49.5
NSA-17	43.6	47.4
NSA-18	43.4	47.3
NSA-19	41.7	46.7

5.2.6.3 Impacts and Mitigation

As designed and as modelled with the 90 dBA sound power level integrated BESS enclosure unit, predicted nighttime noise levels do not exceed the nighttime limits of 50 dBA for NAC-1. As noted above, nighttime noise level limits are the most restrictive. The modeled noise for the Project complies with all noise regulations at the state level, and no mitigation measures are proposed.

The Project will create intermittent noise during construction, and the resulting noise impacts will be temporary. Additionally, Project construction noise will likely be similar to noise emitted from existing farm operations in the area and will vary from day to day. Snowshoe BESS will mitigate noise impacts by limiting construction to daytime hours to the extent practicable and ensuring that equipment/vehicles are operated with properly functioning mufflers and noise-control devices.

5.2.7 Public Services and Infrastructure

This section describes the public services and infrastructure in the vicinity and impacts the Project may have on public services. Public services are those typically provided by a government entity to its citizens and that are used to benefit public health and safety.

5.2.7.1 Transportation

The Project's southern boundary is adjacent to U.S. Highway 14, though no access to the Project Area is available from U.S. Highway 14. Other roads that surround the Project Area are county or township roads. The nearest local road is 14th Street Northwest, which is located approximately 0.25 mile to the north of the Project Area.

MnDOT conducts traffic counts on roads in Minnesota.[37] The functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day, or Annual Average Daily Traffic (AADT). Based on 2023 data, the highest existing AADT for roads near the Project is 25,067 vehicles per day along U.S. Highway 14; traffic volumes along county and township roads range from 359 to 3,600 vehicles per day. Traffic volume data for roads near the Project is provided in **Table 5.2-6**.

Table 5.2-6: Annual Average Daily Traffic in the Project Vicinity

Roadway	Year	AADT Traffic Volume Total
County State Aid Highway (CSAH) 3 *South of U.S. Highway 14*	2023	810
U.S. Highway 14 *West of Rochester and East of County Road 104*	2023	25,067
CSAH 44 *North of U.S. Highway 14*	2018	3,600
CSAH 44 *South of U.S. Highway 14*	2018	1,200
CR 156 *West of CSAH 44*	2023	359
7th Street NE *West of CSAH43*	2010	1,400

The anticipated access point to the Project will be off the existing SMMPA access road to the SMMPA-Maple Leaf Substation. One alternate access route is under consideration and would be constructed off 14th Street Northwest to the north (**Figure 2**).

[37] MnDOT. n.d.-b Traffic Mapping Application (available at https://mndot.maps.arcgis.com/apps/webappviewer/index.html?id=7b3be07daed84e7fa170a91059ce63bb) Accessed June 2024.

No railroads are located within the Project Area. The DME Rail is located adjacent to the Project's southern boundary, generally running east to west.[38] The Project is designed to avoid railroad property or ROWs.

5.2.7.2 Emergency Services

The Project is in rural Olmsted County which, according to the U.S. Census Bureau's QuickFacts website, has a population density of 249.2 persons per square mile of land area.[39] If emergency personnel were needed at the Project, multiple agencies would likely respond, depending on the situation. These include the Olmsted County Sheriff, city of Rochester police departments, and city and volunteer fire departments in Byron and Rochester—both of which are located within five miles of the Project.

Ambulance response is provided by regional and local ambulance services. The primary ambulance service for the Project Area is the Mayo Ambulance in Rochester.[40] Hospitals near the Project Area include Mayo Clinic Hospital and Olmsted Medical Center, which are both located in Rochester and are within 10 miles of the Project.[41]

5.2.7.3 Local Utilities

Most rural residences in Olmsted County are supplied water by wells (**Section 5.2.7.4**).[42] Sewage is serviced by residential septic tanks and/or drain fields. No wells or septic fields are present on the site based on Minnesota Department of Health records and landowner information.

5.2.7.4 Regional Utilities

The National Pipeline Mapping System (NPMS) was searched to assess whether pipelines are present in the Project Area and nearby vicinity.[43] PMS pipeline data consists of gas transmission pipelines and hazardous liquid pipelines jurisdictional to the Pipeline and Hazardous Materials Safety Administration. There are no pipelines within the site. The NPMS identified two pipelines within one mile of the Project. One hazardous liquid pipeline is mapped just west of the Project and one natural gas pipeline is mapped north of the Project.

---

38 MnDOT. 2022. Minnesota Rail Viewer Application (available at https://www.arcgis.com/apps/webappviewer/index.html?id=5640f575a86148039704660c29126f24&extent=-11690507.5359%2C5234420.4958%2C-9081864.6346%2C6507555.6389%2C102100) Accessed July 2024.

39 U.S. Census Bureau. 2020b. Olmsted County (available at https://www.census.gov/quickfacts/fact/table/olmstedcountyminnesota,US/PST045223) Accessed July 2024.

40 Minnesota Emergency Medical Services Regulatory Board. 2024. Ambulance Primary Service Areas for Minnesota (available at https://experience.arcgis.com/experience/a222fe7ceaf44f868ec3c0f5dafe8446#data_s=id%3AdataSource_2-187fc07a297-layer-2%3A1620)

41 MN Geospatial Commons. 2020. Hospitals Serving Minnesota (available at https://gisdata.mn.gov/dataset/health-facility-hospitals) Accessed July 2024.

42 Minnesota Department of Health (MDH). 2023. Source Water Protection Web Map Viewer (available at https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4) Accessed July 2024.

43 NPMS. 2024. Public Viewer (available at https://pvnpms.phmsa.dot.gov/PublicViewer/) Accessed June 2024.

No transmission lines are located within the Project Area. There are six transmission lines mapped within one mile of the Project, with four of these lines connecting to the SMMPA-Maple Leaf Substation just southwest of the Project Area.[44] Two of the lines connecting to the SMMPA-Maple Leaf Substation are 161 kV lines and travel generally east to west along U.S. Highway 14. The other two lines connecting to the SMMPA-Maple Leaf Substation travel generally north to south. The remaining lines within one mile of the Project are two 69 kV lines, with one line mapped along 14th Street Northwest travelling east to west and the other being a continuation of one of the lines connected to the SMMPA-Maple Leaf Substation travelling north (**Figure 2**).

5.2.7.5 Public Communications

Landline telephone service in the area is provided to farmsteads, rural residences, and businesses by Citizens Communications Company of Minnesota, Frontier Communications of Minnesota, and Qwest Corporation.[45] Mobile service in the area is provided by many carriers, including AT&T, T-Mobile, and Verizon. Cable service providers include Spectrum, Mediacom, and Hiawatha Broadband Communications. Other services that are operating in Olmsted County—such as fixed wireless, satellite, and DLS—include CenturyLink, Consolidated Communications, Frontier, HughesNet, KM Telecom, LTD Broadband, MiBroadband, Starlink, T-Mobile, Verizon, and Viasat.[46, 47]

5.2.7.6 Emergency Communications

Five towers are part of the Allied Radio Matrix for Emergency Response (ARMER) in Olmsted County. [48] These ARMER towers are a part of Minnesota's Statewide Communication Interoperability Plan, which aims to improve communication for emergency responders. The ARMER radio system operates by line of sight, talking to other ARMER towers. For the system to operate effectively, multiple towers are needed to produce a solid blanket of coverage. The system can be interrupted if tall objects are proposed within the line-of-sight, typically at or near the top of a tower over 150 feet tall. The nearest ARMER tower is over five miles east of the Project in Rochester.

---

44 Homeland Infrastructure Foundation Level Data. 2023. Transmission Lines (available at https://atlas.eia.gov/datasets/bd24d1a282c54428b024988d32578e59_0/explore?location=36.607804%2C-99.339062%2C12.36)

45 DOC. 2023. Minnesota Telephone Exchange Boundaries (available at https://minnesota.maps.arcgis.com/apps/OnePane/basicviewer/index.html?appid=a61fe43236994d43b097d439befb8e70)

46 MN DEED. 2023a. Minnesota Broadband Providers by County (available at https://mn.gov/deed/assets/providers-county_tcm1045-190762.pdf)

47 MN DEED. 2023b. The Minnesota Broadband Map (available at https://gis.connectednation.org/portal/apps/webappviewer/index.html?id=a2d243ccf7e547eba2ec0d5c80c80917) Accessed June 2024.

48 MnDOT. 2018. ARMER Sites. Map dated January 1, 2018 (available at https://dps.mn.gov/divisions/ecn/programs/armer/Documents/Armer%20Site%20Map/ARMER%20Site%20Map%202018-01-01.pdf)

5.2.7.7 Regional Landfill

The Kalmar Landfill serves Olmsted County as a location for mixed municipal solid waste, ash, and construction and demolition debris. The landfill is located approximately two miles north of the Project Area at 7401 19th Street NW, Rochester, MN 55901.[49] Details of landfill services and capacity are addressed in the Decommissioning Plan (**Appendix D**).

5.2.7.8 Impacts and Mitigative Measures

Transportation

Regional access to the Project from the east or west will be via existing U.S. Highway 14, county, and township roads to the existing SMMPA access road off 14th Street Northwest. Although final design for the Project is not complete, with the possible exception of minor field access or driveway changes no changes to existing roadways is anticipated. The roads used for access to the Project are illustrated in **Figure 2**. During the construction phase, temporary impacts are anticipated on some public roads within the vicinity of Project facilities—primarily through additional traffic and slow-moving construction vehicles. These impacts are expected to be short-term and minor.

Construction traffic will use the existing roadway system to access the Project facilities and deliver construction materials and personnel. Truck traffic during construction is estimated to be approximately five truck trips/day during site preparation, 15 truck trips/day during the BESS installation, and three truck trips/day during the mechanical/electrical/commissioning stage. Semi-truck delivery will vary per day depending on time of construction and delivery timeline of equipment. Overweight or oversized loads are unlikely. If they are required, Snowshoe BESS will obtain the appropriate approvals from state and local agencies prior to construction. It is anticipated that there will be an average of 30-50 workers on site during the construction period, with a maximum of 75 workers for limited periods. These workers will generate an average of 20-40 pickup or car trips/day based on limited ride share or carpooling (**Appendix H**).

For purposes of comparison, the functional capacity of a two-lane paved rural highway is in excess of 5,000 vehicles per day (AADT). The increased traffic may be perceptible to area residents, but the slight increase in volume is not expected to affect traffic function. Slow-moving construction vehicles may also cause delays on smaller roads, similar to the impact of farm equipment during planting or harvest. However, these delays should be minimal for the relatively short construction delivery period.

After construction is complete, traffic impacts during the operations phase of the Project will be negligible. A small maintenance crew driving through the area in pickup trucks on a regular basis will monitor and maintain the facilities as needed, but traffic function will not be impacted as a result.

[49] Olmsted County. n.d.-a. Kalmar Landfill (available at https://www.olmstedcounty.gov/residents/garbage-recycling/kalmar-landfill) Accessed June 2024.

No railroads are located within the Project Area and therefore will not be impacted. The Project is designed to avoid the DME Rail located along the southern boundary which will mitigate any potential impact.

Emergency Services

Construction and operation of the Project will have minimal impacts on the security and safety of the local populace. The Applicant will engage with local fire departments to address any concerns they may have about fire risks and to confirm mitigation measures for the same (see **Section 5.2.5.5**).

In general, BESS facilities are comprised of equipment that pose limited dangers under normal conditions of use by trained personnel. Industry best practices for safety will be implemented during the construction and operation of the Project.

Snowshoe BESS will work with local emergency responders including the Olmsted County Sheriff's office and Byron and Rochester volunteer fire departments to make sure they know how to respond to emergencies at the Project. An Emergency Response Plan will be prepared, in coordination with local emergency responders, prior to construction.

Additionally, construction will comply with local, state, and federal regulations regarding installation of the Project facilities and standard construction practices. Established industry safety procedures will be followed during and after construction of the Project; these include clear signage during all construction activities and fencing of all Project facilities to prevent public access.

Local and Regional Utilities

Snowshoe BESS will coordinate with Gopher State One Call before and during construction to fully understand infrastructure locations and safety concerns and to avoid possible structural conflicts. Snowshoe BESS will also conduct an American Land Title Association survey to identify the locations of underground utilities. Final Project design will minimize and avoid impacts to underground utilities; if conflicts are unavoidable, Snowshoe BESS will coordinate with the utility to develop an approach to reroute or otherwise protect the utility. Underground utilities will be marked prior to construction start. The Project will not impact existing utilities, such as transmission lines and substations; as such, no mitigation is proposed for these utilities. The construction process will not involve groundwater withdrawal or construction within the regional aquifer so no impacts to regional water wells will occur. Should an on-site well be installed, its use will be consistent with or less than typical residential pumping rates, which have not been shown to create any regional impacts.

Public Communications

The Project will not impact existing utilities, such as public communications; as such, no mitigation is proposed.

Emergency Communications

The nearest ARMER tower in the Project vicinity is over five miles east of the Project. The Project will not impact this communication system as Project facilities are proposed well below the typical height of a tower and line-of-sight near the top of these towers (i.e., greater than 150 feet above ground). Snowshoe BESS anticipates the tallest BESS enclosures to be up to 10 feet above ground. The tallest portion of the Project is anticipated to be an up to 90-foot-tall pole for construction of the Project Tap Line. All facilities are anticipated to be less than 150 feet in height; as such, no mitigation is necessary.

Regional Landfill

Construction waste and equipment packaging waste will be managed by the general contractor. It is expected that this material will be disposed or recycled at the Kalmar Landfill located less than 2 miles north of the Project Area. The waste volume typical equipment designed for this Project can easily be accommodated by this facility as part of its daily operation through use of roll-off containers or on-site receptacles.

Details on the decommissioning and recycling of the Project are addressed in the Decommissioning Plan (**Appendix D**).

5.2.8 Land Use and Zoning

The Project is sited within Kalmar Township in Olmsted County. Per Minn. Stat. § 216E.10, subd. 1, the Site Permit supersedes and preempts "all zoning, building, or land use rules, regulations, or ordinances promulgated by regional, county, local, and special purpose government." Thus, no zoning or land use permits are required for construction of the Project from Olmsted County or Kalmar Township, although the review by the Commission will take local land use ordinances and zoning into consideration. See **Section 1.4.2** (Local Discretionary Approvals) regarding the Site Permit and preemption of local permits and zoning.

5.2.8.1 Land Use and Land Cover

The Project is located within a rural area approximately one mile east of the city of Byron and approximately two miles west of Rochester. The current land use of the Project Area is agricultural.

As shown in **Table 5.5-9** and on **Figure 5**, the predominant land cover in the Project Area is cultivated herbaceous vegetation comprising about 98.3%, followed by deciduous shrubland (1.3%), 26% to 50% impervious cover with perennial grasses (0.3%), and medium tall grassland (0.2%). Most of the agricultural land in the Project Area is comprised of cultivated crops, such as corn and soybeans. The small areas of deciduous shrubland, 26% to 50% impervious cover with perennial grasses, and medium tall grasslands are associated with the line of trees on the south side of the Project Area and the grasses near the existing SMMPA-Maple Leaf Substation along the western portion of the Project Area. The Minnesota Land Cover Classification System (MLCCS)

incorporates more detailed land cover information, including human-modified cover classifications. Land cover acreages and percentages are listed in **Table 5.5-9** in **Section 5.5.6** (Vegetation).

Snowshoe BESS reviewed Olmsted County's *General Land Use Plan* (GLUP), during preparation of the Project design. The GLUP is meant to promote orderly development patterns that protect the environment, conserve resources, provide for community needs, and also serve as a guide that defines the community's vision of growth within Olmsted County.[50] The GLUP provides strong goals for sustainable growth and renewable development, and includes a planning principle to use the rural land areas for necessary utilities. The site and surrounding area are located in an area designated a Resource Protection Area by the Olmsted County General Land Use Plan. Resource Protection Areas are intended for agricultural, mineral extraction, or similar uses.[51]As feasible, Snowshoe BESS has designed the Project to be consistent with the goals and policies of the Resource Protection Area designation in the GLUP.

Olmsted County has adopted the *Multi-Hazard Mitigation Plan* and *Rochester Area Bicycle Master Plan*. The *Multi-Hazard Mitigation Plan* is put in place to assist with planning in the unincorporated areas of the county for potential hazardous events within Olmsted County, including tornadoes, flooding, wildfires, blizzards, straight-line winds, ice storms, and droughts.[52] The *Rochester Area Bicycle Master Plan* discusses expanding the bicycle trail network within and around Rochester.[53] Some of the potential trails extend toward the Project along U.S. Highway 14 but do not reach the planned Project location.

The *Rochester Comprehensive Plan* shows the Project within the Urban Reserve Area.[54] This area is meant for additional urbanization beyond planned near- and long-term urban expansion areas. Urbanization of the Urban Reserve Area is not meant to take place until adequate land area is used in the near- and long-term urban expansion areas.

These plans and their years adopted can be found in **Table 5.2-7** below.

---

50 Olmsted County. 2022. *General Land Use Plan* (available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf)

51 Olmsted County. 2022. General Land Use Plan (available at https://www.olmstedcounty.gov/sites/default/files/2023-01/GLUP2045Final.pdf);Olmsted Count future Land Use Map (2022) https://www.olmstedcounty.gov/sites/default/files/2020-10/Land%20Use%20Plan%20Map.pdf

52 Olmsted County. 2017. Multi-Hazard Mitigation Plan (available at https://www.olmstedcounty.gov/sites/default/files/2020-10/All%20Hazard%20Mitigation%20Plan.pdf)

53 Olmsted County. 2012. *Rochester Area Bicycle Master Plan* (available at https://www.olmstedcounty.gov/sites/default/files/2020-10/Olmsted%20Rochester%20Bicycle%20Master%20Plan.pdf)

54 City of Rochester. 2018. Rochester Comprehensive Plan 2042 (available at chrome-extension://efaidnbmnnnibpcajpcglclefindmkaj/https://www.rochestermn.gov/home/showpublisheddocument/24222/636903969909230000)

Table 5.2-7: Comprehensive Plans Covering the Project Area and Surrounding Region

Comprehensive Plan	Governing Body Responsible for Plan	Year Adopted
Olmsted County General Land Use Plan	Olmsted County	2022
Multi-Hazard Mitigation Plan	Olmsted County	2017
Rochester Area Bicycle Master Plan	Olmsted County/Rochester-Olmsted Planning Department	2012
Rochester Comprehensive Plan	Rochester, MN	2018

5.2.8.2 Zoning

Zoning laws are enacted to implement land use plans and goals. The Olmsted County Zoning Ordinance established the Kalmar Special District to recognize the administration of Kalmar Township zoning regulations and to avoid duplication of Olmsted County land use regulations.[55] According to the Cooperative Agreement provided in the Olmsted County Zoning Ordinance, Kalmar Township is responsible for administering Olmsted County land use and zoning requirements for uses identified within the Kalmar Township Zoning Ordinance. Olmsted County is responsible for administering "provisions of the Olmsted County Zoning Ordinance covering uses not identified in the Township Zoning Ordinance as subject to Township jurisdiction."[56]

The Olmsted County Zoning Map shows the Project within the Rochester Urban Reserve Area Beyond 2050.[57] Based on Olmsted County zoning data (which maintains the zoning map for Kalmar Township), the Project is zoned in the Agricultural Protection (A-1) Zoning District.[58] Neither Kalmar Township nor Olmsted County have regulations specific to BESS projects within their zoning ordinances. Accordingly, Snowshoe BESS applied the general structure setback requirements applicable to the area in which the Project will be located.

Snowshoe BESS has designed the Project to comply with the standards outlined in the Kalmar Township and Olmsted County Zoning Ordinances (**Table 4.2.1**).

5.2.8.3 Impacts and Mitigation

Because the Project is considered an ESS and is permitted by the Commission, no zoning or land use permits are required from Olmsted County or Kalmar Township. Snowshoe BESS sited and designed the Project, taking into account the county's land use goals, setbacks, in addition to state requirements as discussed in **Section 4.2.1**. Snowshoe BESS plans to continue coordinating with the local jurisdictions to ensure compliance with other potential permits necessary for the Project,

---

55 Olmsted County. 2023. Olmsted County Zoning Ordinance (available at https://www.olmstedcounty.gov/sites/default/files/2024-05/Chapter%201400%20Zoning%20Ordinance_2023_0.pdf)

56 Olmsted County Zoning Ordinance Section 8.2 (Art. 8 at 46).

57 Olmsted County. n.d.-b. Olmsted County MN GIS Web App (available at https://gweb01.co.olmsted.mn.us/WebApps/OlmstedCountyGISMap/) Accessed June 2024.

58 Olmsted County. n.d.-b. Olmsted County MN GIS Web App (available at https://gweb01.co.olmsted.mn.us/WebApps/OlmstedCountyGISMap/) Accessed June 2024.

such as road use or driveway permits. The Project's impacts to agricultural lands in Olmsted County are minimal and will have limited impact on the rural nature of the region.

The Project will change land use at the site for the operating life of the Project (anticipated to be 30 years). No permanent land use impacts are anticipated, since Snowshoe BESS will lease the site from the existing landowners and restore the site to agricultural land uses or any other appropriate land use as determined by the landowner upon decommissioning of the Project. Because no permanent land use impacts are anticipated, no additional mitigation measures are proposed.

5.2.9 Recreation

Regional outdoor recreation includes hiking, snowmobiling, biking, and hunting. These activities predominantly occur on public roadways, private lands, or informal private trails. Regional camping is limited near the site with nearby public campgrounds being 10-15 miles from the Project Area. There are no MnDNR SNAs, WMAs, state trails, state water trails, walk-in access program sites, Aquatic Management Areas, Fishery Management Areas, state parks, state forests, or migratory waterfowl feeding and resting areas within or adjacent to the Project Area (**Figure 6**). The closest WMA is the Moon Valley WMA approximately 4.4 miles northwest of the Project Area (**Figure 6**).[59]

The closest U.S. Fish & Wildlife Service (USFWS) waterfowl production area to the Project Area is the Dodge Center Creek waterfowl production area approximately 23.6 miles to the west.[60]

There are no mapped snowmobile trails within or adjacent to the Project Area; however, the Tiger Bear Trail snowmobile trail is mapped one mile west of the Project Area (**Figure 6**).

The nearest parks are Somerby Golf Club, located 2.1 miles west of the Project, and Valleyview Park, located 2.5 miles west of the Project.[61]

5.2.9.1 Impacts and Mitigative Measures

Signs and fencing will be constructed as needed to inform and protect the public from entering the Project. The construction phase may be a temporary visual, auditory, and aesthetic impact to some visitors and local residents. Once complete, the operation of the Project will not disturb and impact local recreation experiences. Because no public recreational lands or opportunities are located within or adjacent to the Project Area or within 0.25 mile of the Project Area, no impacts are anticipated; and as such, no mitigation is proposed.

---

59 MNDNR. n.d.-c Recreation Compass (available https://www.dnr.state.mn.us/maps/compass.html) Accessed June 2024.

60 MNDNR. n.d.-d. Map Viewer: USFWS Waterfowl Production Areas (available at https://arcgis.dnr.state.mn.us/portal/apps/mapviewer/index.html?layers=6de3eb66e7e2494ebe3669a29f22ad42) Accessed June 2024.

61 City of Byron. n.d. Parks (available at https://www.byronmn.com/parks) Accessed June 2024.

5.2.10 Socioeconomics

Socioeconomic information for the Project Area is based on data from the U.S. Census Bureau's Explore Census Data website. The U.S. Census website provides a wide variety of data points. The discussion herein does not address every socioeconomic measure, but instead addresses the most applicable statistics related to the Project. The socioeconomic statistics that best characterize the demographic and economic context of the Project Area and represent the socioeconomic characteristics that potentially could be affected by construction and operation of the Project include total population, vacant housing units, per capita income, percentage of the population below poverty level, and unemployment rate (**Table 5.2-8**).

Table 5.2-8: Socioeconomic Characteristics

State/County	Total Population	Total Vacant Housing Units	Median Household Income	Persons Living Below the Poverty Level (%)	Unemployment Rate (%)
Minnesota	5,706,494	231,568	82,338	9.6	3.2
Olmsted County	162,847	4,028	86,976	9.6	3.6
Kalmar Twp	1,117	24	148,000	2.1	1.1

The Project is in a rural unincorporated area within Kalmar Township. Byron, which is one mile to the west of the Project is the nearest city. The nearest larger city is Rochester, which is approximately 2.1 miles east of the Project.

The median household income of Kalmar Township is $148,000., higher than that of Olmsted County ($86,976,) or Minnesota ($82,338).

Kalmar Township has a lower portion of its population living in poverty (2.1%) than either Olmsted County or Minnesota (9.6 %).[62]

The unemployment rate in Olmsted County (3.6%) is slightly higher than the state average of 3.2%, with Kalmar Township having a significantly lower unemployment rate at 1.1%. The primary industries in Olmsted County are classified as:

1. Educational services, healthcare, and social assistance (46.7%),
2. Retail trade (9.2%), and
3. Professional, scientific, and management, and administrative and waste management services (8.0%).[63]

Approximately 4,028 vacant housing units exist in Olmsted County and 24 vacant housing units in Kalmar Township. In the nearest metropolitan area, Rochester, there are approximately 3,306

[62] U.S. Census Bureau. 2020c. Explore Census Data (available at https://data.census.gov/) Accessed June 2024.
[63] U.S. Census Bureau. 2022. Selected Economic Characteristics. 2022: ACS 5-Year Estimates Data Profiles, Table DP03 (available at https://data.census.gov/table/ACSDP5Y2022.DP03?g=050XX00US27109) Accessed June 2024.

vacant housing units.[64] According to the Experience Rochester MN website, 50 hotels and motels and three campground/recreational vehicle lots with over 120 lots are available in the Rochester area.[65]

5.2.10.1Impacts and Mitigative Measures

The Project will provide socioeconomic benefits to the landowner, local governments, and communities. Landowner compensation is established by a voluntary lease [and easement] agreement between the landowner and Snowshoe BESS.

Construction of the Project would provide temporary increases to the revenue of the surrounding region through increased demand for lodging, food services, fuel, transportation, and general supplies. Snowshoe BESS will use local contractors and suppliers for portions of the construction process, as available. Snowshoe BESS will issue a contract to a qualified EPC contractor to oversee and manage the construction of the Project. Snowshoe BESS will work with the selected EPC contractor to develop a workforce and hiring plan that provides employment opportunities for the local workforce. In addition, the Project should provide subcontracting opportunity to local contractors for construction support services, gravel supply, clean fill, and other civil works. Additional personal income will also be generated by circulation and recirculation of dollars paid out by the Project as business expenditures and state and local taxes.

Specialized labor will be required for certain aspects of the Project. It may be necessary to bring specialized labor from other areas of Minnesota or neighboring states because the relatively short construction duration often precludes special training of local or regional labor. The workforce needed to construct a BESS facility must be comprised of Minnesota licensed electricians because most of the assembly and wiring work for BESS installations is considered electrical work under the Minnesota State Electrical Code.

Effects on temporary or permanent housing are anticipated to be negligible. During construction, out-of-town laborers will likely utilize some of the previously mentioned lodging facilities in the surrounding area. More permanent housing will be required for the one to two long-term personnel that will manage the Project on a regular basis. The residence and temporary housing statistics suggest the local area has ample amounts of accommodations for influx of construction workers, if needed and Snowshoe BESS anticipates that sufficient temporary lodging and permanent housing will be available within Olmsted County to accommodate construction laborers and long-term personnel.

Snowshoe BESS will pay wages, and purchase goods and services from local businesses and landowners during the Project's construction and operation. While the project does not create tax revenue through a production tax, the Project is estimated to provide property tax payments to

[64] U.S. Census Bureau. 2020c. Explore Census Data (available at https://data.census.gov/) Accessed June 2024.
[65] Experience Rochester, Minnesota. 2024. Places to Stay (available at https://www.experiencerochestermn.com/places-to-stay/) Accessed June 2024.

Olmsted County of approximately $17,745 annually over the 20-year lease term for a total of approximately $355,000. Additionally, Kalmar Township is estimated to receive approximately $944 annually over the 20-year lease term for a total of approximately $19,000. In addition, lease payments paid to the landowners will offset potential financial losses associated with removing a portion of their land from agricultural production.

The socioeconomic impacts associated with the Project will be positive; therefore, no mitigative measures are proposed.

5.3 Land-Based Economies

5.3.1 Agriculture

According to the USDA's 2022 Census of Agriculture, approximately 308,004 acres of land in Olmsted County is comprised of farms, including 258,221 acres of cropland (83.8), 12,289 acres of pastureland (4.0%), and 17,829 acres of woodland. A total of 1,102 individual farms are located in Olmsted County, with the average farm size at 279 acres.

Olmsted County ranks Sixth in the state for total agricultural production and fifth in crop production. In 2022, the top three crops (in acres) in Olmsted County included corn (for grain), soybeans (for beans), and forage (hay and haylage). Cattle and calves topped the list of livestock inventory, followed by hogs and pigs, and cattle and calves. The total market value of agricultural products sold in Olmsted County was approximately $337 million, including $226 million for crops and $111 million for livestock, poultry, and products.[66]

No drain tile was identified from public data or landowner interviews, making it unlikely that any drain tile exists in the Project Area. Any drain tile that is discovered by Snowshoe BESS will be evaluated and recorded accordingly. When drained, up to 13.5 acres of prime farmland exists on within the Project Area.

5.3.1.1 Impacts and Mitigative Measures

The Project will impact approximately 23 acres of agricultural land within the Preliminary Development Area (**Figure 2**) during its operating life and will not result in a significant impact to land-based economies in the Project vicinity as Preliminary Development Area occupies less than 0.01% of the cropland in Olmsted County (258,221 acres). Agricultural production would continue in the surrounding areas during construction and operation of the Project. The Project will not impact livestock operations.

[66] USDA. 2022. Census of Agriculture. Olmsted County Profile (available at https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Minnesota/cp27109.pdf).

Payments will be made by Snowshoe BESS to the owners of the land used for the Project, as provided in the applicable lease and easement agreements. These payments are intended to replace the revenue that would have been generated if the landowner continued agricultural production.

No drain tile or drainage infrastructure are located within the Project Area. The Applicant is committed to preserving existing soil drainage conditions as much as possible to minimize impacts or damage to unidentified drain tile lines and/or drain tile systems.

Land disturbed during construction will be repaired and restored to pre-construction contours and characteristics to the extent practicable. Restoration will allow the Project's land surfaces to drain properly, blend with the natural terrain, re-vegetate, and minimize erosion.

Measures to mitigate topsoil removal include limiting removal to areas designated for grading and construction of roads and permanent structures. Impacts to soils will be mitigated by incorporating sediment and erosion control measures during and following construction. Construction activities will incorporate erosion and sediment control BMPs outlined in the SWPPP, which will be specifically prepared for the Project. The SWPPP will include a discussion on topsoil and compaction management. During the operating life of the Project, erosion control will be primarily accomplished through establishment of a perennial vegetative cover in non-gravel areas of the Project Development Area not returned to agricultural use, installation of gravel roads with culverts (as necessary) to redirect concentrated surface water and management of surface water runoff in on-site ponds. These actions will preserve the soils in place and will likely result in less soil erosion than is typical with row crop agricultural activities. Snowshoe BESS will implement BMPs during construction and operation to reduce and mitigate any potential impacts from soil disturbances. Snowshoe BESS will implement vegetation management during construction and post-construction operations in accordance with BMPs and measures listed in the VMP (**Appendix C**).

5.3.2 Forestry

Economically important forestry resources are not found in this region of Minnesota. The Preliminary Development Area is located solely on agricultural land (**Figures 2** and **5)** and there are no resources within the Project Area that are considered to be forestry resources for commercial use. The primary tree cover along the southern boundary of the Project Area is comprised of buffers and wind breaks to the railroad and U.S. Highway 14 and will not be disturbed as part of Project construction or operations.

5.3.2.1 Impacts and Mitigative Measures

No impacts to economically important forestry resources will occur from construction or operation of the Project; therefore, no mitigation measures are proposed.

5.3.3 Mining

According to the MnDOT Aggregate Source Information System Map, there are no quarries or gravel pits located within or adjacent to the Project Area. Regional mining is minimal, with only a few small mines or pits associated with aggregate extraction or storage.[67]

5.3.3.1 Impacts and Mitigative Measures

No impacts to mining operations are anticipated; therefore, no mitigation measures are proposed.

5.3.4 Tourism

Tourism in the vicinity of the Project centers around various festivals and activities hosted by the county and cities near the Project, such as Byron and Rochester, and outdoor recreational opportunities described in **Section 5.2.9**. There are several medical facilities, mainly branches of Olmsted Medical Center and Mayo Clinic, in Rochester to provide general care, urgent care, or specialized treatment.

The city of Byron has several city parks that host a variety of activities, such as baseball and soccer, ice skating, playgrounds, and picnicking. Byron also hosts the Byron Good Neighbor Days, which is a multi-day event for community celebration involving fireworks and other recreational activities.[68] Other outdoor recreation opportunities include golfing at the Somerby Golf Club northeast of the city.

In Rochester, several parks and trails can be found that host similar activities to Byron while also including volleyball, community gardens, disc golf, and paved and unpaved walking trails. Winter and other sport complexes host organized activities throughout certain times of the year, and three municipal golf courses are also a part of the outdoor recreation opportunities available to the public. Rochester also hosts musicians during their Riverside Music Series—a series of free outdoor concerts in Mayo Park—and the county fair located in the southern half of the city.[69]

Olmsted County has parks located within cities and in rural areas that provide opportunities for fishing, swimming, controlled hunting, picnicking, snowshoeing and Nordic skiing, and camping. The county lists the camping season for 2024 from the beginning of May to mid-October. Oxbow Park includes a local zoo housing over 30 species of wild animals native to Minnesota and displays them to the public.[70]

---

67 MnDOT. 2023. Aggregate Source Information System Map (available at https://www.dot.state.mn.us/materials/asis_GE.html) Accessed June 2024.

68 City of Byron. n.d. Parks (available athttps://www.byronmn.com/parks) Accessed June 2024.

69 City of Rochester. n.d. Rochester Public Music: Events (available at https://www.rochestermn.gov/home) Accessed June 2024.

70 Olmsted County. n.d.-c. Parks & Recreation (available at https://www.olmstedcounty.gov/) Accessed June 2024.

In 2022, Olmsted County generated approximately $5.64 million in gross sales and employed 8,997 individuals in the leisure and hospitality industry. .[71]

5.3.4.1 Impacts and Mitigative Measures

Project facilities will be located on private land, and with no recreational features within or adjacent to the Project, there will be no direct impacts to existing recreational facilities and tourism activities that typically generate revenue for the local community.

Snowshoe BESS will construct the Project facilities within the limits of the Project Area. No road closures are anticipated during active construction. Snowshoe BESS will closely coordinate construction activities with the cities, the township, and the county if any closures are determined necessary. Recreation opportunities in the nearby area will be minimally affected by the construction of the Project and will not be impacted by Project operation. The annual events hosted by the county do not occur within the Project Area; most of these events are held within the city limits of Rochester or Byron. No impacts to public access to these events are anticipated during construction or operation of the Project. Noise effects on public events are also not anticipated to result from the proposed Project.

5.4 Archaeological and Historical Resources

Snowshoe BESS has evaluated potential Project effects on archaeological and historical resources using desktop review, file searches, and field surveys. Field studies of the Project Area were completed on April 24, 2024. Additionally, Snowshoe BESS engaged cultural resource regulatory and tribal stakeholders to introduce the Project, request comments, and gain feedback as detailed in **Section 6.0** below (**Appendices B, F,** and **G**). As requested by the DOC, Snowshoe BESS sent a Project introduction letter and map to the Minnesota Tribal Nations requesting feedback on the Project. See **Section 6.0** for details and responses.

5.4.1 Phase Ia Literature Review

Snowshoe BESS performed a review of records for cultural resources on March 8, 2024. This review is provided in the Cultural Resources Literature Review dated May 13, 2024 (see **Appendix F**). This review included a request for Minnesota Statewide Historic Inventory Portal data from the Minnesota SHPO and a review of the online portal maintained by the Office of the State Archaeologist (OSA). The records review study area included the Project Area and a one-mile buffer.

A review of archaeological data indicated that no previously recorded archaeological sites had been identified within the Project Area or one-mile buffer. No historic/architectural resources were previously recorded in the Project Area. Three architectural resources have been previously

[71] Explore Minnesota. 2024. 2022 Leisure & Hospitality Industry Data (available at https://mn.gov/tourism-industry/assets/24-suitcase-sheet-couty-data_8.5x11_tcm1135-607260.pdf).

inventoried in the one-mile buffer (**Table 5.4-1**). None of the architectural resources have been evaluated for listing in the National Register of Historic Places (NRHP). A review of the NRHP dataset identified no NRHP properties within the Project Area or one-mile buffer.

Table 5.4-2: Historic/Architectural Resources

SHPO Inventory No.	Site	Location	NRHP Property?
OL-ROD-00001	Trunk Highway 14, Byron to Rochester	One-mile buffer	No
XX-ROD-00016	Trunk Highway/U.S. Highway 14	One-mile buffer	No
OL-KAL-00022	Farmstead	One-mile buffer	No

Snowshoe BESS is located in Minnesota Archaeological Region 3w – Southeast Riverine West. Very few Early Prehistoric components have been recorded within the region, primarily consisting of Paleoindian projectile points from surface collection. Intensive occupation occurs in the Woodland period. Large Woodland village sites are typically located along the Mississippi River and are relatively rare in the western section of the region where the Project is located. Late Prehistoric period sites are uncommon in the interior. Orr phase Oneota village sites located along a tributary of the Root River are the exception. During contact, Orr phase villages were occupied by Oto and Santee Dakota, with historic Santee villages established in the region.[72]

5.4.2 Phase I Field Survey

Archaeological field surveys for the Project Area were conducted on April 24, 2024, and are detailed in the May 13, 2024 *Phase I Archaeological Reconnaissance Survey* (**Appendix F**). No new or previously recorded archaeological, architectural, or historic sites were identified/reviewed during the survey. SHPO provided a comment letter dated July 5, 2024, recommending a Phase I archaeological survey. The Phase I Archaeological Reconnaissance Survey report was submitted to the SHPO for review. As of the date of this Application submission, no response has yet been received from SHPO. Snowshoe BESS will update the report as coordination with SHPO continues.

5.4.3 Impacts and Mitigative Measures

No previously recorded archaeological, architectural, or historic sites will be directly impacted by the proposed Project, and there are no known properties listed in the National or State Registers of Historic Places in the Project Area or within a one-mile buffer of the Project Area. Before construction of the Project begins, the Applicant will prepare an Unanticipated Discoveries Plan that will outline the steps to be taken if previously unrecorded cultural resources or human remains are encountered during construction. Should previously unknown archaeological resources be inadvertently encountered during Project construction and/or operation, work will stop, and the discovery will be examined by an archaeologist. If the discovery is determined to be a significant

[72] Gibbon, Guy E., Craig M. Johnson, and Elizabeth Hobbs. 2002. Chapter 3: Minnesota's Environment and Native American Culture History. In *Mn/Model Final Report Phases 1-3, Minnesota Department of Transportation*. SHPO Reference #95-4098 (available at https://www.dot.state.mn.us/mnmodel/P3FinalReport/chapter3.html#ch34).

cultural resource, SHPO and OSA will be notified. Should human remains be inadvertently discovered, Snowshoe BESS will cease all work, law enforcement will be immediately contacted, and the OSA will be notified.

5.5 Natural Environment

5.5.1 Air Quality

Minnesota has a good record of complying with federal air quality standards, and the state's air quality has been improving for most pollutants. Currently all areas of Minnesota are attainment areas except for an area in Dakota County.[73] Much of this decline in pollution is attributed to lowered emissions from major facility or "point sources" from enforcement of the Clean Air Act (CAA) and subsequent amendments. The CAA requires that the U.S. EPA establish National Ambient Air Quality Standards for various pollutants, including carbon monoxide (CO), lead, nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2). The Project Area presently meets federal air quality standards.[74]

In recent years, because of an increased understanding of the health effects of certain pollutants, air quality standards have become stricter, and acceptable thresholds for some pollutants have been lowered, including the daily fine particle standard, the ozone standard, and lead standards. According to the MPCA Air Quality in Minnesota: 2023 Report to the Legislature, a majority of sources that contribute the most to air pollution are transportation (e.g., traffic, airplanes, trains, and boats), permitted facilities (e.g., feedlots, solid waste, and hazardous waste facilities), and burning wood for home heating.[75]

In Minnesota, air quality is tracked using air quality monitoring stations across the state. The MPCA uses data from these monitors to calculate the Air Quality Index (AQI), on an hourly basis, for O_3, $PM_{2.5}$, SO_2, NO_2, and CO. The pollutant with the highest AQI value for a particular hour sets the overall AQI for that hour. The AQI is used to categorize the air quality of a region as one of five levels of quality: good, moderate, unhealthy for sensitive groups and unhealthy, or very unhealthy.[76]

The nearest air quality monitoring station is in Rochester, Minnesota, approximately 9.5 miles southeast of the Project. This station monitors for O_3 and $PM_{2.5}$. The five most recent annual AQI Days in each category at the Rochester monitoring station are provided in **Table 5.5-1**.[77]

---

73 EPA. 2024b. Minnesota Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (available at https://www3.epa.gov/airquality/greenbook/anayo_mn.html).

74 MPCA. 2024b. Minnesota Nonattainment/Maintenance Status for Each County by Year for All Criteria Pollutants (available at https://www3.epa.gov/airquality/greenbook/anayo_mn.html).

75 MPCA. 2023a. The air we breathe. The state of Minnesota's air quality in 2021. Report to the Legislature, January 2023 (available at https://www.lrl.mn.gov/docs/2022/mandated/221697.pdf).

76 MPCA. 2023b. 2024 Air Monitoring Network Plan for Minnesota, Appendix A: 2023 Air Monitoring Site Descriptions. June 2023 (available at https://www.pca.state.mn.us/air-water-land-climate/air-quality-monitoring).

77 MPCA. 2023c. Annual count of days in each AQI category (available at https://public.tableau.com/app/profile/mpca.data.services/viz/MinnesotaAirQualityIndex_0/AQIExternal).

Table 5.5-1: Days in Each Air Quality Index Category (Rochester, Minnesota)

Year	Good	Moderate	Unhealthy for Sensitive Groups	Unhealthy	Very Unhealthy
2022	314	44	1	0	0
2021	301	58	2	0	0
2020	325	40	1	0	0
2019	313	51	0	0	0
2018	292	69	0	0	0

Air quality has been considered good for the majority of the past five reported years in Rochester. Since 2018, the largest number of days classified as moderate occurred in 2018, with a day or two in 2020, 2021, and 2022 where air quality was considered Unhealthy for Sensitive Groups. No days have been classified as unhealthy or very unhealthy in the past five years (2018–2022) of monitoring at the Rochester station.

5.5.1.1 Impacts and Mitigative Measures

Impacts on air quality from construction and operation of the Project would be low and primarily limited to the period of construction. Minor temporary effects on air quality are anticipated during construction of the proposed Project as a result of exhaust emissions from construction equipment and other vehicles, and from fugitive dust from wind erosion of temporarily exposed soils that becomes airborne during dry periods of construction activity (e.g., grading activities).

The magnitude of air emissions during construction is influenced by weather conditions and the type of construction activity. Exhaust emissions, primarily from diesel and other carbon-based fueled equipment, will vary with the phase of construction. Emissions from construction vehicles will be minimized by using modern equipment with lower emissions ratings and properly functioning exhaust systems. Construction of the Project will generate greenhouse gasses (GHG), such as carbon dioxide (CO_2), Refer to **Section 5.5.2** and **Appendix H** for more information on construction and operation GHG emissions estimates. **Appendix H** shows the estimated GHG emissions produced during construction and operation.

Adverse effects on the surrounding environment are expected to be negligible because of the short and intermittent nature of the emission and dust-producing construction phases. These effects will most likely be less than the historic emissions from farm machinery and fugitive dust produced during normal farming operation that would otherwise typically occur within and near the Project.

While some dust may be produced from use of planned gravel access roads from O&M vehicles, this emission is expected to be minimal, temporary, and infrequent throughout the year. Emissions generated by vehicles and equipment during operational activities will be further limited in duration and frequency from use of relatively few trucks, cars, and other related vehicles as part of O&M activities associated with the Project. Such impacts are relatively small in comparison to

other energy projects with significantly larger footprints (e.g., utility-scale solar). Energy storage sources, such as BESS, produce almost no GHGs during operation except for those related to O&M vehicle traffic.

Applicable BMPs will be used during construction and operation of the Project to minimize dust emissions. Additional BMPs will be implemented as part of the SWPPP (**Section 4.3.1**) which will also address emissions (e.g., reducing vehicle and equipment speed, maintaining equipment and exhaust/mufflers, etc.) Additional practices may include watering or treating haul and access roads and other exposed dust producing areas, containment of excavated material, protection of exposed soil, soil stabilization, and treatment stockpiles to control fugitive dust. The Applicant will obtain an NPDES Permit and prepare the required SWPPP, which will be developed prior to construction and implemented during construction, that will include BMPs to minimize to potential for fugitive dust.

Additionally, since agricultural operations at the Project will no longer occur during construction and operation of the facility, reduced particulate emissions, dust, and farm equipment exhaust would occur and further improve air quality at, and in the vicinity of, the Project Area. Following construction, the facility will not generate pollutant emissions during normal operation as batteries do not emit GHG.

5.5.2 Climate Change

5.5.2.1 GHG Emissions

GHGs are gases that warm the atmosphere and surface of the planet. The primary GHGs are CO_2, nitrous oxide, methane, sulfur hexafluoride, and hydrofluorocarbons and perfluorocarbons. GHGs come from a variety of sources, with fossil fuel combustion being responsible for most CO_2 emissions in Minnesota. The majority of fossil fuels used today generate electricity and fuel vehicles.[78]

Construction of the Project will result in short-term increases in GHGs from the combustion of fossil fuels utilized in construction equipment and vehicles. The Applicant prepared an emissions estimate for the Project during construction and operations based on data from projects in Minnesota, and Snowshoe BESS's experience developing BESS projects nationwide (**Appendix H**).[79] This estimate is based on the number and type of equipment, the days and duration, and the estimated fuel consumption to determine the total amount of gas and diesel fuel used during construction and operation of the Project. The calculations also include the annual emissions of the Project during operations, including on-site vehicle traffic and Project staff commuter traffic to and from the Project.

[78] MPCA and DOC. 2023. Greenhouse Gas Emissions in Minnesota, 2005-2020. Report to the Legislature. January 2023 (available at https://www.pca.state.mn.us/sites/default/files/lraq-2sy23.pdf).

[79] EPA. 2024c. Simplified GHG Emissions Calculator (available at https://www.epa.gov/climateleadership/simplified-ghg-emissions-calculator) Accessed July 2024.

5.5.2.2 Existing and Projected Future Climate Conditions

Data on historic and projected future temperature and precipitation were obtained from the MnDNR Climate Explorer tool[80] for Olmsted County. Climate variables reviewed included average annual temperature and annual precipitation indices using data from 1895-2024. Some of the climate projections summarized below use Representative Concentration Pathways (RCPs), which are GHG scenarios used by the Intergovernmental Panel on Climate Change. RCP 4.5 is an intermediate scenario in which emissions decline after peaking around 2040, and RCP 8.5 is a worst-case scenario in which emissions continue to rise through the 21st century.[81]

Temperature

The mean temperature in the county between 1895-2024 was approximately 53.95°F, with the lowest average temperature in 1917 (49.72°F) and the highest average temperatures in 1931 (59.83°F) and 2012 (59.3°F). The model estimated the average annual temperature increased by 0.07°F per decade.[82]

The average annual temperature in Olmsted County is projected to continue to rise in the foreseeable future. In 2040-2059, the average annual temperature under the intermediate scenario (RCP 4.5) is projected to be 48.01°F.[83]

Lithium-ion BESS batteries and systems operate in an optimal temperature range, which varies slightly by model. External environmental and climatic conditions are accounted for by including temperature moderation systems, such as liquid and/or air cooling or natural convection, that regulate heat within the BESS enclosure.[84] Given the temperature ranges in the Project Area, an appropriate temperature moderation system will be installed in the enclosures to ensure consistent and efficient operation of the batteries. Similarly, the exterior and foundation components of the BESS enclosures will be selected to withstand the current and anticipated environmental conditions of the region where the Project is located.

Precipitation

The mean precipitation over this same 129-year period was 31.47 inches annually, with the lowest precipitation in 1910 (13.4 inches) and the highest precipitation in 2019 (50.77 inches). On average, precipitation has increased by 0.54 inch per decade.[85]

---

80 MNDNR. 2024a. Minnesota Climate Trends (available at https://arcgis.dnr.state.mn.us/ewr/climatetrends/) Accessed June 2024.

81 MNDNR. 2021a. Minnesota Climate Explorer Metadata (available at https://www.dnr.state.mn.us/climate/climate-explorer-metadata.html).

82 MNDNR. 2024b. Minnesota Climate Explorer (available at https://arcgis.dnr.state.mn.us/climateexplorer/main/historical) Accessed July 2024.

83 MNDNR. 2024b. Minnesota Climate Explorer (available at https://arcgis.dnr.state.mn.us/climateexplorer/main/historical) Accessed July 2024.

84 Mdachi, N.K. and C. Choong-Koo. 2024. Comparative review of Thermal Management Systems for BESS. *Batteries* 10(7), 224 (available at https://doi.org/10.3390/batteries10070224).

85 MNDNR. 2024b. Minnesota Climate Explorer (available at https://arcgis.dnr.state.mn.us/climateexplorer/main/historical) Accessed July 2024.

The average annual precipitation in Olmsted County is projected to continue to rise in the foreseeable future. In 2040–2059, the mean precipitation under RCP 4.5 is projected to be 33.90 inches.

The models generally predict that the Project Area will see more precipitation and warmer average, maximum, and minimum temperatures (**Table 5.5-2**). The mid-century (2040–2059) calculation is more relevant to the Project, given the 30-year operational life of the Project. The late-century (2080-2099) calculations are more relevant to the Project if repowered after the 35-year expected life.

Table 5.5-2: Historic and Projected Future Temperature and Precipitation Levels for Olmsted County, Minnesota

Modeled Timeframes for Olmsted County*	Average Temperature Mean (°F)	Minimum Temperature Mean (°F)	Maximum Temperature Mean (°F)	Precipitation Mean (in)
1895-2024	53.95	49.72	58.83	31.47
2040–2059 Mid-Century (RCP 4.5)	48.01	44.76	51.61	32.77
2080–2099 Late-Century (RCP 4.5)	50.32	46.69	54.01	34.39
2080–2099 Late-Century (RCP 8.5)	53.94	50.89	56.89	36.38
* The projected future temperatures and precipitation are based on January – December, Mean Model.				

Flooding

Snowshoe BESS used First Street Enterprise's "The Risk Factor: Flood Factor" tool (flood tool) to identify potential flooding risks in the Project Area over the next 30 years. The flood tool is based on a model that determines risk from all major types of flooding, including high-intensity rainfall, overflowing rivers, and streams. According to the model, the city of Byron has a low risk of flooding, and the city of Rochester has a moderate risk of flooding.[86] There is not a data point within the Project Area, but a point at the SMMPA-Maple Leaf substation indicates a minimal flood hazard.

Other Climate Conditions

The BESS enclosures selected for the Project will be designed to withstand wind, flood, blizzard, and hail events. BESS systems can help offset power loss during extreme weather by dispersing stored power while energy producing facilities are down. BESS has demonstrated this important function specifically in Texas during extreme winter storms when BESS facilities withstood the extreme conditions and continued to provide power into the grid. It has been reported that during the January 2024 winter freeze, BESS units saved an estimated $750 million in day-ahead market costs by fulfilling essential ancillary services and freeing up to 3GW of gas generation to meet critical energy needs and reduce prices. Throughout the summer and especially on September 6th, 2023, amid extreme summer heat and surging power demand, batteries kept the lights on and

[86] First Street Foundation. 2024. Risk Factor: Flood Factor Map (available at https://riskfactor.com/city/byron-mn/2709154_fsid/flood/maps#community-risk) Accessed June 2024.

averted an emergency load-shedding event by dispatching a peak of 2GW of power when ERCOT reserves were lowest.[87]

The EPA Climate Resilience Evaluation and Awareness Tool Climate Scenarios Projection anticipates an increase in 100-year storm intensity of 3.1%–13.3% in 2035 and 6.0%–25.8% in 2060 for the Project Area.[88] This indicates that the Project Area may see more intense storms in the future.

5.5.2.3 Impact of Climate Change on Project

According to the MnDNR, Minnesota's climate is already changing rapidly and will continue to do so for the foreseeable future. Temperatures are increasing, and larger, more frequent, extreme precipitation events are occurring. Future decades will bring even warmer winters and nights, and even larger rainfalls, along with the likelihood of increased summer heat and the potential for longer dry spells.[89]

The preliminary design of the Project has accounted for current and expected future climate conditions in the Project Area. The BESS and related facilities will be able to withstand potential weather events that would reasonably be expected to occur at the Project Area. Snowshoe BESS will purchase equipment designed to ensure the highest level of operability reliability across the range of anticipated environmental conditions for the lifetime of the Project such as temperature, precipitation, wind, mechanical loading, etc.

The stormwater collection basins installed at the Project will be sized appropriately and will meet state and county requirements for reducing runoff rates and providing the required treatment. Moderate grading and the use of swales and diversion berms may also be used to prevent flooding of infrastructure and route water to the proposed basins. The existing drainage patterns will be maintained, and the increase in perennial vegetation within the Project is expected to maintain the uptake of water on-site and slow and reduce runoff.

The structural, civil, and electrical works will comply with all applicable local and state building codes, in addition to codes and standards set by national standards-developing organizations. The preliminary design safety factor used on snow and wind loads (to de-risk extreme weather events) will be based on recommendations from these standards. Similarly, the final system components and pad sizes and depths will meet building codes for wind and snow loads.

---

87 Aurora Energy research. 2024. Role of Battery Energy Storage Systems (BESS) in the ERCOT Market (available at https://auroraer.com/media/new-report-from-aurora-energy-research-finds-that-battery-storage-facilities-saved-texas-grid-over-750-million-during-peak-demand-days-in-winter-2024/).

88 EPA. 2016. Climate Resilience Evaluation and Awareness Tool. V. 3.0 (Available at https://www.epa.gov/crwu/climate-resilience-evaluation-and-awareness-tool) Accessed July 2024.

89 MNDNR. 2024c. Minnesota Climate Trends (available at https://www.dnr.state.mn.us/climate/climate_change_info/climate-trends.html) Accessed July 2024.

5.5.2.4 Impact of Project on Climate Change

Minnesota has been taking more action against climate change. Executive Order 19-37 (Climate Change Executive Order), signed in December 2019, created the Governor's Advisory Council and the Climate Change Subcabinet to coordinate climate change mitigation and resilience strategies in the state of Minnesota. The subcabinet's 2020 Annual Report to the Governor describes climate change as an existential threat that impacts all Minnesotans and our ability to thrive. It also encourages state leaders and policy makers to consider equity in our state's response to climate change.[90]

The Next Generation Energy Act set statutory goals to reduce GHG emissions in the state by 80% between 2005 and 2025, while supporting clean energy, energy efficiency, and supplementing other renewable energy standards in Minnesota. Interim goals were also set: a 15% reduction by 2015 and a 30% reduction by 2025. Minnesota's GHG emissions declined 23% between 2005 and 2020. If current trends continue, the state is on track to meet the goal of reducing emissions 30% by 2025. Since 2005, emissions from the electricity generation sector have declined by 54%, mainly because of production of energy from renewable sources like wind and solar.[91]

BESS is critical infrastructure to support renewable energy utilization. Renewable energy sources, such as wind and solar reduce emissions by replacing emission producing energy sources. However, the full energy generation capacity of renewable energy production is not currently utilized because they produce more energy than is needed at times of the day when demand for energy is low, resulting in curtailment, the reduction of energy production of a wind or solar generating facility from what it could be producing.

BESS infrastructure can reduce curtailment of renewable generation resources and maximize renewable contributions to the grid. BESS allows for greater utilization of renewable energy sources by storing excess energy during peak production by wind and solar and releasing it back on to the grid during peak demand periods. This process reduces reliance on lower-efficiency, high-cost generation energy resources.

The Project will have other benefits as well, including:

- Reducing the need for and minimizing the proliferation of additional transmission infrastructure that would otherwise be required if new generating facilities would be needed to provide the demand and frequency benefits the Project is providing and
- Reducing emissions from agricultural activities (e.g., use of tractors and other farm implementation, decreased use of agricultural chemicals, etc.) on the 23-acre site during operation of the Project.

[90] MPCA. 2020. Annual Report to the Governor on the Climate Change Executive Order (available at https://climate.state.mn.us/sites/climate-action/files/2021-01/ClimateChangeSubcabinetReport_2020_cc-mn3-01.pdf).

[91] DOC and MPCA. 2023. Greenhouse Gas Emissions in Minnesota 2005- 2020. Report to the Legislature. January 2023. (available at https://www.pca.state.mn.us/sites/default/files/lraq-2sy23.pdf).

5.5.3 Geology and Groundwater Resources

Soils, underlying geologic bedrock formations, groundwater, and other hydrogeologic resource features of the Project Area were identified during desktop evaluations and included use of:

- Applicable Geographic Information System (GIS) layers (NRCS Soils of Olmsted County,[92] Minnesota County Well Index,[93] Karst Feature Mapping of Minnesota,[94] and U.S. Geologic Survey [USGS] Topographic Mapping);
- Public data sources including the Olmsted County Soil Survey[95] and the Olmsted County Geologic Atlas;[96] and
- Observations made during field studies conducted within the Project Area during 2024.

The following summarizes this information.

5.5.3.1 Geology

According to the County Geologic Atlas for Olmsted County, Minnesota,[97] Olmsted County's present land surface is the result of the actions of glacial ice and its flowing meltwaters. Surface materials are primarily glacial drift deposits. These deposits are composed mostly of glacial till, characterized by a matrix of sand, gravel, sandy loam to silt loam, with scattered inclusions ranging from pebbles to boulders.

The thickest Quaternary sediments in Olmsted County are within buried bedrock valleys in Salem, Kalmar, and Rock Dell Townships, where the depth to bedrock can be as much as 276 feet. Bedrock is at or within 25 feet of the land surface over the majority of the county. Within the Project Area, deposits over bedrock surfaces range in depth from less than 76 feet to over 150 feet deep. The bedrock underlying this glacial drift is Precambrian to upper Ordovician sedimentary rock consisting of limestones, shales, sandstone, siltstone, and carbonate. Bedrock in the county was deposited by advancing ice sheets, and later developed through faults and folding with further subsequent glacial deposition. The Minnesota Geological Survey Depth to Bedrock mapping indicates bedrock depths of 76 to 150 feet below ground level in the Project Area.[98]

---

92 Soil Survey Staff, USDA NRCS. 2019. Web Soil Survey, Olmsted County, Minnesota (available at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx) Accessed June 2024.

93 MDH. 2024. Minnesota Well Index. Version 2.1.2 (available at https://mnwellindex.web.health.state.mn.us/). Accessed June 2024.

94 MNDNR. 2022a (updated April 14, 2024). Karst Feature Inventory: Karst Features in Minnesota (available at https://arcgis.dnr.state.mn.us/portal/apps/webappviewer/index.html?id=9df792d8f86546f2aafc98b3e31adb62). Accessed June 2024.

95 Soil Survey Staff, USDA NRCS. 2019. Web Soil Survey, Olmsted County, Minnesota (available at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx). Accessed June 2024.

96 University of Minnesota. 2020. County Geological Atlas – Olmsted County Atlas, C-49, Part A – Geology. Minnesota Geological Society (available at https://cse.umn.edu/mgs/county-geologic-atlas#CGA-Map-Data-Library).

97 University of Minnesota. 2020. County Geological Atlas – Olmsted County Atlas, C-49, Part A – Geology. Minnesota Geological Society (available at https://cse.umn.edu/mgs/county-geologic-atlas#CGA-Map-Data-Library).

98 University of Minnesota. 2020. County Geological Atlas – Olmsted County Atlas, C-49, Part A – Geology. Minnesota Geological Society (available at https://cse.umn.edu/mgs/county-geologic-atlas#CGA-Map-Data-Library).

Karst features are formed primarily of limestone, make the topography "porous," and make the area's water resources more challenging to protect.[99] Contaminants can quickly find routes from the surface into groundwater. Petroleum and other chemicals leaking from underground storage tanks can quickly move into groundwater. Spilled manure in the Project region can cause fish kills many miles from the release point. Chemicals used on the landscape can reappear at unexpected times and in unexpected locations.

A desktop Geotechnical study was completed for the Project Area in January 2024. That report reviewed USGS information on Karst Hazard Potential in the United States. The risk for karst in the project vicinity is considered low. According to the University of Minnesota Department of Geology and Geophysics and the MnDNR Ecological and Water Resources Division's Karst Mapping,[100] susceptible geologic features, including sinkholes, shallow limestone formations, unconfined/shallow aquifers, or karst conditions are not present in the vicinity of the Project Area. The mapping tool indicates the nearest karst feature is located approximately three miles southeast of the Project Area, west of Rochester in a residential subdivision.

5.5.3.1.1. Impacts and Mitigative Measures

Due to the thickness of surficial materials of approximately 76 to 150 feet at the Project, excavation or blasting of bedrock is unlikely for the Project. Karst features have not been identified at the Project and are not anticipated to be a concern for the Project. Geotechnical soil borings will be completed by Snowshoe BESS as preliminary Project design and engineering advances; this information will be assessed for potential impacts to geologic resources. If any, impacts of the proposed Project to available geologic resources are likely to be limited; potential impacts on the integrity of Project facilities due to geology in and near the Project Area are low; and risk of groundwater contamination resulting from Project construction or karst is low. Therefore, no mitigative measures are proposed.

5.5.3.2 Groundwater

Minnesota is divided into six groundwater provinces based on bedrock and glacial geology. The aquifers within these provinces occur in two general geologic settings: (1) bedrock; and (2) unconsolidated sediments deposited by glaciers, streams, and lakes. The Project is located within Province 3 (Karst) and is underlain by productive bedrock aquifers; however, those closest to the land surface are often impacted by human activities. This province and region have good bedrock aquifers comprising thick, laterally extensive sequences of sandstone, siltstone, and limestone, as well as dolostone of sedimentary origin. Groundwater is present in bedrock joints, fractures, and pores.

---

99 MPCA. 2021b. Karst in Minnesota (available at https://www.pca.state.mn.us/water/karst-minnesota#:~:text=A%20feature%20of%20karst%20geography,and%20dramatic%20bluffs%20and%20valleys).

100 MNDNR. 2022a (updated April 14, 2024). Karst Feature Inventory: Karst Features in Minnesota (available at https://arcgis.dnr.state.mn.us/portal/apps/webappviewer/index.html?id=9df792d8f86546f2aafc98b3e31adb62). Accessed June 2024.

According to the County Geologic Atlas for Olmsted County, Minnesota,[101] Olmsted County's present land surface is the result of the actions of glacial ice and its flowing meltwaters. The three main aquifers or systems in Olmsted County are the Cambrian-Ordovician aquifer system, the Upper Carbonate aquifer, and the Maquoketa Confining Unit. Based on information from the USGS Ground Water Atlas,[102] the site is underlain by the Cambrian-Ordovician aquifer system. This aquifer system consists primarily of sandstone in the lower part and sandstone and shale interbedded with limestone or dolomite in the upper part. The dominant use of the water is for the public drinking supply and agriculture. The aquifer is recharged through downward movement of water from the overlying surficial aquifer system. Depth to the water table within the site ranges from 0–50 feet, with an average depth of 20–30 feet to the water table.[103]

The Minnesota Well Index Data indicates that most wells in the area draw from the St. Peter – Prairie du Chien - Jordan aquifer within the Cambrian-Ordovician aquifer system.[104]

Under the federal Safe Drinking Water Act each state is required to develop and implement a Wellhead Protection Program to identify the land and recharge areas contributing to public supply wells and prevent the contamination of drinking water supplies. The act was updated in 1986 with an amendment requiring the development of a broader-based Source Water Assessment Program, which includes the assessment of potential contamination to both groundwater and surface water through a watershed approach. A Wellhead Protection Area (WHPA) encompasses the area around a drinking water well where contaminants could enter and pollute the well.

Public and non-public community water supply source-water protection in Minnesota is administered by the MDH through the Wellhead Protection Program. WHPAs for public and community water-supply wells are delineated based on a zone of capture for 10-year groundwater time-of-travel to the well and are available through a database and mapping layer maintained by MDH. A search for WHPAs in the MDH Source Water Protection Web Map Viewer[105] indicated the site is not located within any WHPAs or Drinking Water Supply Management Areas (DWSMAs). In the vicinity of the Project, there are the 626.5-acre Byron DWSMA and WHPA (2.0 miles west of the Project Area), 14,540.8-acre Rochester Central DWSMA and WHPA (1.6 miles east of the Project Area), and 8,653.2-acre Rochester NW DWSMA and WHPA (2.4 miles northeast of the Project Area).

---

101 University of Minnesota. 2020. County Geological Atlas – Olmsted County Atlas, C-49, Part A – Geology. Minnesota Geological Society (available at https://cse.umn.edu/mgs/county-geologic-atlas#CGA-Map-Data-Library).

102 USGS. 2000. Ground Water Atlas of the United States. Series # 730 (available at DOI: https://doi.org/10.3133/ha730)

103 Natural Resources Research Institute. 2024. Minnesota Natural Resources Atlas, Water Table – Depth (available at https://mnatlas.org/gis-tool/?id=k_0279). Accessed July 2024.

104 MDH. 2024. Minnesota Well Index. Version 2.1.2 (available at https://mnwellindex.web.health.state.mn.us/). Accessed June 2024.

105 MDH. 2023. Source Water Protection Web Map Viewer (available at https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4). Accessed July 2024.

The MDH uses a vulnerability rating method in which points are assigned for conditions that represent a perceived risk to a well.[106] The evaluation includes each of the criteria noted below, where such information is available. Vulnerability assessments consider the following: geologic sensitivity, well construction, maintenance, and use. Higher point totals suggest relatively greater well vulnerability and vice versa. A numeric cutoff is used to categorize "vulnerable" from "nonvulnerable" wells. The Byron DWSMA is classified as low vulnerability by the MDH, while the Rochester NW and Rochester Central DWSMAs are classified as high vulnerability.

The MDH Well Index identified 64 wells within one mile of Project, with average depth to bedrock of 148 feet below ground surface. There are no wells within the Project Area.[107] Within the one-mile buffer, there are 17 active domestic wells, 1 sealed domestic well, 24 active monitor wells, 18 sealed monitor wells, 1 active commercial well, 1 active multiple dwelling well, 1 active 'other' well, and 1 well listed as 'unknown'. **Table 5.5-3** summarizes all the wells within one mile of the Project Area.

Table 5.5-3: MDH Well Index within One Mile of Project Area

Unique Well ID	Well Name	Well Elevation (feet/msl)	Well Depth (feet)	Depth to Bedrock (feet)	Well Installation Date	Casing Depth (feet)	Well Use/Status
1000010958	Dave Prigge	1215	253	unknown	unknown	unknown	Domestic/Active
447986	Olmsted Co P Wk MW-B-40D	1171	147	135	3/9/1987	132	Monitor Well/ Sealed
664357	B-114	1145	24.8	unknown	11/19/2001	14.8	Monitor Well/ Sealed
1000010591	Bernard Saletel	1125	150	unknown	unknown	unknown	Domestic/Active
664360	B-117	1170	19.5	unknown	11/19/2001	9.5	Monitor Well/ Active
105491	Greene, Maurice	1154	222	165	10/13/1977	189	Domestic/Active
268947	Larsen, Glen	1171	unknown	unknown	1910	unknown	Domestic/Active
664361	B-118	1142	7	unknown	11/21/2001	4	Monitor Well/Sealed
120032	Milde, Craig	1196.9	400	160	8/27/1976	362	Domestic/Active
463987	Olmsted County	1151.2	350	148	10/26/1990	284	Commercial/Active
1000010590	Frances Sutton	1150	138	unknown	unknown	unknown	Domestic/Active
531240	Saletel, Berney	1128	260	140	7/8/1993	171	Domestic/Active
1000010579	Linda Holm	1125	120	unknown	unknown	unknown	Domestic/Active
1000010593	Wayne Jeno	1130	80	unknown	unknown	Unknown	Multiple Dwelling/ Active
464306	EMS-2	1160	82.5	unknown	8/16/1990	78	Monitor Well/ Active
578362	EMS 14	1142	50.5	unknown	7/12/1996	45.5	Monitor Well/ Sealed
664356	B-113	1145	18.2	unknown	11/20/2001	8.2	Monitor Well/ Sealed
150230	Gorder, Bill	1119	300	132	2/13/1979	264	Domestic/Active

[106] MDH. 2018. Wellhead Protection Vulnerability Fact Sheet (available at https://www.health.state.mn.us/communities/environment/water/docs/swp/vulnerability.pdf).

[107] MDH. 2024. Minnesota Well Index. Version 2.1.2 (available at https://mnwellindex.web.health.state.mn.us/). Accessed June 2024.

Unique Well ID	Well Name	Well Elevation (feet/msl)	Well Depth (feet)	Depth to Bedrock (feet)	Well Installation Date	Casing Depth (feet)	Well Use/Status
412444	Milde, Craig	1199	402	203	1/31/1986	375	Domestic/Active
130633	Conway, Pat	1250	424	240	2/10/1977	374	Domestic/Active
160870	Dickhut, Lloyd	1129	280	50	9/26/1980	246	Domestic/Active
1000010589	Bob & Betty Silker	1240	270	unknown	unknown	unknown	Domestic/Active
664359	B-116	1163	21.9	unknown	11/19/2001	11.9	Monitor Well/ Sealed
220873	Tlougan, Isadore	1148	220	120	1/24/1974	170	Domestic/Active
578361	EMS 13	1140	22	unknown	7/12/1996	12	Monitor Well/ Sealed
481631	Tlougan, Isadore	1150	240	90	5/20/1992	190	Domestic/Sealed
227818	Adamson, John	1215	370	210	9/20/1973	330	Domestic/Active
664355	B-112	1145	19.7	unknown	11/20/2001	9.7	Monitor Well/ Active
664354	B-111	1150	29.3	unknown	11/20/2001	19.3	Monitor Well/ Sealed
579691	Stafford, Tim	1194	380	165	6/18/1997	305	Domestic/Active
644814	Geiger, Maurice & Kaylen	1214	370	100	8/25/2000	335	Domestic/Active
797133	EMS-8	1141	31.5	unknown	7/2/2014	16.5	Monitor Well/ Active
464313	EMS-9	1148	31	unknown	3/14/1991	21	Monitor Well/ Sealed
464314	EMS 10	1147	60	unknown	3/18/1991	45	Monitor Well/ Sealed
464316	EMS-12	1147	42.5	unknown	4/16/1991	37.5	Monitor Well/ Sealed
771150	EMS 121	1158	54	unknown	12/22/2009	44	Monitor Well/ Active
464310	EMS-26	1151	17	unknown	8/9/1990	7	Monitor Well/ Sealed
464303	EMS-1	1160	25	unknown	8/14/1990	13	Monitor Well/ Active
464305	EMS-20	1170	27	unknown	8/10/1990	17	Monitor Well/ Active
726332	B-120	1142	46	unknown	6/6/2005	36	Monitor Well/ Active
726331	B-119	1160	68	unknown	6/8/2005	58	Monitor Well/ Active
464317	EMS-19	1161	49	unknown	3/20/1991	39	Monitor Well/ Active
464315	EMS-11	1146	21	unknown	4/16/1991	11	Monitor Well/ Sealed
447882	Olmsted Co P Wk Mw-B-13i	unknown	72	unknown	10/12/1988	66.7	Other/Active
447883	Olmsted Co P WK MW-B-15I	unknown	80	unknown	10/11/1988	74.5	Monitor Well/Active
447885	MW-B-39WT	unknown	21	unknown	10/14/1988	5.7	Monitor Well/ Active
447887	MW-B-41WT	unknown	24	unknown	10/14/1988	9	Monitor Well/ Active

Unique Well ID	Well Name	Well Elevation (feet/msl)	Well Depth (feet)	Depth to Bedrock (feet)	Well Installation Date	Casing Depth (feet)	Well Use/Status
447886	MW-B-40WT	unknown	29	unknown	10/14/1988	13.5	Monitor Well/ Sealed
451043	Olmsted County	unknown	50	unknown	1/16/1989	15	Monitor Well/ Sealed
447976	MW-B-13	unknown	102	unknown	3/17/1987	9	Monitor Well/ Active
447977	MW-B-13M	unknown	37	unknown	3/17/1988	34.5	Monitor Well/ Active
447978	MW-B-13-Shallow	unknown	15	unknown	3/18/1987	4	Monitor Well/ Active
447979	MW-B-15	unknown	18	unknown	3/31/1987	8	Monitor Well/ Active
447980	Olmsted CTY PB WK MW-B-15	unknown	41	unknown	unknown	38.5	Monitor Well/ Active
447982	MW-B-22	unknown	32	unknown	1/27/1988	27	Monitor Well/ Sealed
447983	MW-B-26	unknown	10	unknown	3/12/1988	4.5	Monitor Well/ Active
447984	MW-B-28	unknown	12	unknown	3/5/1987	5	Monitor Well/ Active
447985	MW-B-39	unknown	67	unknown	3/11/1987	59	Monitor Well/ Active
447987	MW-B-40S	unknown	34	unknown	3/10/1987	27.5	Monitor Well/ Sealed
443378	Olmsted County MW-OW-105	unknown	16	unknown	10/5/1988	4.5	Monitor Well/ Active
443379	Olmsted Cty MW-OW-103	unknown	20	unknown	10/5/1988	9	Monitor Well/ Sealed
630775	PZ TO MW	unknown	23	unknown	7/16/1998	7	Monitor Well/ Active
811305	Olmsted Cty Dept of Env Resources	unknown	40.6	unknown	9/30/2015	25	Monitor Well/ Active
833730	EMS-X 11-20153 (EMS-9A) PM: Jake Heimdahl Olmsted	unknown	27	unknown	2/22/2019	12	Unknown

5.5.3.2.1. Impacts and Mitigative Measures

Grading and construction work to be performed for the Project will involve soils in the upper 10 to 20 feet of the surface. Therefore, impacts to groundwater resources—both at the Project and surrounding areas—are not anticipated. Snowshoe BESS will be completing additional geotechnical studies closer to the construction date to further inform the Project's design,

engineering, and construction techniques. There are no designated sole source aquifers[108] or WHPAs within the Project Area.[109]

Construction of Project facilities is not likely to require subsurface blasting; therefore, disturbances to groundwater flow from newly fractured bedrock are not anticipated. Any dewatering required during construction will be managed in accordance with the SWPPP and discharged to the surrounding surface, thereby allowing it to infiltrate back into the ground to minimize potential impacts. If, during construction, dewatering exceeds withdrawal of more than 10,000 gallons of water per day or one million gallons per year, Snowshoe BESS will obtain a Water Appropriation Permit from MnDNR.

Project facilities are not likely to affect the use of existing water wells. Preliminary design indicates that Project facilities will be located at about 1,000 feet from the nearest identified drinking well. No impacts to this well are expected. If an unknown well is discovered that was not mapped on available mapping resources, Snowshoe BESS will assess whether the well is open, coordinate with the underlying landowner, and facilitate capping, if necessary and approved by the underlying landowner, in accordance with MDH requirements.

If a water supply well is needed at the O&M facility as part of the Project, it will be installed following MDH guidelines and will be for potable water in the building.

Impacts to groundwater resources (including aquifers) are not anticipated during facility operation of the Project as water supply needs will be quite limited. If the Project requires potable water for facility personnel and O&M uses, this need would be satisfied with a single domestic-sized water well. A domestic water well license would be acquired by an approved well drilling contractor prior to installation, construction, and use of the water well.

The BESS system will require concrete foundations. The depth that the foundations will be installed at is an estimated range of one to three feet below ground surface (depending on soil conditions) and would, therefore, not impact aquifer resources.

Project operation will not require the use or storage of large quantities of hazardous materials that might otherwise have the potential to spill or leak into area groundwater. No chemicals are planned to be used for BESS enclosure washing activities. The BESS enclosures are cleaned annually using a wet cloth and rubbing alcohol, if needed. Herbicides may be used for vegetation management, which will follow applicable regulatory use and management requirements or as required by applicable permit(s). Pesticides may be used around BESS enclosures to control insects, and any use would also follow applicable requirements.

---

[108] EPA. 2020. Sole Surface Aquifers Viewer (available at https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9ebb047ba3ec41ada1877155fe31356b). Accessed July 2024.

[109] MDH. 2023. Source Water Protection Web Map Viewer (available at https://mdh.maps.arcgis.com/apps/View/index.html?appid=8b0db73d3c95452fb45231900e977be4). Accessed July 2024.

An SPCC Plan will be required for the Project substation main power transformer. The transformer will be properly designed, constructed, and operated per the SPCC Plan and in accordance with EPA and MPCA requirements; it will be equipped with required secondary containment to contain any potential spills or leaks of transformer oil or other fluids to prevent impacting the groundwater.

5.5.4 Soils

The Soil Survey of Olmsted County indicates that the soils of Olmsted County are primarily deep dark colored soils formed in silty glacial lacustrine sediments and loamy glacial till.[110]

The soils within the Project Area are typically silt loam soils with a small amount of silty clay soils that are suited for the existing agricultural production when drained, as indicated in **Table 5.5-4.** The Project Area has rolling topography, which is consistent with the current row-crop agricultural production. A small area of predominantly hydric soil is present in the northeast corner of the Project Area (**Figure 7**).[111]

Table 5.5-4: Project Area Soils

Map Unit Symbol	Map unit name	Farmland Classification	Hydric Rating[1]	Acres
285C	Port Byron silt loam, 6%–12% slopes, moderately eroded	Farmland of statewide importance	Non-Hydric	11.8
401B	Mt. Carroll silt loam, 2%–6% slopes, moderately eroded	All areas are prime farmland	Non-Hydric	5.0
203	Joy silt loam, 1%–4% slopes	All areas prime farmland	Predominantly Non-Hydric	3.3
N518B	Lindstrom silt loam, 2%–6% slopes	All areas are prime farmland	Non-Hydric	3.2
322C2	Timula silt loam, 6%–12% slopes, moderately eroded	Farmland of statewide importance	Non-Hydric	1.9
176	Garwin silty clay loam	Prime farmland if drained	Predominantly Hydric	1.8
19	Chaseburg silt loam, moderately well drained, 0%–2% slopes	All areas prime farmland	Non-Hydric	0.2
TOTAL				**27.2**

[1] The Hydric Rating is based on the composition of hydric components of a soil unit. The five classes are Hydric (100% hydric components), Predominantly Hydric (66%–99% hydric components), Partially Hydric (33%–65% hydric components), Predominantly Nonhydric (1%–32% hydric components), and Nonhydric (less than 1% hydric components).

Most of the soil types at the site are classified as non-hydric (22.1 acres). The remaining soils are classified as predominantly non-hydric (3.3 acres) and predominantly hydric (1.8 acres).

[110] Soil Survey Staff, USDA NRCS. 2019. Web Soil Survey, Olmsted County, Minnesota (available at https://websoilsurvey.sc.egov.usda.gov/App/WebSoilSurvey.aspx).

[111] Natural Resources Research Institute. 2024. Minnesota Natural Resources Atlas, Water Table – Depth (available at https://mnatlas.org/gis-tool/?id=k_0279). Accessed July 2024.

5.5.4.1 Impacts and Mitigative Measures

Impacts to soils will occur during both the construction and, to a much lesser degree, operational stages of the Project. Grading impacts will primarily be from construction of foundations for the Project substation, BESS, O&M facility, laydown yard, basin areas, and access roads.

Because the Project is located on slightly rolling topography within existing agricultural fields, some amount of grading will be necessary for the Project. Some soil compaction may result from the installation of the foundations for the BESS modules. Soil compaction will be mitigated by use of low-impact equipment and methods, regrading, and tilling these areas following construction.

During operation of the Project, ongoing soil compaction could occur from the use of access roads. This impact is expected to be negligible, confined to the roadbed, and mainly from relatively light duty maintenance vehicles. Overall, the Project is expected to reduce the potential for erosion by establishing permanent vegetation, in contrast to the current amount of exposed soils common to row cropping in the existing agriculture fields. Potential erosion will be further minimized by dressing access roads with gravel and installing culverts under access roads where necessary to redirect concentrated surface water runoff.

The Project will disturb over one acre and will therefore require coverage under the MPCA's Construction Stormwater General Permit. Snowshoe BESS will obtain coverage under the MPCA's Construction Stormwater General Permit and prepare the required SWPPP prior to construction. The SWPPP will be implemented during construction activities and will include BMPs, such as silt fencing (or other erosion control devices), revegetation plans, and management of exposed soils to prevent erosion. BMPs will be used during construction and operation of the Project to protect topsoil and adjacent resources and to minimize soil erosion from water or wind. Practices may include containment of excavated material, protection of exposed soil, stabilization of restored material, and treatment of stockpiles to control fugitive dust. Finally, the Project design will include installation of stormwater ponds in accordance with MPCA regulations to collect and treat runoff from the Project during its operation (**Figure 2**).

5.5.5 Surface Waters (Including Stormwater, Floodplains, and Wetlands)

Surface water features and floodplains within the Project area are shown on **Figures 8** and **9**.

5.5.5.1 Rivers, Streams, and Lakes

No mapped rivers, streams, lakes, or MnDNR Public Waters are within the Project Area (**Figure 8**). The nearest Public Waters Inventory (PWI) waterbodies include: Cascade Creek located approximately 1.6 miles south of the Project Area; and an unnamed tributary of Cascade Creek (M-034-071-002-001) located approximately 0.6 mile northeast of the Project Area. The Project is located in the Zumbro River (HUC 07040004) watershed.

No permits will be needed for crossing MnDNR administered lands or waters as there are no MnDNR lands or public waters within the Project Area (**Figure 8**).

5.5.5.2 Wetlands

Wetlands are valuable for surface and subsurface water storage, nutrient cycling, retention of sedimentation, and plant and animal habitats. The potential for wetlands within the Project Area was initially determined by reviewing desktop resources (i.e., National Wetlands Inventory ["NWI"] data, aerial photography, hydric soils map unites, LiDAR, and digital elevation models) followed by a formal wetland delineation of the Project Area in April 2024 (**Appendix I**).

Wetland delineation fieldwork within the Project Area was conducted on April 30, 2024, as described in **Appendix I** (Westwood No-Wetland Delineation Report dated June 11, 2024). The wetland delineation identified no wetlands, ephemeral streams, intermittent streams, or perennial streams within the Project Area (see **Figure 10** and **Appendix I**).

5.5.5.3 Floodplains

The Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) was consulted regarding existing floodplains and flood risk in the Project Area. The site is not located within a published FIRM panel. The FEMA map for Olmsted County at the site of the Project is not printed (FIRM Panel 27109C0140D; effective April 19, 2017). The nearest mapped 100-year floodplain (i.e., Flood Hazard Zone AE) can be found along Cascade Creek to the southeast of the Project Area (**Figure 9**).[112]

5.5.5.4 Impaired Waters

Cascade Creek, Salem Creek, and South Branch Stream of the Zumbro River's Middle Fork are listed by the MPCA as impaired waters.[113] **Table 5.5-5** identifies the impaired water segments nearest to the Project Area and lists their impairments.[114]

Table 5.5-5: MPCA Impaired Waters

Water Body Name	AUID	Affected Designated Use	Pollutant or Stressor	Distance from Project Area (miles)
Cascade Creek	07040004-991	Aquatic Life	Fish bioassessments, Turbidity	1.60
Salem Creek	07040004-503	Aquatic Life	Benthic macroinvertebrates bioassessments	3.69

[112] FEMA. 2017. National Flood Hazard Layer (NFHL) Viewer (available at https://hazards-fema.maps.arcgis.com/apps/webappviewer/index.html?id=8b0adb51996444d4879338b5529aa9cd). Accessed July 2024.

[113] MPCA. 2024c. Impaired Waters: 2024 Viewer (available at https://mpca.maps.arcgis.com/apps/webappviewer/index.html?id=fcfc5a12d2fd4b16bc95bb535d09ae82). Accessed July 2024.

[114] MPCA. 2024d. Minnesota's Impaired Waters List (available at https://www.pca.state.mn.us/air-water-land-climate/minnesotas-impaired-waters-list). Accessed July 2024.

Water Body Name	AUID	Affected Designated Use	Pollutant or Stressor	Distance from Project Area (miles)
		Aquatic Recreation	Fecal coliform	
Zumbro River, Middle Fork, South Branch Stream	07040004-976	Aquatic Life	Benthic macroinvertebrates bioassessments, Turbidity	4.16

5.5.5.5 Impacts and Mitigative Measures

There are no wetlands, waterways, or drain tile on-site, so no direct effects on water resources are expected as a result of the Project. However, the Project is being designed and engineered to avoid and minimize impacts to any potential surrounding wetlands and water resources to the greatest extent practicable. During construction, appropriate BMPs will be implemented and maintained in accordance with an NPDES Permit and SWPPP that will be in place for the Project. Two stormwater basins will be used to collect and treat/discharge runoff following MPCA regulations.

Additionally, the establishment of perennial vegetation around the facility and the installation of two stormwater ponds are expected to increase the residence time of water on-site by slowing the runoff rate and increasing the uptake of water on-site when compared to the current, cropped conditions. This will also lower the amount of nutrients leaving the site compared to row crop agriculture from both the reduction in fertilizer and pesticide application and the slowing of runoff brought about by the perennial vegetation. This slowing of runoff and reduction in the amount of nutrients leaving the site is expected to have a direct, positive effect on the water quality of any surface waters receiving runoff from the site and is also expected to positively benefit on-site wildlife and plant communities.

Potential impacts to water resources and applicable mitigative measures are discussed in more detail below. No impacts to MnDNR Public Waters or FEMA flood zones are anticipated; therefore, no other mitigative measures are proposed.

The Project is being designed in a manner to avoid all impacts to wetlands and water resources as shown in the Preliminary Facility Design (**Figure 2**). Wetlands and ditches are otherwise potentially regulated under:

- **The Minnesota Wetland Conservation Act (WCA) of 1991**, as amended, administered in this area by the Olmsted County Soil and Water Conservation District (SWCD);
- **Section 404 and 401 of the Federal Clean Water** Act (CWA) administered by the USACE and the MPCA; and
- **Minn. Stat. § 103G.245**, administered by the MnDNR.

The preliminary design of the Project avoids all impacts to wetlands and other waters through management of surface water and runoff. No wetlands or watercourses exist within the Project Area.

The Project will comply with the NPDES Permit, SPCC Plan, and SWPPP, if grading activities are necessary and exceed applicable permit thresholds.

Snowshoe BESS does not anticipate a loss of wetlands under the WCA as there are no wetlands within the Project Area.

Temporary construction impacts will be minimized by using BMPs that include erosion control measures identified in the MPCA Storm Water Best Management Practices Manual, such as using silt fencing to control sediment runoff to adjacent water resources. Disturbed surface soils will be stabilized at the completion of the construction process to minimize the potential for subsequent effects on surface water quality. Construction operations will be designed and controlled to minimize and prevent material discharge to wetlands outside the Project Area.

Snowshoe BESS submitted a Joint Application Form for Activities Affecting Water Resources in Minnesota to the US Army Corps of Engineers and the Olmsted Soil and Water Conservation District requesting a delineation concurrence and wetland type confirmation for the Project; the Joint Application is the accepted means for initiating review of proposals that may affect a water resource (wetland, tributary, lake, etc.) in the state of Minnesota under state and federal regulatory programs. A Notice of Decision was received on August 9, 2024, which concurred with the delineation results of no wetlands being present within the Project Area (**Appendix I**).

Table 5.5-6: Water Permitting and Regulation

Measure	Detail	Applicability
Federal		
Section 404 of the Federal Clean Water Act	Under Section 404 of the federal CWA, the USACE regulates the discharge of dredged and fill material into waters of the U.S.	The current preliminary Project design avoids all wetlands and waters. Coverage under Section of 404 of the CWA will not be required because the USACE concurs that there are no wetlands within the Project Area.
State		
Minnesota Wetland Conservation Act	If a permit is required, any proposed wetland impact would require full sequencing under the WCA and address wetland avoidance, impact minimization, rectification, and replacement (if applicable).	This permit will not be needed for the Project, due to the absence of wetlands within the Project Area.
Section 401 Water Quality Certification	Projects required to obtain an Individual Section 404 Permit are also required to obtain an MPCA Section 401 Water Quality Certification (WQC) to ensure they comply with the State water quality standards in Minn. R. Chapter 7050, as amended. If the Project secures approval under a Minnesota Regional General Permit-003, Section 401 WQC is automatic, provided the Project follows the specific pre-determined certification requirements.	Since there are no wetlands in the Project Area, the Project will not require an Individual Section 404 Permit from the USACE or a project specific MPCA Section 401 WQC.
Minnesota Public Waters Act and MnDNR Public Waters Permits	The MnDNR requires a Public Waters Work Permit for any alteration of the course, current, or cross section below the Ordinary High-Water level of MnDNR public waters, wetlands, and watercourses.	Because no MnDNR public watercourses or waterbodies are mapped or have been identified within the Project Area, no impacts to the MnDNR public watercourses are expected from the Project. Therefore, a Public Waters Work Permit will not be required for the Project.

The Project is not expected to impact wetlands or water resources due to the absence of wetlands within the Project Area. Additionally, there are no public ditches or waterways that require 50-foot buffers within the Project Area. The nearest feature that would require a buffer is associated with the PWI watercourse approximately 0.6 mile to the northeast of the Project Area.[115]

5.5.6 Vegetation

As noted in **Section 5.1** (Environmental Setting), the Project is located in the Rochester Plateau Subsection. Historically, tallgrass prairie and bur oak savanna covered this area with some lakes and headwaters of several rivers, including the Root River, Whitewater River, Zumbro River, and

[115] MNDNR. 2017. DNR Buffer Map (available at https://arcgis.dnr.state.mn.us/gis/buffersviewer/). Accessed June 2024.

Canon River. Agriculture is the most prominent land use in this subsection, with few remnants of pre-settlement oak openings and barrens remaining.[116]

Agricultural land includes cultivated cropland and hay/pasture. As discussed in **Section 5.3.1** (Agriculture), the top three crops in Olmsted County (in acres) included corn (for grains), soybeans (for beans), and forage (hay and haylage).[117] Corn and soybeans were observed in the fields during the wetland delineation.

Based on the wetland delineation discussed in **Section 5.5.5.2**, there are no wetlands located within the Project Area. **Section 5.5.5** provides more information on surface waters. Lastly, there are no rare plants documented in the Project Area.

Land cover within the Project Area according to the MLCCS is detailed in **Table 5.5-7** and shown in **Figure 5**.[118] Almost all of the Project is covered by cultivated herbaceous vegetation (98.25%). Smaller percentages (all less than 1 acre) of deciduous shrubland, medium-tall grassland, and 26%–50% impervious cover were also identified in the Project Area. The 26%–50% impervious cover is isolated to a small sliver along the western Project Area boundary next to the SMMPA-Maple Leaf Substation. The other land cover types are all along the southern boundary of the Project Area, facing the railroad ROW.

116 MNDNR. n.d.-a. Rochester Plateau Subsection (available at https://www.dnr.state.mn.us/ecs/222Lf/index.html#:~:text=The%20west%20boundary%20consists%20of,%2Dblown%20silts%20(loess)).

117 USDA. 2022. Census of Agriculture. Olmsted County Profile (available at https://www.nass.usda.gov/Publications/AgCensus/2022/Online_Resources/County_Profiles/Minnesota/cp27109.pdf).

118 MNDNR. 2004. MLCCS (available at https://www.dnr.state.mn.us/mlccs/index.html#:~:text=The%20Minnesota%20Land%20Cover%20Classification,cover%20rather%20than%20land%20use). Accessed July 2024.

Table 5.5-7: MLCCS Land Cover Within the Project Area and Preliminary Development Area

Land Cover Category	Project Area		Preliminary Development Area	
	Acres	Percent of Total	Acres	Percent of Total
Planted or Cultivated Vegetation				
Cultivated herbaceous vegetation	26.70	98.25%	22.89	99.74%
Shrubland				
Deciduous shrubland	0.35	1.30%	0.06	0.26%
Artificial Surfaces and Associated Areas				
26%–50% impervious cover with perennial grasses	0.07	0.26%	0.0	0%
Herbaceous				
Medium-tall grassland	0.05	0.18%	0.0	0%
Total	**27.20**	**100.0%**	**22.95**	**100.00%**
Note: Addends may not sum due to rounding.				

5.5.6.1 Impacts and Mitigative Measures

Approximately 26.7 acres of planted or cultivated vegetation currently exist within the Project Area. Although the design has not been finalized, Snowshoe BESS anticipates that approximately 22.9 acres will be converted from agricultural use to energy storage use for the life of the Project. Preliminary design of the Project avoids any tree clearing; therefore, the Project will not impact forested land.

Snowshoe BESS's vegetation goals for operating the BESS facility include establishing stable ground cover, reducing erosion and runoff, and improving infiltration. The vegetation mix is described in the VMP found in **Appendix C**. The existing line of trees on the southern Project Area boundary will be retained to buffer views from U.S. Highway 14.

5.5.7 Wildlife and their Habitats

Wildlife species that are likely to be present in the Project Area include common species that are adapted to an agricultural setting—primarily cropland. As mentioned in **Section 5.5.6** (Vegetation), corn and soybeans are the primary crop within the Project Area. These are annual temporary cover types that will be utilized by a small number of common wildlife species on a limited basis. Mammals that may utilize these areas include, but are not limited to, the common raccoon (*Procyon lotor*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), gray fox (*Urocyon cinereoargenteus*), striped skunk (*Mephitis mephitis*), thirteen-lined squirrel (*Spermophilus tridecemlineatus*), and white-tailed deer (*Odocoileus virginianus*).

Bird species that may utilize these agricultural areas include the American crow (*Corvus brachyrhynchos*), eastern bluebird (*Sialia sialis*), mourning dove (*Zenaida macroura*), ring-necked pheasant (*Phasianus colchicus*), wild turkey (*Meleagris gallopavo*), various small perching birds, and common raptors, such as red-tailed hawks (*Buteo jamaicensis*). After harvest, the fields may offer short-term foraging areas for common waterfowl, including Canada geese (*Branta canadensis*) and mallards (*Anas platyrhynchos*). The conversion of row crop production within the Project Development Area does not create a significant reduction in agricultural areas within the vicinity. Creation of surface water features in the stormwater ponds will also add a water source for the immediate vicinity.

Reptiles and amphibians accustomed to agriculture habitats and annual disturbances by heavy equipment, such as the American toad (*Anaxyrus americanus*), common garter snake (*Thamnophis sirtalis*), and northern leopard frog (*Lithobates pipiens*), may also be present in the Project Area.[119] However, due to the relative lack of diverse vegetation cover and habitat structure, pesticide/herbicide use, and the temporary seasonal nature of the cover, even these common species' use of the cropped field habitat is likely limited to occasional foraging in the fields.

A greater diversity of wildlife habitat for migratory birds or other wildlife is present outside of the Project Area. Although agricultural land is the dominant land cover type in the area surrounding the Project Area, the extensive forested areas around Oxbow Park, the Zumbro River, and WMAs, the closest of which is approximately 4.5 miles northwest from the Project Area, provide higher quality habitat for wildlife.

5.5.7.1 Avian Species

The Project is located within the Mississippi Flyway, one of four migration flyways in North America for millions of birds and hundreds of species that migrate between South and Central America. Avian species utilize the Mississippi Flyway and travel north along the Gulf of Mexico before following the Mississippi River.[120] An abundance of rivers and lakes makes the Mississippi Flyway an ideal route for waterfowl, shorebirds, and other waterbirds.[121]

The Project Area is also located within the Eastern Tallgrass Prairie Bird Conservation Region (BCR 22).[122] The USFWS identified 39 species of birds within BCR 22 as Birds of Conservation Concern (BCC);[123] BCC are avian species that represent the agency's highest conservation

[119] MNDNR. n.d.-f. Animals: Reptiles and Amphibians (available at https://www.dnr.state.mn.us/animals/index.html). Accessed June 2024.

[120] USFWS. 2017. USFWS Administrative Waterfowl Flyway Boundaries. [Shapefile] (available at https://ecos.fws.gov/ServCat/Reference/Profile/42276). Accessed June 2024.

[121] Fritts, R. 2022. Avian Superhighways: The Four Flyways of North America. American Bird Conservancy. Bird Call Blog. May 16, 2022 (available at https://abcbirds.org/blog/north-american-bird-flyways/). Accessed June 2024.

[122] Bird Studies Canada and NABCI. 2014 (Updated 2020.). Bird Conservation Regions (BCRs). Published by Bird Studies Canada on behalf of the North American Bird Conservation Initiative (available at https://birdscanada.org/bird-science/nabci-bird-conservation-regions. Accessed June 2024.

[123] USFWS. 2008. Birds of Conservation Concern 2008. U.S. Fish and Wildlife Service Division of Migratory Bird Management, Arlington, Virginia. 85 pp. (available at https://ecos.fws.gov/ServCat/DownloadFile/134745). Accessed June 2024.

priorities. Based on the April 4, 2024 USFWS Information for Planning and Consultation (IPaC) report, birds of particular concern are listed in **Table 5.5-8** and **Appendix J** because they occur on the BCC list or could potentially occur in the Project vicinity.[124]

Table 5.5-8: IPaC Report Identified BCC or Other Concerned Species

Common Name	Scientific Name	Breeding Season
American golden-plover	*Pluvialis dominica*	Breeds elsewhere
Bald eagle	*Haliaeetus leucocephalus*	Breeds Oct 15 to Aug 31
Black-billed cuckoo	*Coccyzus erythropthalmus*	Breeds May 15 to Oct 10
Bobolink	*Dolichonyx oryzivorus*	Breeds May 20 to Jul 31
Chimney swift	*Chaetura pelagica*	Breeds Mar 15 to Aug 25
Eastern whip-poor-will	*Antrostomus vociferus*	Breeds May 1 to Aug 20
Golden eagle	*Aquila chrysaetos*	Breeds elsewhere
Hudsonian godwit	*Limosa haemastica*	Breeds elsewhere
Lesser yellowlegs	*Tringa flavipes*	Breeds elsewhere
Pectoral sandpiper	*Calidris melanotos*	Breeds elsewhere
Prothonotary warbler	*Protonotaria citrea*	Breeds Apr 1 to Jul 31
Red-headed woodpecker	*Melanerpes erythrocephalus*	Breeds May 10 to Sep 10
Ruddy turnstone	*Arenaria interpres morinella*	Breeds elsewhere
Rusty blackbird	*Euphagus carolinus*	Breeds elsewhere
Short-billed dowitcher	*Limnodromus griseus*	Breeds elsewhere
Upland sandpiper	*Bartramia longicauda*	Breeds May 1 to Aug 31
Wood thrush	*Hylocichla mustelina*	Breeds May 10 to Aug 31
Note: For more information on species listed, review the USFWS IPaC Report for the Project in **Appendix J**.		

The Migratory Bird Treaty Act (MBTA) of 1918 regulates the taking, selling, transporting, and importing of migratory birds, their nests, eggs, parts, or products.[125] The MBTA protects more than 1,000 species of birds that occur within the United States. Most birds within the Project Area would be afforded protection under the MBTA. The Bald and Golden Eagle Protection Act (BGEPA) protects and conserves bald eagles and golden eagles from intentional take of an individual bird, chick, egg, or nest, including alternate and inactive nests. Unlike the MBTA, BGEPA prohibits disturbance that may lead to biologically significant impacts, such as interference with feeding, sheltering, roosting, and breeding or abandonment of a nest.[126]

Snowshoe BESS conducted a site reconnaissance on April 30, 2024, to identify and evaluate the available habitat in the Project Area and vicinity that may be used by threatened or endangered species listed in the IPaC or MnDNR Minnesota Conservation Explorer tool. The site reconnaissance revealed minimal nesting habitat within the Project Area for listed avian species. More detailed and specific information on habitat and wildlife can be found in **Appendix J**.

[124] USFWS. 2024b. Information for Planning and Consultation: Snowshoe Energy Storage Project Report.
[125] *See* 16 U.S.C. 703–712.
[126] USFWS. 2007. National Bald Eagle Management Guidelines. Arlington, VA (available at https://www.fws.gov/sites/default/files/documents/national-bald-eagle-management-guidelines_0.pdf). Accessed June 2024.

Land cover within the Project Area cultivated herbaceous vegetation (98.25%) with small amounts of deciduous shrublands (1.30%) and less than 1% each of impervious cover with perennial grasses and medium-tall grasslands (**Figure 5**). The forested/shrubland areas are limited to windbreaks and small woodlands north of the DME Rail. As a result, few migratory bird species that use trees or forested areas to roost or forage (such as bald eagle and red-headed woodpecker) are present within the Project Area. With either minimal or no tree-clearing taking place, nesting habitat will remain intact, and impacts to birds using these areas will be limited. The Project Area has no open water or wetlands (**Section 5.5.5**). Since no wetlands exist in the Project Area and either minimal or tree clearing will take place in potential nesting locations, wetland- or water-dependent birds will be unlikely to occur within the Project Area. Overall, few if any BCC are likely to use the Project Area as habitat.

5.5.7.2 Waterfowl Feeding and Resting Areas

No waterfowl feeding and resting areas are located within one mile of the Project Area.[127]

5.5.7.3 Important Bird Areas

Audubon Important Bird Areas are voluntary, non-regulatory, and part of an international conservation effort. The program relies on participation of private landowners, public land managers, and community members: to identify the most essential habitats for birds and designates IBAs in Minnesota; monitor these areas for changes to birds and their habitats; and conserve these areas for long-term protection of birds.[128] The closest is the Blufflands-Root River Important Bird Area, portions of which are located in south-east Olmsted County over 10 miles away from the site. [129]

5.5.7.4 Impacts and Mitigative Measures

Snowshoe BESS has designed the Project's infrastructure to avoid areas with the potential for quality habitat. BMPs outlined in **Section 5.5.6** on the vegetative practices will serve to stabilize, protect, and mitigate potential impacts within the Project Area. BMPs will be implemented during construction, post-construction, and operational phases of the Project. Due to conversion from row crop production to perennials on the within of the Preliminary Development Area and Project Area, impacts on wildlife will be beneficial. Through establishing perennial plants species, the natural landscape will experience a reduction of soil erosion and runoff, improved nutrient cycling, reduction of the use of pesticides and herbicides, and new beneficial habitat for many insect species and ground nesting species during the life of the Project.

---

127 MNDNR. 2016 (Updated 2023). Migratory Waterfowl Feeding and Resting Areas (available at https://gisdata.mn.gov/dataset/env-migratory-waterfowl-areas). Accessed June 2024.

128 MNDNR. n.d.-g. Important Bird Areas (IBA) (available at https://www.dnr.state.mn.us/iba/index.html). Accessed June 2024.

129 Audubon. 2020. Minnesota Important Bird Areas Interactive Map (available at https://www.arcgis.com/home/webmap/viewer.html?webmap=3b3d225539f8449daf84be6aa89eab50). Accessed June 2024.

5.5.8 Rare and Unique Natural Resources

5.5.8.1 Federally Listed Species

The USFWS IPaC portal was most recently reviewed on April 4, 2024 (**Appendix J**) for federally endangered and threatened species, candidate species, and designated critical habitat that may occur in the Project vicinity. The IPaC results identified one federally endangered species, the northern long-eared bat (NLEB) (*Myotis septentrionalis*); one federally proposed endangered species, the tricolored bat (*Perimytis subflavus*); one federally threatened species, the prairie bush-clover (*Lespedeza leptostachya*]; and one federally designated as non-essential experimental population, the whooping crane (*Grus americana*), within or near the Project Area. Suitable NLEB and tri-colored bat habitat consists of a variety of forested habitat near water sources.[130] According to MnDNR and USFWS, there are no known NLEB or tri-colored bat maternity roost trees or hibernaculum in Olmsted County; however, the species may still occur within or near the Project Area.[131] The IPaC report also identified the candidate species for listing, monarch butterfly (*Danaus plexippus*), which is not afforded any protections at this time. Based on site reconnaissance of the Project Area and review of landcover of adjacent properties, no significant habitat is present for identified species to occur.

The USFWS adopted National Bald Eagle Management Guidelines to help protect eagle nests and avoid "disturbance" of eagles as required by the BGEPA. Guidance has also been developed to help determine if a project needs an incidental take permit for bald eagles if disturbance cannot be avoided. Land uses in the Project Area are primarily cultivated herbaceous vegetation (98.25%), with small areas of deciduous shrubland (1.30%), 26%–50% impervious cover with perennial grasses (0.26%), and medium-tall grasslands (0.18%) (**Section 5.5.6**). The forested land that is present is generally limited to windbreaks and buffers for the railroad and U.S. Highway 14 to the south of the Project Area. As a result, few migratory bird species that use trees or forested areas as habitat will be present, such as bald eagle.

5.5.8.2 State Listed Species

Westwood submitted a formal MnDNR Natural Heritage Information System (NHIS) Data request for the Project Area. In a letter dated April 5, 2024, the Natural Heritage Review Team identified one state-listed species in T107N, R15W, Section 35—the Rattlesnake Master (*Eryngium yuccifolium*) (**Figure 11**, **Appendix J**). Habitat use and species information was obtained from the MnDNR Rare Species Guide.

5.5.8.2.1. Rattlesnake Master (*Eryngium yuccifolium*)

---

130 MNDNR. 2018. Rare Species Guide: *Myotis septentrionalis*. (available at https://www.dnr.state.mn.us/rsg/profile.html?action=elementDetail&selectedElement=AMACC01150). Accessed June 2024.

131 MNDNR and USFWS. 2016. Townships Containing Documented Northern Long-eared Bat (NLEB) Maternity Roost Trees and/or Hibernacula Entrances in Minnesota (available at https://efotg.sc.egov.usda.gov/references/public/MN/MN_NLNPCEB_Township_List_and_Map_4-1-16.pdf).

The Rattlesnake Master is a native component of mesic prairies in southern Minnesota. Rattlesnake Master has a rather broad geographic range in North America, ranging east to Connecticut, south to Florida, west to Nebraska, and north to Minnesota. Over the entirety of its range, it occupies a variety of habitats, but in the Midwest, including Minnesota, it occurs primarily, if not exclusively, in prairies. Soils are usually glacial tills and range from dry to moist. Most commonly, the plant is found on deep mesic loam, but occasionally it is also found on well-drained, sand-gravel substrates. Efforts have been made to identify and protect even tiny scraps of remaining prairie habitat, especially those that harbor sensitive or specialized species like Rattlesnake Master. However, results have been mixed. Many of the remnants are so small they need constant attention to protect them from aggressive non-native plant species that can easily overwhelm the natives.[132] A desktop native prairie assessment was conducted for the Project Area to identify native prairies. There is no native prairie located or areas with high potential for native prairie remnants within the Project Area to provide this key habitat. (**Section 5.5.8.4** and **Appendix K**).

5.5.8.3 MnDNR High Value Areas

The MnDNR recommends identifying high value resources during Project development. High value resources include:[133]

- Rare species and native plant communities;
- Minnesota Biological Survey (MBS) sites of biodiversity significance and MnDNR native plant communities (NPCs);
- Species and habitats included in the Wildlife Action Network and Minnesota Wildlife Action Plan;
- Lakes, wetlands, streams, and rivers;
- Large block habitats;
- Public conservation and recreation lands; and
- Properties in government programs or with conservation easements.

These high value resources have been evaluated by the Project during the development and are described in the following sections.

5.5.8.3.1. Rare Species and Native Plant Communities

Rare species, including federal and state listed species, are discussed above. The MnDNR MBS assigns ecologists to map and classify NPCs throughout the state using plant species, soils, and other site-specific data from vegetation plots. Biodiversity significance ranks are used to prioritize and guide conservation and management of MBS sites. To assign biodiversity significance ranks, MBS sites are grouped and rated for each of Minnesota's ECS subsections. Ranking sites by

[132] MNDNR. 2013. Rare Species Guide (available at https://www.dnr.state.mn.us/rsg/index.html). Accessed July 2024.
[133] MNDNR. 2023. Commercial Solar Siting Guidance (available at https://files.dnr.state.mn.us/publications/ewr/commercial_solar_siting_guidance.pdf).

subsection helps to highlight the best examples of Minnesota's rare species and native plant communities in all of the state's diverse landscapes. There are four biodiversity significance ranks: outstanding, high, moderate, and below.[134]

Based on review of the MnDNR NPC data, no NPCs have been identified in the Project Area or one-mile buffer. The closest NPC, Southern Terrace Forest (FFn59c), is located approximately 3.2 miles south of the Project Area.

A native prairie assessment was conducted for the Project to determine whether any native prairie areas were present in the Project Area that would restrict development of the Project (**Appendix K**). The native prairie assessment completed by the Applicant did not identify any native prairies within the site. One railroad ROW prairie is located south of the Project Area surrounding the existing railroad. The results of native prairie assessment are discussed further in **Section 5.5.8.4**.

5.5.8.3.2. Wildlife Action Network and Minnesota Wildlife Action Plan

Minnesota's State Wildlife Action Plan (SWAP) (2015-2025) proactively addresses the state's conservation needs and defines actions to prevent species from becoming listed under the state endangered species program or the Endangered Species Act. The SWAP also entailed revisions to the state's list of Species in Greatest Conservation Need (SGCN). SGCN are native animals with rare, declining, or vulnerable populations. All state and federally listed species that occur in Minnesota are automatically SGCN.[135]

The Wildlife Action Network was developed as part of the 2015-2025 SWAP revision to assist user in focusing conservation efforts. The Wildlife Action Network is comprised of 10 GIS data layers that represent quality terrestrial and aquatic habitats, buffers, and corridors across the state that support SGCN. The closest mapped area is located approximately 1.8 miles southeast of the Project. [136]

5.5.8.3.3. Lakes, Wetlands, Streams, and Rivers

No lakes, wetlands, streams, or rivers are present within or adjacent to the site. See **Section 5.5.5** (Surface Waters) for additional information on water resources.

5.5.8.3.4. Large Block Habitats

Large blocks of habitat, such as forests or grasslands, can provide increased diversity of species, higher species populations, and more resilient and complex ecological communities. Construction of projects within large block habitats may cause habitat loss and fragmentation, which is counterproductive to area-sensitive species for nesting, food, and population success.

---

134 MNDNR. 2009. Guidelines for Assigning Statewide Biodiversity Significance Ranks to Minnesota County Biological Survey Sites (available at https://files.dnr.state.mn.us/eco/mcbs/biodiversity_significance_ranking.pdf).

135 MNDNR. 2022b. Minnesota's Wildlife Action Plan, 5-Year Report (available at https://files.dnr.state.mn.us/assistance/nrplanning/bigpicture/mnwap/wap-5-yr-report.pdf).

136 MNDNR. 2015 (Updated 2024). MNWAP Wildlife Action Network [Shapefile] (available at https://gisdata.mn.gov/dataset/env-mnwap-wildlife-action-netwrk). Accessed June 2024.

The Project is sited on row crop agriculture lands and is not adjacent to any potential large block habitats. Adjacent property use is agricultural or small woodlots not conducive to provide habitat for any large number of species or area-sensitive species.

5.5.8.3.5. Public Conservation and Recreation Lands

A review of publicly available information including, but not limited to, the Minnesota Recreation Compass, MnDNR USFWS WPA maps, snowmobile clubs, city and county parks, and public and private golf courses was completed to identify any public conservation or recreation lands. No public conservation or recreation lands are present within the Project Area or quarter-mile buffer (**Figure 6**). Refer to **Section 5.2.9** for additional discussion of recreational lands.

5.5.8.3.6. Properties in Government Programs or Conservation Easements

No land held in government programs or conservation easements was identified in the Project Area or quarter-mile buffer. The Project Area is currently active farmland.

5.5.8.4 Native Prairie

Minn. Stat. § 84.02, subd. 5 defines native prairie as land that has never been plowed where native prairie vegetation originating from the site currently predominates or, if disturbed, is predominantly covered with native prairie vegetation that originated from the site.

The Project conducted a desktop native prairie assessment on June 20, 2024, to evaluate the Project Area for native prairie. Snowshoe BESS utilized and reviewed historical aerial imagery, geospatial information on native prairies and plant communities, historic USDA Conservation Reserve program information, and USFWS NWI. Areas that were excluded from consideration included: row crops or tilled fields, bare or developed ground, forests, wet meadows with clear signature of reed canary grass, and open water or inundated wetlands.

Based on the assessment completed by the Applicant, no native prairies were identified within the site. One ROW prairie is located south of the Project Area surrounding the existing railroad.[137] For more details on the native prairie assessment, see **Appendix K**.

5.5.8.5 Impacts and Mitigative Measures

5.5.8.5.1. Federally Listed Species

No impacts to any federally listed species are anticipated throughout construction and operation of the Project. The NLEB Rangewide Determination Key was completed in IPaC (**Appendix J**). If no changes occur with the Project, no further consultation/coordination would be required for the NLEB. Impacts to bald eagles are not anticipated from the Project as there is no suitable nesting habitat within the Project Area.

[137] Westwood Professional Services. 2024. Potential Native Prairie Desktop Assessment.

5.5.8.5.2. State Listed Species

No impacts to any Minnesota State endangered, threatened, or special concern species are anticipated throughout construction or operation of the Project. The Project Area's current condition is highly disturbed from agricultural activities (98.25% cultivated herbaceous vegetation). No native prairies exist within the Project Area. The MnDNR formal response to the NHIS request for the Project was received on April 5, 2024 (**Appendix J**). The formal review identified the Rattlesnake Master as a state-listed species of special concern in the vicinity of the Project. Because no viable habitat exists in the Project Area, no impacts are anticipated and mitigation measures for the Rattlesnake Master are identified or proposed.

5.5.8.5.3. MnDNR High Value Areas

No MnDNR high value areas are located within the Project Area or adjacent lands and, therefore, no impacts and mitigation measures are proposed.

BMPs outlined in **Sections 5.5.4 and 5.5.6** concerning erosion control and vegetation will serve to stabilize, protect, and mitigate negative impacts to the natural landscape surrounding the Project Area. The SWPPP will also be implemented during construction of the Project.

5.5.8.5.4. Native Prairie

Because no native prairies are located in the Project Area, no impacts or mitigative measures are proposed. The MnDNR Railroad ROW Prairie on the southern border is outside but adjacent to the Project Area and will not be impacted by the Project through setbacks and BMPs for construction and operation of the Project.

5.6 Unavoidable Impacts

Preliminary design of the Project avoids impacts to environmental resources whenever possible. In some cases, impacts to environmental resources could not be entirely avoided but will 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 5.1** through **5.8** of the Application. Environmental impacts that will be minimized by the use of mitigation measures, but not entirely avoided, are provided below. Most of these unavoidable impacts will occur during construction of the Project and will resolve with the completion of construction.

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

- Noise emitted from vehicles and equipment during construction that will be audible to neighboring landowners;
- Increased traffic on roads within the Project Area;

- Minor air quality impacts due to fugitive dust;
- Potential for soil erosion; and
- Potential disturbance to, and displacement of, some species of wildlife.

Unavoidable impacts related to the Project that will last as long as the life of the Project will include:

- Aesthetic changes to the landscape (agricultural fields to BESS facility), which will be visible from local roadways and parcels; and
- Changes in land cover and vegetation from agricultural land of predominately corn and beans to a BESS facility (22.9 acres) with perennial vegetation in areas of the Preliminary Development Area not housing Project infrastructure. As discussed in **Section 5.5.7.4**, this is likely to be a positive impact for the Project wildlife and the environment
- Creation of new impermeable surface for the BESS enclosure area, parking area, substation, and access roads. Surface water will be managed as described in **Section 5.5.5**.

5.7 Irreversible and Irretrievable Impacts

Irreversible, irretrievable, and unavoidable impacts or commitment of resources refers to impacts on, or losses to, resources that cannot be avoided, recovered, or reversed. Examples could include the permanent conversion of wetlands and loss of cultural resources, soils, wildlife, or agricultural production.

The term “irreversible” describes the loss of future options. It applies primarily to the impacts of use of nonrenewable resources, such as minerals or cultural resources, or to those factors, such as soil productivity, which are renewable only over long periods of time.

The term “irretrievable” describes the loss of production, harvest, or use of natural resources. For example, if farmland is used for a non-agricultural development, some or all of the agricultural production from an area of farmland is lost irretrievably while the area is temporarily used for another purpose. The production lost is irretrievable, but the action is not irreversible.

Land required for the Project would be committed to hosting BESS enclosures and associated facilities for the life of the Project, which is expected to be up to 30 years. Although the entire 27.2-acre Project Area would not be developed, the 22.9 acres of land within the Preliminary Development Area would be developed for Project infrastructure. This land would be unavailable for other uses during that time. However, after the Project reaches the end of its operational life, and if the decision is made to decommission it and restore the site, the land would again be available for other uses.

Irreversible and irretrievable resource commitments are primarily related to Project construction, including the use of water, aggregate, hydrocarbons, steel, concrete, wood, and other consumable resources. Some, like fossil fuel use, are irretrievable. Others, like water use, are irreversible. Still others might be recyclable in part—for example, the raw materials used to construct the Project would be an irretrievable commitment of resources, excluding those materials that may be recycled at the end of the Project's operational life. The commitment of labor and fiscal resources to develop, construct, and operate the Project is considered irretrievable.

No wetland or other sensitive land conversion or alteration will be made during any stage of the Project; therefore, no foreseen irreversible impacts are addressed.

5.8 Cumulative Potential Effects

Cumulative impacts are combined, incremental effects of human activity. While an individual activity may be insignificant by itself, minor impacts in combination with other actions may cause a larger issue in a region or to an important resource.

A review of the Olmsted County website [138] and Minnesota Environmental Quality Board website[139] did not reveal any projects proposed with similar timing or within close proximity to the Project Area that would be expected to interact negatively or create significant cumulative impacts with the proposed Project.

According to the MISO Generator Interconnection Queue, there are eight active projects in Olmsted County—including three solar facilities, three battery storage facilities (inclusive of the Snowshoe Energy Storage Project), one solar plus storage facility, and one combustion turbine facility.[140] The standalone solar projects have planned in-service dates listed as June 2023 and August 2027. The standalone battery storage projects have planned in-service dates listed as September 2024, July 2025, and September 2025. The combustion turbine and combined solar plus storage facilities have planned in-service dates of August 2028 and September 2024, respectively. Until the projects receive an interconnection agreement, their construction and implementation are tentative.

State and county level construction projects listed pertain to road or other infrastructure repairs and general maintenance.[141] During the construction phase of the Project, an increased amount of traffic is to be expected with worker and equipment transports traveling similar routes. Should the timing of construction be similar between projects, coordination with appropriate parties on haul

138 Olmsted County. 2024. Olmsted County 2024 Construction Projects Map (available at https://www.olmstedcounty.gov/residents/roads-transportation/construction-projects/olmsted-county-2024-construction-projects-map).
139 MPCA. 2024e. Environmental Review Projects (available at https://pca-gis02.pca.state.mn.us/EQB/). Accessed July 2024.
140 MISO. 2024. Interactive Queue (available at https://www.misoenergy.org/planning/resource-utilization/GI_Queue/gi-interactive-queue/). Accessed July 2024.
141 MnDOT. 2024. Southeast Minnesota State Highway and Bridge Projects. (available at https://www.dot.state.mn.us/construction/2024/d6.html). Accessed July 2024.

route traffic volumes will be conducted to reduce significant impacts on travel in the area (see **Table 5.8-1**). Minimal long term cumulative impacts are anticipated.

Table 5.8-1: Other Projects in Close Proximity and Timeframe

No.	Project Sponsor/Title	General Project Location	Timeframe/In-Service Date	Project Type
1	Southern Minnesota Municipal Power Agency (J1534)	Olmsted County	2023	Solar
2	Southern Minnesota Municipal Power Agency (J1898)	Olmsted County	2024	Battery Storage
3	Dairyland Power Cooperative (J2219)	Olmsted County	2024	Solar/Battery Storage
4	Southern Minnesota Municipal Power Agency (J2731)	Olmsted County	2025	Battery Storage
5	Southern Minnesota Municipal Power Agency (J2840)	Olmsted County	2025	Battery Storage
6	Southern Minnesota Municipal Power Agency (J3039)	Olmsted County	2027	Solar
7	Southern Minnesota Municipal Power Agency (J3041)	Olmsted County	2027	Solar
8	GridUnity (J3445)	Olmsted County	2028	Combustion Turbine
9	CSAH 5	U.S. Highway 14 to intersection of CSAH 25 and CSAH 3	2024	Road Work
10	CSAH 25	Dodge-Olmsted County border to intersection of CSAH 25 and CSAH 5	2024	Pavement Preservation
12	West Transit Village Project	Rochester, Minnesota	2024-2025	Public Parking Construction
13	Mayo Clinic Redevelopment (Bold. Forward. Unbound.)	Rochester, Minnesota	2024-2030	Medical Institutional/ Electric Generating Facility
14	U.S. Highway 14 J-turn	Intersection of U.S. Highway 14 and Dodge County Road 9 west of Kasson	2024	Road Work
15	U.S. Highway 14 Resurfacing	U.S. Highway 14 from east of Highway 56 to west of CSAH 5	2024	Road Work
16	Highway 57 Reconstruction	Highway 57 from South Branch Middle Fork Zumbro bridge to 9th St. in Mantorville	2024	Road Work

6.0 AGENCY AND PUBLIC OUTREACH

As part of pre-Application efforts, Snowshoe BESS engaged with local, state, and federal regulatory stakeholders to introduce the Project, request comments, and solicit feedback. Additionally, Snowshoe BESS contacted the eleven recognized Minnesota Tribal Nations for comments. Snowshoe BESS will continue to engage with interested stakeholders throughout the Site Permit Application process.

In letters dated April 18, 2024 and June 6, 2024, Snowshoe BESS sent a Project introduction letter and map to federal, state, and local agencies, and other stakeholders with jurisdiction or interest in the Project Area through the United States Postal Service. This letter send via the United States Postal Service was supplemented by sending an email containing the same information where specific agency personnel could be identified, or a general agency email was available. Snowshoe BESS requested comments and input on permits or approvals that may be required. The agency list to whom the Project introduction letter was sent is included in **Table 6.0-1** below, and the representative email, letter, and project map is included in **Appendix B**.

In a letter dated April 18, 2024, Snowshoe BESS provided Project information and a map to Tribal Representatives in Minnesota (e.g., Tribal Historic Preservation Officers) that may have an interest in the Project Area and requested input on the proposed Project. The Tribal list to whom the Project letter and map were sent is included in **Table 6.0-1** below, and the representative letter and email are included in **Appendix G**.

A summary of all agency and tribal coordination and correspondence as of August 9, 2024, is provided in **Table 6.0-1** along with dates of correspondence. Responses received to date are included in **Appendices B** and **G**.

Table 6.0-1: Summary of Agency and Tribal Coordination

Agency	Date Letter Sent	Response Summary Receipt
Federal		
USACE, St. Paul District	April 18, 2024	Email response received on April 25, 2024.
USFWS, Minnesota Wisconsin Field Office	April 18, 2024	No response received to date.
EPA	April 18, 2024	No response received to date.
Federal Aviation Administration (FAA)	April 18, 2024	Email and phone call response received on April 19, 2024.
State		
Minnesota SHPO	April 18, 2024	Email response with attached letter received on July 5, 2024.
Minnesota Board of Water and Soil Resources	April 18, 2024	No response received to date.
MnDNR	April 18, 2024	Email response received on April 19, 2024.
MPCA	April 18, 2024	No response received to date.
Minnesota Department of Agriculture	April 18, 2024	No response received to date.
MnDOT	April 18, 2024	Email responses received to date on July 17 and 30, 2024.
MN DEED	April 18, 2024	No response received to date.
MDH	April 18, 2024	No response received to date.
Tribal Nations		
Lower Sioux Indian Community	April 18, 2024	No response received to date.
Upper Sioux Community	April 18, 2024	No response received to date.
Prairie Island Indian Community	April 18, 2024	No response received to date.
Shakopee Mdewakanton Sioux Community	April 18, 2024	Email responses received on April 19 and 25, 2024.
Bois Forte Band of Chippewa	April 18, 2024	No response received to date.
Fond du Lac Band of Lake Superior Chippewa Indians	April 18, 2024	No response received to date.
Grand Portage Band of Lake Superior Chippewa Indians	April 18, 2024	No response received to date.
Leech Lake Band of Ojibwe	April 18, 2024	No response received to date.
Mille Lacs Band of Ojibwe Indians	April 18, 2024	No response received to date.
Red Lake Nation	April 18, 2024	No response received to date.
White Earth Nation	April 18, 2024	No response received to date.
Minnesota Indian Affairs Council Cultural Resources	April 18, 2024	No response received to date.
Local		
Olmsted County Environmental Resources Director	June 6, 2024	No response received to date.
Olmsted County Economic Development Director	June 6, 2024	No response received to date.
Olmsted County Commissioner	June 6, 2024	No response received to date.
Olmsted County Administrator	June 6, 2024	No response received to date.
Olmsted County Planning Advisory Commission Chair	June 6, 2024	No response received to date.
Olmsted County SWCD Soil Conservation Manager	June 6, 2024	No response received to date.

6.1 Federal Agencies

On April 18, 2024, Snowshoe BESS sent a Project introduction letter and map to the USACE, USFWS, EPA, and the FAA. Federal written and verbal correspondence includes responses from

the USACE and FAA as detailed in **Table 6.0-1**. See **Section 5.5.8** for additional USFWS coordination, including information on the most recent IPaC report. USACE was contacted and responded with a request for eventual permit application submittal and pre-application meeting, if applicable. The FAA responded to initial outreach via email and phone call requesting that the Snowshoe Energy Storage Project be screened using the online FAA Notice Criteria Tool. Results from the FAA Notice Criteria Tool showed that the Project does not exceed notice criteria. No written response or correspondence has been received from either the USFWS or EPA.

6.2 State Agencies

On April 18, 2024, Snowshoe BESS sent a Project introduction letter and map to eight state of Minnesota agencies. Responses to date have been limited to those from the MnDNR requesting additional contacts be included in correspondence, as well as a SHPO comment letter, as detailed in **Table 6.0-1**. On July 30, 2024, the Applicant held an introductory meeting with MnDOT to discuss the proposed Project and any potential impacts to MnDOT ROW, if any. See **Section 5.5.8** for additional MnDNR coordination information, including results from the most recent NHIS Review. See **Section 5.4** for additional SHPO coordination information, including SHPO review and recommendations.

6.3 Tribal Nations

In a letter dated April 18, 2024, Snowshoe BESS provided Project information to 11 Tribal Nations in Minnesota, as well as the Minnesota Indian Affairs Council. Responses from Tribal Nations have been limited to those from the Shakopee Mdewakanton Sioux Community requesting desktop cultural resources information as detailed in **Table 6.0-1**.

6.4 Local Agencies and Other Stakeholders

In a letter dated June 6, 2024, Snowshoe BESS sent a Project introduction letter and map to the Olmsted County Environmental Resources Director, Economic Development Director, County Commissioner, County Administrator, Planning Advisory Commission Chair, and Soil and Water Conservation District Soil Conservation Manager. To date, no written responses have been received from any Olmsted County contacts.

Discussions with SMMPA were initiated early in the process to ensure overall compatibility with their regional infrastructure. Part of that conversation included site access and using the existing SMMPA access road to the SMMPA-Maple Leaf Substation for access to the facility. In the spring of 2023, email correspondence affirmed potential access scenarios. In an email dated May 12, 2023, Seth Koneczny of SMMPA affirmed that they were agreeable with sharing access via the existing SMMPA access road (**Appendix B**). Subsequent emails establish that SMMPA wanted to defer preparation of a formal agreement until the Project was more advanced. There has been no contrary communication since that time on this access permission.

6.5 Meetings

In addition to the above outreach and responses, Snowshoe BESS held various meetings with state and local representatives to introduce the Project, provide information, receive feedback, and design a Project that respects feedback and has the support of the community. As applicable, Snowshoe BESS has made a point of completing outstanding action items soon after these meetings were held. The general feedback has been positive, and Snowshoe BESS has provided fact sheets, articles, and other resources, specifically to state and local agencies, to maximize the understanding of the Project. Snowshoe BESS plans to continue community outreach through meetings, advertisements, and traditional public engagement activities. A summary of the completed meetings to date is included in **Table 6.5-1** below.

Table 6.5-1: Summary of Agency Meetings

Date	Agency	Meeting Summary
April 29, 2024	Olmsted County	Snowshoe BESS met with Tony Hill, Olmsted County Environmental Resources Director, and Kirk Burstrom, Olmsted County Economic Development Director.
April 29, 2024	Peoples Energy Co-op	Snowshoe BESS met with Marty Walsh, Peoples Energy Co-op Economic Development and Key Accounts Manager.
May 13, 2024	Olmsted County	Snowshoe BESS met with Michelle Rossman, Olmsted County Commissioner.
May 13, 2024	Byron	Snowshoe BESS met with Al Roder, City Administrator.
July 10, 2024	MPUC and DOC	Project introduction meeting with Ray Kirsch, Bret Eknes, and Craig Janezich
July 30, 2024	MnDOT	Snowshoe BESS met with Stacy Egstad, Brian McCoy, Ann Driver, Kurt Wayne, Paul Hartzheim, and David Evans to introduce the Project.