Janus Solar Project

Draft Environmental Assessment

Weld County, Colorado

DOE/EA-2254

December 2024

Prepared for:

U.S. Department of Energy

Western Area Power Administration

Rocky Mountain Region

555 East Crossroads Boulevard

Loveland, Colorado 80538

Phone: (800) 472-2306

Prepared by:

Western EcoSystems Technology, Inc.

415 West 17th Street, Suite 200

Cheyenne, Wyoming 82001

Phone: (307) 634-1756

Project Applicant:

Janus Solar, LLC

Suite 1820, 205 – 5th Avenue SW

Calgary, Alberta T2P 2V7

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Abbreviations

AC	alternating current
analysis area	Proposed Action Area and certain defined buffers, varied by resource
APE	Area of Potential Effect
APLIC	Avian Power Line Interaction Committee
Audubon	National Audubon Society
BCC	Birds of Conservation Concern
BESS	battery energy storage system
BGEPA	Bald and Golden Eagle Protection Act of 1940
BLM	Bureau of Land Management
BMP	Best Management Practice
CAA	Clean Air Act of 1970
CAP	criteria air pollutant
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CNHP	Colorado Natural Heritage Program
CO	carbon monoxide
CPW	Colorado Parks and Wildlife
CR	County Road
CRS	Colorado Revised Statutes
dBA	A-weighted decibels
DC	direct current
DOE	Department of Energy
EA	Environmental Assessment
EJScreen	Environmental Justice Screening and Mapping
EMF	electromagnetic field
EO	Executive Order
ESA	Endangered Species Act of 1973
FPPA	Farmland Protection Policy Act of 1978
FAA	Federal Aviation Administration
GAP	Gap Analysis Project
gen-tie	generation tie-in
GHG	greenhouse gas
HAP	hazardous air pollutant
I-76	Interstate 76
IBA	Important Bird Area
Important Farmlands	farmlands designated as either prime, unique, and/or land of statewide or local importance
IPaC	Information for Planning and Consultation
Janus	Janus Solar, LLC
kV	kilovolt

kV_{AC}	kilovolt alternating current
Line Upgrade Area	15.4 miles of WAPA ROW used to conduct upgrades
Line Upgrade	upgrades to 15.4 miles of the Prospect Valley-Willoby transmission line to accommodate the Solar Project
MBTA	Migratory Bird Treaty Act of 1918
mph	miles per hour
MW	megawatt
MW_{AC}	megawatt alternating current
NAAQS	National Ambient Air Quality Standards
NATA	National Air Toxics Assessment
NEI	National Emissions Inventory
NEPA	National Environmental Policy Act of 1969
NHPA	National Historic Preservation Act of 1966
NO_2	nitrogen dioxide
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
O_3	ozone
O&M	operations and maintenance
OATT	Open Access Transmission Service Tariff
$PM_{2.5}/PM_{10}$	particulate matter
Pb	lead
PFYC	Potential Fossil Yield Classification
Prime Farmland	land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses
Proposed Action	includes all components of the environmental analysis (e.g., Solar Project, Line Upgrades, and Switching Station Improvements)
Proposed Action Area	includes the Solar Project Area, Line Upgrade Area, and Switching Station Improvements
PV	photovoltaic
RNS	Raptor Nest Survey
ROW	right-of-way
Sand Creek Switching Station	WAPA's future switching station associated with the interconnection request
SHPO	State Historic Preservation Office
SIP	state implementation plan
SO_2	sulfur dioxide
SC	state special concern species
Solar Project	Janus Solar Project
Solar Project Area	Solar Project and all properties and parcels involved; proposed Solar Project located approximately 13 miles northeast of the Denver International Airport on 620 acres of privately owned land in Weld County, Colorado

SPCC	Spill Prevention, Control, and Countermeasure
strings	a linear arrangement of PV panels proposed at the Solar Project
SQRU	Scenic Quality Rating Unit
Switching Station Improvements	Modifications and improvements to a fourth terminal bay for interconnection at the Sand Creek Switching Station
SWPPP	Stormwater Pollution Prevention Plan
TCP	traditional cultural property
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
VOC	volatile organic compound
VRI	Visual Resource Inventory
WAPA	Western Area Power Administration

1 INTRODUCTION AND BACKGROUND

Western Area Power Administration (WAPA) is one of four power-marketing administrations within the U.S. Department of Energy (DOE) that operates and maintains electric transmission lines and associated facilities in accordance with the Federal Power Act of 1920, Section 211, and its Open Access Transmission Service Tariff (OATT; WAPA 2023). WAPA's mission is to "safely provide reliable, cost-based hydropower and transmission to our customers and the communities we serve."

WAPA's customers include federal and state agencies, cities and towns, rural electric cooperatives, public utility districts, irrigation districts, and Native American tribes. WAPA's customers, in turn, provide retail electric service to millions of consumers in the West. Transmission capacity above the amount WAPA requires for the delivery of long-term firm capacity and energy to current contractual electrical service customers of the federal government is offered in accordance with its OATT.

Janus Solar, LLC (Janus), is proposing to construct, operate, maintain, and decommission an up to 80-megawatt alternating current (MW_{AC}) nameplate capacity, utility-scale solar photovoltaic (PV) facility and a 20-MW_{AC} battery energy storage system (BESS), with a storage duration of four hours, at the Janus Solar Project (Solar Project). The proposed Solar Project would be located approximately 13 miles northeast of the Denver International Airport, on approximately 620 acres of privately owned land in Weld County, Colorado (Solar Project Area; Figures 1-1 and 1-2), where Janus has entered into agreements with local landowners interested in participating in the proposed Solar Project.

Janus is requesting interconnection of the Solar Project to the WAPA transmission system at WAPA's future Sand Creek Switching Station, to be located adjacent to the proposed Solar Project. The proposed Solar Project's generation tie-in (gen-tie) line would directly interconnect with the WAPA substation via a 115-kV transmission line (Figure 1-1).

WAPA completed a system impact study in July 2023 and determined that upgrades were required for the interconnection to accommodate the proposed Solar Project. Specifically, a fourth 115-kV terminal bay; improvements, including a 3-breaker ring bus, at the Sand Creek Switching Station; and upgrades to 15.4 miles of the Prospect Valley-Willoby 115-kV transmission line must be completed. Figure 1-2 shows the proposed Solar Project Area in relation to the proposed interconnection at the Sand Creek Switching Station and the 15.4 miles of transmission line that would require upgrades.

In accordance with the OATT, WAPA's consideration to grant an interconnection request is a major federal action, triggering an environmental review pursuant to the National Environmental Policy Act of 1969 (NEPA) as well as the DOE's and Council on Environmental Quality's (CEQ's) NEPA implementing regulations. Under these regulations, the proposed Solar Project is considered a connected action to WAPA's federal decision of granting an interconnection to its transmission system. On April 14, 2023, WAPA determined the need for the preparation of an Environmental Assessment (EA) for the proposed federal action, in accordance with 40 Code of

Federal Regulations (CFR) § 1501.5 (2020) and 10 CFR § 1022.11 (2021), Subpart D, Appendix C, C7, to analyze the effects of the interconnection, proposed Solar Project, and system upgrades required to accommodate the interconnection.

1.1 Western Area Power Administration's Purpose and Need

WAPA's purpose and need is to consider and respond to the request for an interconnection agreement in accordance with its OATT and the Federal Power Act of 1920, as amended.

1.2 Goals and Objectives of Janus Solar, LLC

Janus' goals and objectives for the proposed Solar Project are to deliver a clean and cost-effective source of renewable energy into the Colorado transmission system, via the interconnection with the WAPA transmission system, in support of the state's energy goals of reducing greenhouse gas (GHG) emissions and transitioning the state to clean energy. These state goals include, but are not limited to:

- House Bill 1261 (2019) in which Colorado has set statutory, economy-wide targets for reducing GHG pollution, with goals of 26% reduction by 2025 (below 2005 levels), 50% reduction by 2030, and 90% reduction by 2050
- Colorado's renewable energy standard, as set by Colorado Revised Statutes (CRS) § 40-2-124 (2023), Senate Bill 252 (2023), and Senate Bill 263 (2023), requires 30% renewable energy for investor-owned utilities; 0% or 20% for municipalities and electric cooperatives, depending on size; and 100% clean energy by 2050 for utilities serving 500,000 or more customers

1.3 Public Involvement, Consultation, and Coordination

1.3.1 Public Involvement

Public outreach efforts conducted by Janus for the proposed Solar Project prior to the initiation of the NEPA process included individual neighbor meetings, a public open house, and a Solar Project website (Prospect Solar and Janus Solar 2024). The public open house meeting was hosted by Janus on July 5, 2023, for landowners, tenants, and neighbors within 1,000 feet of the proposed Solar Project Area; interested members of the public; as well as community partners from across the region to consider and incorporate input, as appropriate, into the proposed Solar Project plans. Follow-up notifications regarding the Solar Project were sent in August 2023, to ensure that all neighbors had an opportunity to review and provide feedback.

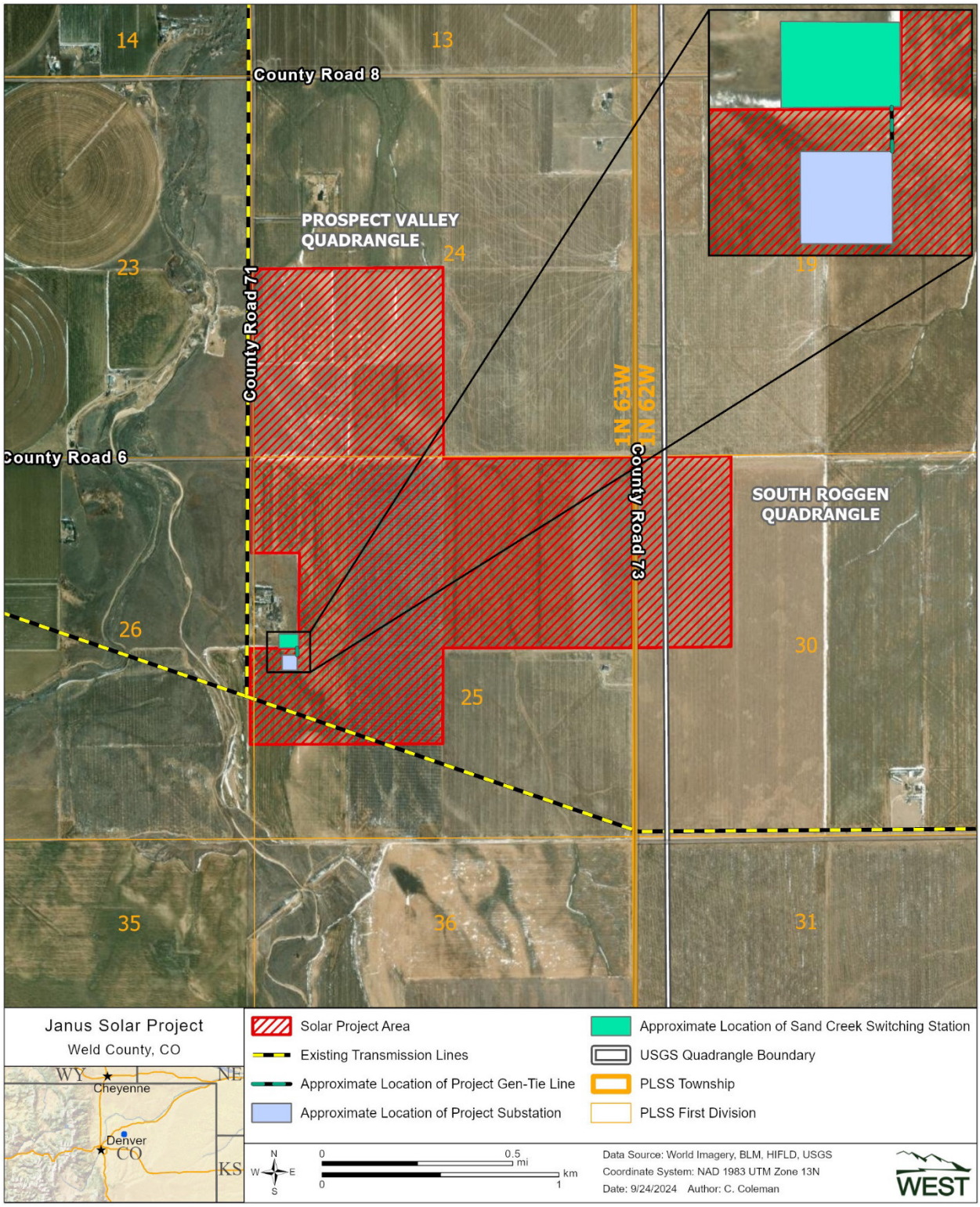

Figure 1-1. Proposed Solar Project Overview for the Janus Solar Project, Weld County, Colorado.

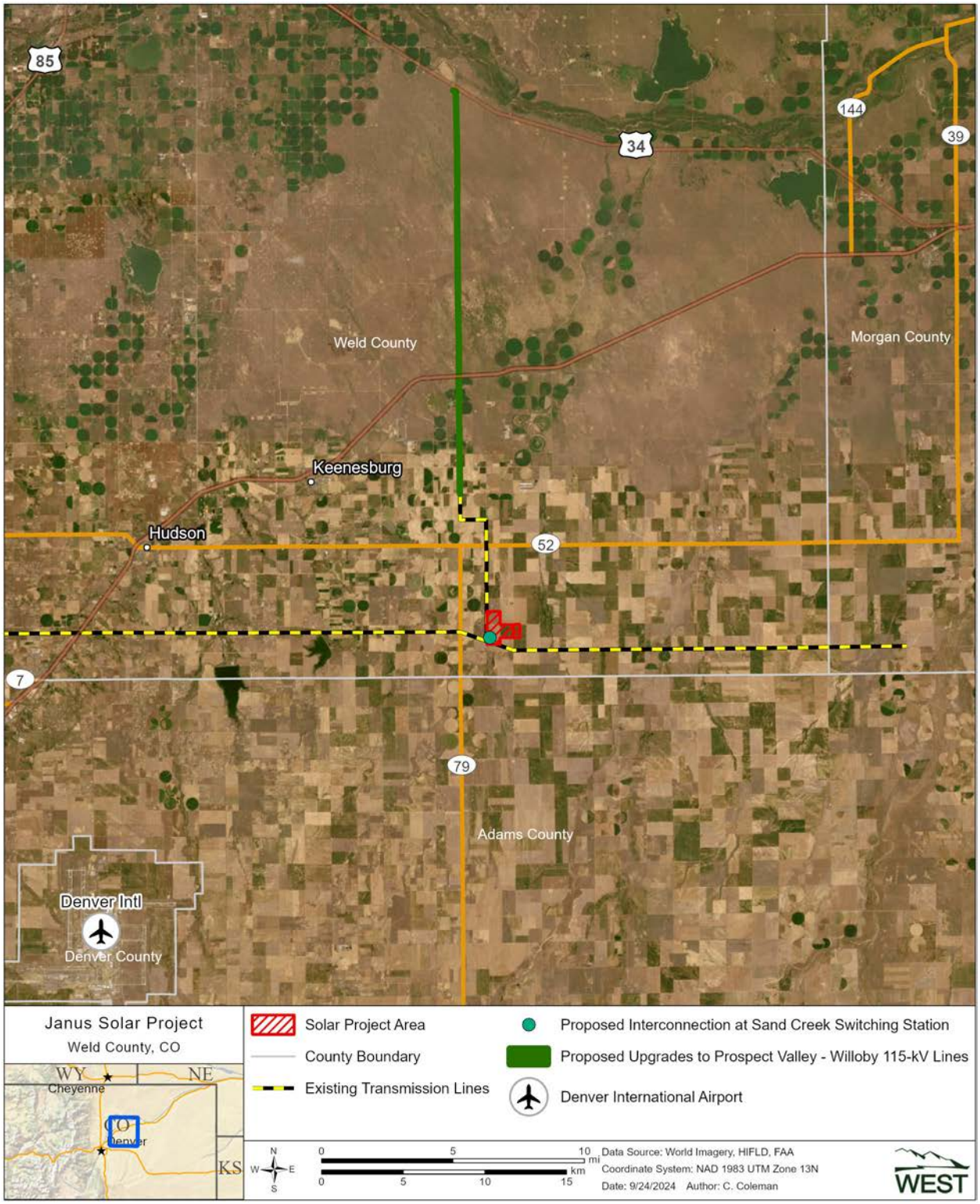

Figure 1-2. Solar Project and Interconnection Overview in Relation to Transmission Line Upgrade at the Janus Solar Project, Weld County, Colorado.

The NEPA public scoping process for the proposed Solar Project was initiated on December 1, 2023, with a distribution of the Solar Project description and invitation for public comment. The letters were sent out to a mailing list composed of landowners, adjacent landowners, agencies, and interested parties. Additionally, on December 6, 2023, the Solar Project description and request for public input were published in the *Greeley Tribune* and the *Lost Creek Guide*. Public comments were requested by January 6, 2024. Three public comments were collected during the public scoping period and are summarized below in Table 1-1 (Appendix A).

Table 1-1. Summary of Public Comments Received during the Public Scoping Period for the Janus Solar Project, Weld County, Colorado.

Commentor	Comment Summary
Private Landowner	No opposition to development; supportive of the Solar Project.
U.S. Department of Agriculture Natural Resources Conservation Service (NRCS)	Solar Project is not subject to the Farmland Protection Policy Act (FPPA) of 1978. The NRCS encourages the use of accepted erosion control practices during the construction of this Solar Project.
U.S. Army Corps of Engineers (USACE)	In accordance with Section 404 of the Clean Water Act of 1972, the USACE reviews and authorizes any work associated with the discharge of dredged or fill material and any excavation associated with a dredge or fill project, either temporary or permanent, in waters of the United States (WOTUS). Wetland delineations are recommended within the Solar Project Area. A Nationwide, Regional General, or Standard Individual Permit may be required. If Solar Project activity would impact WOTUS, the USACE Denver Regulatory Office should be notified.

1.3.2 Agency Coordination and Consultation

As part of the NEPA review process, WAPA has contacted key federal, state, county, and local agencies to initiate coordination for the proposed Solar Project. Janus initiated coordination with WAPA on March 2, 2022, with the submittal of an interconnection request for the Sand Creek Switching Station. WAPA determined the proposed Solar Project would require completion of an EA on April 14, 2023, which was agreed to by Janus. Coordination on development of the EA has been ongoing since.

Janus contacted the U.S. Fish and Wildlife Service (USFWS) on November 10, 2022, to begin early engagement regarding federally listed species that may occur in or near the proposed Solar Project Area. The USFWS responded on February 3, 2023, indicating that there are no concerns with the Solar Project resulting in impacts to species listed under the Endangered Species Act of 1973 (ESA) as threatened or endangered, nor to species proposed for listing. Additional details regarding agency coordination and consultation with USFWS are provided in the Biological Resources Technical Report (Appendix B).

Janus initiated consultation with Colorado Parks and Wildlife (CPW) on November 10, 2022, to provide information on the proposed Solar Project and begin review of the Solar Project Area. CPW responded with recommendations for the Solar Project on May 17, 2023, which have been incorporated into Solar Project planning and development. Additional details regarding agency

coordination and consultation with CPW are provided in the Biological Resources Technical Report (Appendix B). Janus will continue consultations with CPW throughout the lifetime of the Solar Project, as necessary.

Janus submitted an application for a Weld County 1041 Permit and Use by Special Review Permit for the Solar Project on November 21, 2023. A pre-application conference between Janus and Weld County was held on April 5, 2023, to discuss the requirements for the permit and application submittal. Janus submitted a draft application for a Weld County 1041 Permit and Use by Special Review Permit on May 14th, 2024. On September 20, 2024, the Weld County Department of Planning Services recommended the 1041 Permit for approval. Weld County 1041 Permit hearings were heard in October 2024, between Janus and Weld County. On October 1, 2024, the Planning Commission recommended the 1041 Permit for approval, and on October 23, 2024, the Board of County Commissioners approved the permit. Janus continues to engage and communicate with Weld County staff and commissioners through the permitting process.

Class I and Class III cultural resource surveys of the proposed Solar Project Area have been completed and are further described in Section 3.6.1. As discussed in Section 3.6, WAPA initiated consultation with the Colorado State Historic Preservation Office (SHPO), according to Section 106 of the National Historic Preservation Act of 1966 (NHPA) and will continue coordination throughout the lifetime of the Solar Project, as necessary.

1.3.3 Tribal Consultation

WAPA initiated formal consultation with interested tribes on a government-to-government level on October 31, 2024, and invited federally recognized tribes (i.e., Apache Tribe of Oklahoma; Cheyenne and Arapaho Tribes; Comanche Nation; Northern Arapaho Tribe of the Wind River Reservation; and Northern Cheyenne of the Northern Cheyenne Indian Reservation) to participate in the Section 106 consultation process. Additional details on the Section 106 consultation process and tribal consultation are provided in Section 3.6. Consultation with tribes will be ongoing throughout the NEPA process.

2 PROPOSED ACTION AND ALTERNATIVES CONSIDERED

This EA analyzes two alternatives: the Proposed Action Alternative and the No Action Alternative.

2.1 No Action Alternative

Under the No Action Alternative, WAPA would deny Janus' interconnection request. WAPA would not complete the upgrades to the Sand Creek Switching Station or to the Prospect Valley-Willoby 115-kV transmission line. However, as part of WAPA's long-term planning, the Sand Creek Switching Station would still be constructed and operated with 115-kV transmission. For the purposes of impact analysis and comparison, it is assumed that the proposed Solar Project would not be constructed, operated, maintained, or decommissioned.

2.2 Alternatives Considered but Eliminated from Further Study

Janus initially evaluated a large land area for potential interconnection locations within the vicinity of the Sand Creek Switching Station (Section 2.3.4.1). Northern locations were not considered viable due to the proximity to neighboring residences, and southern locations were not considered viable due to excessive interconnection and collector system line lengths. The proposed Solar Project's approximate 620-acre final footprint was ultimately selected because it offered circumstances favorable to solar and BESS facilities, specifically:

- Ample undeveloped flat land with the ability to accommodate various layouts of PV solar arrays and the incorporation of appropriate setbacks
- Existing transmission infrastructure less than 0.2 miles from the property
- Augmenting, while sustaining for future landowners, current unsustainable primary land use as indicated by the landowners (e.g., lack of irrigation, termination of water rights)

Additionally, Solar Project facilities within the proposed Solar Project Area were sited to maximize energy production while avoiding or reducing potential cultural, wetland, wildlife, visual, sound, and other impacts to the greatest extent possible, and in compliance with landowner agreements, pertinent regulations, state recommendations, and county setback and siting requirements.

2.3 Proposed Action Alternative

The Proposed Action Alternative is for WAPA to:

- Grant the interconnection request and enter into an interconnection agreement with Janus
- Modify and make improvements to a fourth terminal bay for interconnection at the Sand Creek Switching Station
- Upgrade 15.4 miles of the Prospect Valley-Willoby 115-kV transmission line to accommodate the proposed Solar Project

Under this alternative, Janus would construct and operate the proposed Solar Project, as described below. To accommodate the interconnection, WAPA has determined that the Solar Project is a connected action to the proposed federal action. This alternative evaluates both WAPA's proposed federal actions and the connected action, collectively referred to as the Proposed Action Alternative.

2.3.1 Proposed Solar Project Description and Construction

The proposed 80-MW_{AC} nameplate capacity, utility-scale solar PV facility would consist of the following components:

- A solar facility

- A 20-MW_{AC} BESS
- An on-site substation
- An up to 0.6-mile-long 115-kV gen-tie line
- Ancillary facilities

As is typical with development of solar projects, exact locations of the proposed facilities are subject to change due to factors such as permitting constraints, site conditions, equipment specifications, and utility coordination, though the entire facility would be located within the approximate 620-acre Solar Project Area. The improvements to the Sand Creek Switching Station and the Prospect Valley-Willoby 115-kV transmission line would take place within WAPA's existing facility properties and/or rights-of-way (ROWs). The anticipated surface disturbance is shown in Table 2-1.

Table 2-1. Anticipated Surface Disturbance for the Janus Solar Project, Weld County, Colorado.

Component	Assumptions	Disturbance[a] Footprint (acres)	Type of Disturbance
Solar Arrays, Tracking and Support Structures	Construction of the solar arrays and associated structures would occupy all of the 620-acre enclosed area of the solar facility, with the exception of the other components described within this table.	606.7	Permanent[b]
Inverters with DC-coupled BESS	Twenty-three inverters with adjacent BESS located throughout the solar facility.	0.2	Permanent
On-site Electrical Distribution	A distribution line to the Solar Project substation may be constructed in order to provide back-up auxiliary power.	TBD	TBD
Solar Project Substation	An approximately 200-foot by 200-foot substation would step up power from the 34.5-kV solar collection lines and deliver it to the gen-tie line.	0.9	Permanent
Operations and Maintenance Facility and Vehicle Turn-around Area	This building would have a footprint of approximately 24 feet by 120 feet, which would house safety equipment.	0.1	Permanent
Gen-tie Line	Up to 0.6-mile long 115-kV gen-tie line which connects the Janus Solar Substation to the Sand Creek Switching Station.	TBD	Temporary[c]
Underground Collection Lines	An estimated 29,600 linear feet of collection lines would be used to connect solar panels across the Solar Project.	4.6	Temporary
Upgrade and Interconnection at Switching Station	Addition of a new 115-kV terminal bay, including a 115-kV power circuit breaker, switches, associated bus work, and protective relaying.	0.9	Temporary
Access Roads	Access roads within the Solar Project Area would include approximately 18,838 linear feet of 16-foot-wide access roads and 684 linear feet of 20-foot-wide access roads.	7.2	Permanent

Table 2-1. Anticipated Surface Disturbance for the Janus Solar Project, Weld County, Colorado.

Component	Assumptions	Disturbance[a] Footprint (acres)	Type of Disturbance
Upgrade to 115-kV Line	15.4 miles of upgrades within a 75-foot existing ROW.	142.0	Temporary
Solar Project Laydown and Temporary Parking Area	Laydown and staging area would be used to store materials and equipment during construction.	18.4	Temporary

[a] Disturbance acreages are based on preliminary designs for the purposes of analysis. Final facility design may not reflect acreages.

[b] Solar arrays would have minimal permanent ground disturbance, as panels are mounted on narrow piles driven into the ground. Once the proposed Solar Project is constructed, it is expected to operate for up to 40 years.

[c] Permanent impacts within the proposed ROW for the overhead transmission line are expected to be minimal, with the exception of land replaced by pole installation.

BESS = battery energy storage system; DC = direct current; gen-tie = generation tie-in; kV = kilovolt; ROW = right-of-way; TBD = to be determined.

Solar Project components used throughout this EA, as well as definitions, are provided below and shown on Figure 2-1.

- **Solar Project**: The Janus Solar Project
  - **Solar Project Area**: The Solar Project and all properties and parcels involved (Section 2.3.2)
- **Line Upgrade**: Upgrades to 15.4 miles of the Prospect Valley-Willoby 115-kV transmission line to accommodate the Solar Project
  - **Line Upgrade Area**: 15.4 miles of WAPA ROW used to conduct upgrades (Section 2.3.7)
- **Switching Station Improvements**: Includes modifications and improvements to a fourth terminal bay for interconnection at the Sand Creek Switching Station; the location of the improvements within the Sand Creek Switching Station will depend on the final route of the gen-tie (Section 2.3.4)
- **Proposed Action**: Includes all components of the environmental analysis (e.g., Solar Project, Line Upgrade, and Switching Station Improvements)
  - **Proposed Action Area**: Includes the Solar Project Area, Line Upgrade Area, and the Switching Station Improvements

Environmental resources were reviewed within the Proposed Action Area and certain defined buffers depending on the resource (analysis area), including, but not limited to, land use and farmland (Section 3.1); socioeconomics (Section 3.2); visual resources (Section 3.5); cultural resources (Section 3.6); and wildlife, special-status species, and habitats (Sections 3.8 and 3.9, respectively).

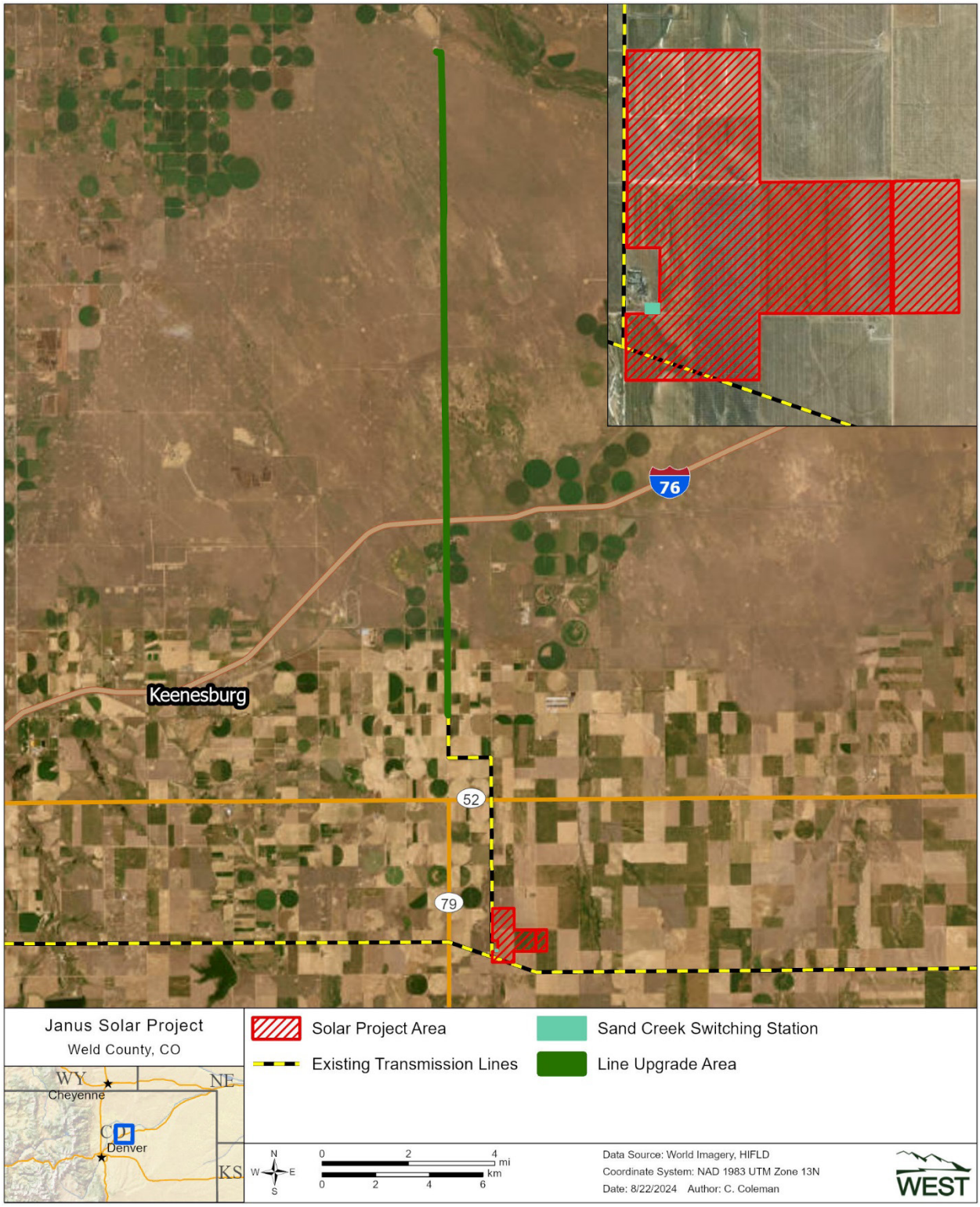

Figure 2-1. Solar Project and Line Upgrade Areas in Relation to the Sand Creek Switching Station at the Janus Solar Project, Weld County, Colorado.

2.3.2 Solar Facilities

The equipment in the proposed Solar Project would include solar panels, racking equipment, underground collection lines, a BESS, a substation, inverter stations, a transformer, and maintenance facilities, all of which would be enclosed by a perimeter security fence containing approximately 563 acres.

The proposed Solar Project has been sited on mostly flat terrain; therefore, minimal site grading would be conducted. Most grading activities would be associated with site preparation for the inverters, substation, laydowns, access roads, and yards. Most of the solar arrays would be constructed (pile driven) on original grade over the existing vegetation, with grading and soil stripping only required to smooth out localized knolls and depressions or to facilitate appropriate stormwater runoff. Where grading is necessary, equipment would excavate, contour, and compact the ground to meet the component design requirements. Grading within the facility would match existing grades as closely as possible and the existing contours would be smoothed out for access purposes. Areas that are graded would be reclaimed to the condition existing prior to the installation of solar panels, as is reasonably practicable.

While the Solar Project has been designed to minimize erosional impacts to the extent feasible, a Stormwater Pollution Prevention Plan (SWPPP) would be developed as prescribed under Colorado Department of Public Health and Environment's Colorado Discharge Permit System General Permit No. COR400000: Master General Permit for Stormwater Discharges Associated with Construction Activities. The Solar Project would utilize erosion control measures and Best Management Practices (BMPs) at and near disturbed areas on an as-needed basis to comply with county, state, and federal standards.

2.3.2.1 Solar Arrays

The proposed Solar Project would consist of bifacial PV panels affixed to single axis tracking structures that follow the sun from east to west throughout the day. Bifacial panels are designed to generate electricity with solar energy captured on both sides, increasing efficiency. These PV panels would be mounted in portrait and arranged in a series, called "strings." Strings would be combined in combiner boxes mounted at the end of the mounting structure and the output from these is then connected via belowground cables to the inverter stations, where the energy is converted to alternating current (AC); and then stepped to an intermediate voltage, typically 34.5 kV.

The mounting structure tables would be less than 10 feet in height, measured from the highest grade below each solar panel to the highest extent of the solar panel rotation. Vehicular access lanes around the project would exist as gravel roads (Section 2.3.5). Native plant seeding (e.g., grasses and forbs) would be incorporated between and around the solar arrays to restore the appearance of the proposed Solar Project Area and to promote the return of native species and pollinators (Section 3.9). No buildings, asphalt, or parking areas would exist within the solar arrays.

2.3.2.2 Tracking and Support Structures

The tracking system would be supported by driven piers (piles) directly embedded into the ground. Most of the tracking racks and support structures would be pile driven over the existing vegetation in 26-foot-wide rows on center. The panels typically are about five feet from the ground when horizonal and less than 10 feet from the ground at their highest extent.

2.3.2.3 Inverter Stations

Inverter stations perform three critical functions for the solar facility: 1) collect DC power in a central location, 2) convert the DC power into AC power, and 3) convert low-voltage AC power to medium-voltage AC power. The proposed Solar Project would include 23 inverters where DC power would be transformed to 34.5-kilovolt alternating currents (kV_{AC}) via the associated step-up transformer in each inverter station. The output of the transformers would then be collected by the AC collection system via a below-ground system. This AC collection system would deliver the electricity to the on-site substation, where the voltage would be stepped up to the interconnection voltage.

2.3.2.4 Battery Energy Storage System

The Solar Project would contain a lithium-ion based BESS with a DC-coupled system. Battery units would be stored in containers next to some of the inverter stations. Thereby, the battery containers would be distributed throughout the solar arrays, adjacent to their respective inverters. The containers would be similar in size to the inverter stations. Typical battery segment dimensions are 8 feet one inch in diameter by five feet two inches in length by ten feet eight inches in height. As an example, a photograph and additional BESS technical specifications can be found in Appendix C. As is typical for industry, inverters and the BESS would be controlled by a central control system. The BESS would be capable of delivering up to 20 megawatts (MW) over four hours (approximately 80-MW hours). All energy stored on the BESS would solely be generated by the Solar Project and no other sources of energy would be used to charge the BESS.

2.3.2.5 On-site Electrical Distribution

Auxiliary power from the local distribution network may be constructed to supply power to both the monitoring system, PV system, and BESS inverters when they are not in use. A distribution line to the Solar Project Substation has not been designed as of the date of this document; however, the system would run adjacent to existing access roads, where possible, and may include overhead or underground collector lines.

2.3.3 Solar Project Substation

A step-up substation from 34.5–115 kV would be constructed for the proposed Solar Project to interconnect with the Sand Creek Switching Station, which is rated 115 kV. The Solar Project Substation would have a footprint of approximately 200 feet by 200 feet, including area for an attached control house. Equipment enclosures would be included at the substation site to

protect electrical equipment from the elements. Adjacent to the substation, an operations and maintenance (O&M) building would be constructed to house safety equipment. No parking areas would be associated with the O&M building, and vehicles would park on access roads.

2.3.4 Generation Tie-in Line

The Solar Project Substation would be connected to the Sand Creek Switching Station via a short, up to 0.6-mile, 115-kV gen-tie line located within the Solar Project Area that would interconnect to WAPA's future Sand Creek Switching Station 115-kV bus (Figure 1-1). The location of the improvements within the Sand Creek Switching Station will depend on the final route of the gen-tie. A corridor of 160 feet on the centerline of the proposed gen-tie route would be utilized for construction, which includes 100 feet on each side for temporary use and a 75-foot-wide permanent ROW.

2.3.4.1 Interconnection Switchyard

The 115-kV gen-tie line would terminate within the interconnection switchyard, which would contain the necessary electrical equipment to interconnect directly to WAPA's Sand Creek Switching Station. To accommodate the interconnection, a fourth 115-kV terminal bay and improvements, including a 3-breaker ring bus, would be constructed and installed. Work completed for the interconnection would be confined to WAPA's acquired ROW for the Sand Creek Switching Station.

2.3.5 Access Roads

Proposed access roads constructed within the Solar Project Area would primarily be 16-foot-wide gravel roads, except for the permanent site entrance near the substation where the access road would be a 20-foot-wide gravel road. In total, proposed access roads within the Solar Project Area would include approximately 18,838 linear feet of 16-foot-wide gravel access roads and 684 linear feet of 20-foot-wide gravel access roads.

2.3.6 Fencing

The solar facility would be enclosed by an 8-foot-high security fence with appropriate signage and would be constructed around the perimeter of the Solar Project to prevent the public from entering the area. Janus will establish landscape screening, consisting of a variety of tree and shrub species such as Rocky Mountain juniper (*Juniperus scopulorum*) and skunkbush sumac (*Rhus trilobata* var. *trilobata*), on a portion of the western side of the proposed Solar Project Area to provide a visual buffer and more natural appearance with the existing landscape.

Access to the solar facility would be provided through drive-through gates. Three of the proposed access roads would originate off County Road (CR) 71 and two off CR 73. All five site entrance locations would have 24-foot-wide access gates (two gates, each 12 feet wide) to access the solar facility.

2.3.7 Upgrades to Prospect Valley-Willoby 115-kilovolt Transmission Line

Interconnection of the proposed Solar Project would require upgrades to 15.4 miles of the Prospect Valley-Willoby 115-kV transmission line. Specifically, reconductoring is required to upgrade to 131 megavolt-amps, which would be completed within WAPA's existing ROW for the line. It is expected that construction activity for the Line Upgrade would be conducted in seven discrete sections (typically every 2.0–3.0 miles) of the 15.4 miles of ROW.

Conductors would be unclipped manually, via bucket truck, from each pole structure and travelers (pully-like devices) would be installed to allow pulling of the new conductor. Each discrete section would have a pulling site with a trailer to pull the new conductor. Each phase of the conductor would be attached to the trailer, with the new conductor at the start of each pulling run so as the old conductor is removed; the new conductor is pulled into its place.

After the new conductor is pulled into place, each pole structure would be revisited, travelers would be removed, and the new conductor would be clipped into place. Alternatively, a helicopter may be used as the preferred best approach to attach travelers, insulators, and unclip and clip the conductor, which would decrease ground impacts and time needed to complete the upgrades.

No grading or vegetative clearing would be required to complete the upgrades. It is expected that construction activity along the Line Upgrade would take up to three weeks.

2.3.8 Traffic

Construction of the Solar Project would require the use of existing roads and highways to access the proposed Solar Project Area from the north. Regional access to the Proposed Action Area would be provided by Interstate 76 (I-76). CR 73 would be a north/south haul route to/from I-76 (Exit 48 – Roggen). State Highway 52 would be an east/west haul route to/from I-76 (Exit 31 – Hudson), connecting with CR 73 north of the proposed Solar Project Area. The permanent site entrance near the substation would be located off CR 71, which would be accessed via CR 8 (Appendix D).

During the construction period it is estimated that approximately 250–350 temporary full-time equivalent employees would be assigned to the Solar Project, with as many of the positions as possible open to the local workforce (Appendix D). Between 100–250 full-time equivalent workers would be on-site at any one time, depending on the phase of construction. A combination of light trucks, tandem trucks, small- and moderate-sized mobile cranes, concrete trucks, and delivery trucks would be expected on site during construction. Total estimated construction traffic on-site would be 90–100 vehicles per day, depending on the length of the construction period (Appendix D). During the operation phase, the unmanned facility would generate approximately 10 on-site visits per month utilizing lightweight trucks and cars for routine and periodic inspections or maintenance.

For the Line Upgrade, it is assumed that 8–10 temporary full-time equivalent employees would be contracted to perform the upgrades. It is expected that up to five medium- to heavy-duty vehicles or vehicle-equivalents (e.g., bucket trucks, pulling equipment) would be used during a 3-week construction period.

2.3.9 Temporary Laydown Yard and Parking Areas

The proposed Solar Project has designated one laydown yard and staging area, as well as three areas for temporary construction trailers and parking. There would be no stockpiles on site, but items would be stored in the laydown yard, with the type of items dependent on the phase of construction. During construction, these items would include mounting structures, panels, site welfare containers, car parking, gravel, inverters, combiner boxes, cables, and machinery when not in use. After construction, these temporary use areas would be reclaimed, as near as practicable to pre-existing conditions (Section 2.3.13).

During the operational phase of the Solar Project, replacement parts and maintenance items for the operation of the facility would likely be stored on-site in a secure area. No fuel, wastes, explosives, or chemicals would be stored/contained on-site at any time.

2.3.10 Construction Timing

Construction of the proposed Solar Project is projected to begin Spring 2026, with operation beginning Fall 2028, as shown in the tentative Solar Project schedule (Table 2-2). Construction of the Solar Project would occur during daylight hours over the 12–14-month construction period. In the event construction activities continue past daylight (for example in winter) and nighttime lighting is required, lighting would be temporary and down-shielded. Completion of the Line Upgrade is expected to take a maximum of three weeks during daylight hours.

Table 2-2. Tentative Solar Project Schedule for the Janus Solar Project, Weld County, Colorado.

Milestone	**Date**
Begin NEPA process	Winter 2023
Obtain Weld County 1041/USR Permit	Fall 2024
Complete cultural and tribal consultations	Fall 2024
File and obtain local, state, and federal construction permits	Spring 2025
Obtain Notice to Proceed	Spring 2025
Begin construction of Solar Project substation, solar arrays, and transmission line	Spring 2026
Beginning of operation	Fall 2028
Future phases of Solar Project	*Not Anticipated*
Projected end of operation	2068

NEPA = National Environmental Policy Act of 1969; USR = Use by Special Review.

2.3.11 Water Use

Water use and consumption for the proposed Solar Project would generally include construction/dust control, fire control, and washing/maintenance. Water necessary for the construction of the proposed Solar Project would be met by the occasional purchase or trucking in of outside water where needed, or through the establishment of a proposed aboveground water collection tank near the on-site water well.

During construction, water consumption would be primarily associated with dust mitigation and related aspects of the construction phase. This water may be supplied by outside service companies as part of their spray mix system and may not require any contribution of local water from the area. Stormwater controls and related mitigation measures during construction would also manage existing surface water flow and maintain water quality, as required by governing regulations. Water would also likely be needed for initial planting and maintenance of plants used for screening, although species would be selected for their minimal ongoing watering requirements.

While the proposed Solar Project presents minimal fire risks, Janus has committed to assisting local fire control authorities in ongoing fire control activities by adding a designated water tank near the on-site well for general fire control purposes. The existing on-site water well would be utilized with the installation of an electric pump, which would periodically fill the water tank. Further, fuel would not be necessary, and the pump would be able to run indefinitely. Should an emergency arise, attachments would be available for emergency responders to pump water from the tank. While fire is not a typical concern for PV and BESS systems, the Solar Project's water tank may be utilized by the Southeast Weld Fire District and would provide a key resource for protection against fires in the region, especially in times of drought.

During operations, the primary water supply needed for the proposed Solar Project would be for washing and maintaining the solar panels and supporting facilities, in part to maximize energy return. The exact cleaning schedule would be a function of precipitation, dust, and other particulates settling on the panels. To minimize cleaning, Janus would intend to utilize a commercial contractor to treat neighboring roads with IntegriBlend CS products (GMCO Corporation, Rifle, Colorado), a blend of liquid magnesium chloride and a complex sugar. Should the utilization of IntegriBlend CS be warranted on county roads, Janus will seek approval from Weld County, including the Department of Public Works, prior to application. This product would be an environmentally friendly solution for gravel road stabilization and dust control and would last 8–12 months before the mixture would need to be resprayed. Application of this product would reduce dust within the Solar Project Area and, therefore, reduce water consumption related to cleaning during the operation period. Overall, the proposed Solar Project would require an estimated 2,300 gallons per year in operation, which, as described above, would be sourced from an on-site water well.

2.3.12 Operations and Maintenance

The operation of the proposed Solar Project would generally be controlled remotely from the operator and local utility central control centers. The Solar Project components would be monitored remotely 24 hours a day, seven days a week, to ensure safe and reliable operation. During normal operation, the facilities would generally be unmanned, and personnel would only be on-site during routine or emergency maintenance events. The solar facility and substation would generally be accessed by the operator and utility personnel on a quarterly basis to conduct routine inspections or maintenance. O&M work would typically be done monthly and last only a few days. The Solar Project is anticipated to operate until 2068 (Table 2-2).

2.3.13 Decommissioning and Reclamation

A Decommissioning Plan is being prepared for the Solar Project to address returning the site to pre-existing conditions, as near as practicable, following operation cessation. Once the proposed Solar Project is constructed, it is expected to operate for up to 40 years (see Section 2.3.1, Table 2-1). In accordance with this plan, decommissioning activities would begin within seven months of the Solar Project ceasing operation and would be anticipated to be completed in 6–12 months. Monitoring and site restoration may extend beyond this period to ensure successful revegetation and rehabilitation.

Decommissioning would be conducted via similar methods as those used in construction of the Solar Project. Once decommissioned, all solar facility components would be removed, including solar panels, inverters, tracking racks, BESS, substation, and support facilities. Fixtures installed below the soil surface (e.g., foundations, steel piles, electric cabling and conduit) would be removed, as well as access roads and perimeter fencing.

Removed materials would be sold for reuse or refurbishment, salvaged, or recycled, to the extent possible. Depending on the condition of components at the time of decommissioning, those that have resale value may be sold in the wholesale market. Components with no wholesale value would be salvaged and sold as scrap for recycling, or disposed of at an approved off-site, licensed solid waste disposal facility.

Following removal of all Solar Project components, the land would be restored and revegetated to pre-development conditions, to the extent practicable. Areas excavated and backfilled would be graded; soils compacted during decommissioning activities would be de-compacted. Damaged drain tiles would be restored to pre-construction conditions, if present, and topsoil would be placed on disturbed areas and seeded with appropriate vegetation, or in coordination with landowners within agricultural land.

3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS

3.1 Land Use and Farmland

This section describes the existing conditions related to land use and farmland within the Proposed Action Area and analyzes the potential effects the Proposed Action Alternative and the No Action Alternative could have on these resources. The analysis area for land use and farmland includes the Solar Project Area and Line Upgrade Area. The Switching Station Improvements are not included in the analysis area as these improvements would occur within an existing facility.

3.1.1 Existing Conditions

Current land use within the Solar Project Area is primarily dryland agricultural row crops with the most common crops in production at the time of evaluation being sorghum (*Sorghum spp*.) and winter wheat (*Triticum spp*.). Small areas of herbaceous cover are present within a livestock pasture, roadside ditches, and low-lying areas along Sand and West Sand Creeks (Appendix B). Multiple transmission lines cross the Solar Project Area, including 115-kV and 230-kV lines that run northwest-southeast in parallel through the southwest corner of the Solar Project Area, as well as a 115-kV line that runs north-south along CR 71 adjacent to the western portion of the Solar Project Area (Figures 1-1, 1-2, and 2-1). The Solar Project Area is flanked by CR 71 to the west and is composed of private lands (Figure 1-1). Developed areas within the Solar Project Area include roadways, sparsely vegetated farmstead lots, and associated infrastructure.

Land cover mapping of the Line Upgrade Area identified current land use within the ROW as primarily herbaceous cover (84.9%), with small areas of developed open space, such as unsurfaced roads (12.4%), and developed medium intensity, such as areas around occupied dwellings (1.7%). The other landcover types identified each accounted for 1.0% or less of the landcover within the Line Upgrade Area (Appendix B).

Farmlands designated as either prime, unique, and/or land of statewide or local importance (hereafter, collectively referred to as Important Farmlands) are protected under the Farmland Protection Policy Act (FPPA; 7 U.S. Code [USC] 4201, *et seq*. [1978], implementing regulations 7 CFR § 658 [1984]). In accordance with the U.S. Department of Agriculture (USDA) Natural Resources Conservation Service (NRCS), the FPPA is, in part, "intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to non-agricultural use." Further, the USDA NRCS corresponded with WAPA and concluded that "all aspects of this project will occur without the permanent conversion of farmland and is not subject to the FPPA" (Appendix A). The USDA NRCS defines Prime Farmland as "land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops and is also available for these uses. It has the combination of soil properties, growing season, and moisture supply needed to produce sustained high yields of crops in an economic manner if it is treated and managed according to acceptable farming methods. In general, Prime Farmland has an adequate and dependable water supply from precipitation or irrigation, a favorable temperature and growing season, an acceptable level of acidity or alkalinity, an acceptable content of salt or sodium, and few or no rocks. Its soils are permeable

to water and air. Prime Farmland is not excessively eroded or saturated with water for long periods of time, and it either does not flood frequently during the growing season or is protected from flooding" (USDA NRCS 2024). Farmland of Statewide Importance is defined by criteria determined by the Colorado State Experiment Station, the Colorado State Department of Agriculture, and the Colorado State Soil Conservation Board. Farmland of Statewide Importance generally includes land for which the soils almost meet the requirements for Prime Farmland and that yield high crop production when acceptable farming methods are used (Farmland Protection Policy Act 1978).

Table 3-1 summarizes important farmlands within the Solar Project Area (Figure 3-1). For this analysis, it was assumed that all existing acres of Farmland of Statewide Importance and Prime Farmland if Irrigated in the Solar Project Area are arable under the conditions presented. However, as discussed above, the current land use within the Solar Project Area is primarily dryland agricultural row crops and is not currently irrigated.

Table 3-1. Important farmlands within the Solar Project Area at the Janus Solar Project, Weld County, Colorado.

Important Farmlands	Solar Project Area (Acres)	Percent of Solar Project Area (%)
Prime Farmland if Irrigated	577.8	93.3
Farmland of Statewide Important	27.5	4.4
Prime Farmland if Irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60[a]	0.9	0.2
Not Prime Farmland	13.2	2.1
Total[b]	**619.4**	**100**

Source: Farmland Protection Policy Act 1978.

[a] A calculation to ensure wind erodibility levels are low enough to meet Prime Farmland criteria.

[b] Discrepancies due to rounding.

Table 3-2 summarizes important farmlands within the Line Upgrade Area (Figure 3-1). Similar to Important Farmlands in the Solar Project Area, it was assumed all existing acres of Prime Farmland if Irrigated, Farmland of Statewide Importance, and Farmland of Local Importance in the Line Upgrade Area are arable under the conditions presented. Like the Solar Project Area, the Line Upgrade Area is not currently irrigated.

Table 3-2. Important farmlands within the Line Upgrade Area at the Janus Solar Project, Weld County, Colorado.

Important Farmlands	Solar Project Area (Acres)	Percent of Solar Project Area (%)
Prime Farmland if Irrigated	18.5	13.1
Farmland of Statewide Important	16.1	11.5

Table 3-2. Important farmlands within the Line Upgrade Area at the Janus Solar Project, Weld County, Colorado.		
Important Farmlands	**Solar Project Area (Acres)**	**Percent of Solar Project Area (%)**
Farmland of Local Importance	22.8	16.3
Not Prime Farmland	83.0	59.1
Total[a]	**140.5**	**100**
Source: Farmland Protection Policy Act 1978. [a] Discrepancies due to rounding.		

3.1.2 Environmental Impacts: Proposed Action

3.1.2.1 Environmental Commitments

The following environmental commitments would be implemented by Janus to reduce potential Solar Project impacts on farmland and land use resources (Appendix I):

- Development and implementation of a Property Management Plan and Erosion Control Plan; soil stabilization and erosion control measures.
- Development and implementation of a SWPPP that would address migration of sediment and identify BMPs and measures to control erosion during construction.
- Development and implementation of a Dust and Weed Mitigation Plan (Appendix E), including monitoring, education, herbicide use, equipment inspections, and treatment procedures for addressing noxious weeds.
- Development and implementation of a Spill Prevention, Control, and Countermeasure (SPCC) Plan for management of all on-site hazardous materials and waste storage. The SPCC would provide procedures for accidental releases to the environment.
- Utilize existing roads and utility corridors to the maximum extent feasible and minimize the number and length/size of new roads, lay-down areas, and borrow areas. Access roads would be designed and constructed to the appropriate standards and would follow natural contours to the extent practicable. Excessive grades on roads, road embankments, ditches, and drainages would be avoided if practicable, especially in areas with erodible soils. Abandoned roads and roads that are no longer needed would be re-contoured and revegetated to increase infiltration and reduce soil compaction.
- Construction activity timeframes would be reduced so that ground-disturbing activities would take place over as short a time period as possible.
- During construction and operations, proper trash removal and storage activities would include managing debris, garbage, fugitive trash or waste, graffiti, and prohibiting scrap heaps and dumps.

- Clearing of vegetation would be limited to the minimum amount needed for construction and operation. Construction areas would be clearly marked before clearing to avoid accidental vegetation removal. Areas where vegetation has been accidentally removed or damaged would be re-planted with similar native species.
- Reclamation of temporary work sites (e.g., trenches from excavation) would include salvage and re-application of topsoil from excavations, where applicable, and revegetation efforts would use native, certified weed-free seed mixtures approved by landowners, Weld County, and CPW (1041 Permit). Reclamation would occur until at least 70% of pre-existing vegetative conditions are established. Reclamation activities would occur as quickly as possible after surface disturbance.
- A qualified environmental professional would complete interim monitoring site assessments following construction, during operation at key milestones (e.g., retrofitting) and when any temporary reclamation activities occur. In addition, vegetation monitoring would be conducted for a minimum of three growing seasons after construction of the Solar Project.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential impacts on farmland and land use resources. In addition, upgrades to the transmission line would be constructed in accordance with WAPA's construction standards, including the preservation of landscape features in accordance with the "Protection of Existing Vegetation, Structures, Equipment, Utilities, and Improvements" (WAPA 2021; Appendix J, e.g., Section 13.4).

3.1.2.2 Direct and Indirect Impacts

It is expected that some mowing, grubbing, contouring, and grading would be required for construction of the solar facility and associated infrastructure (e.g., access roads, substation) to meet the Solar Project design requirements. Generally, grading and soil stripping would only be used to smooth out localized knolls and depressions. The actions of grubbing, contouring, and grading would require excavation of topsoil and may cause soil compaction. Topsoil maintains the water, nutrients, and micro-organisms necessary for plants to exist, reproduce, and be productive. While the topsoil would be removed during construction, this would be a temporary impact as the topsoil would be saved and replaced over the excavated areas as soon as possible and seeded with a county approved seed mix to promote the growth of native grasses and forbs. Soil compaction occurs when soil particles are pressed together, the pore spaces between the particles are reduced, and bulk density is increased. This results in decreased water infiltration rates and increased runoff and erosion, which could impact the productivity of Important Farmlands occurring in the Proposed Action Area. Impacts due to these activities are expected to be minimal as most of the Solar Project Area is flat and installation of solar panel racking would generally occur on the original grade using pile driving methods.

Implementation of the environmental commitments described above would avoid and minimize the impacts to future land use, including agricultural use after the Solar Project lifespan. This includes dust, erosion, and hazardous material protection measures to maintain soil health,

noxious weed management during construction and operation to support ecological health and minimizing the Solar Project footprint relative to the amount of energy generation reduces the amount of land removed from use.

Construction and operation of the Solar Project has the potential to convert up to 577.8 acres of "Prime Farmland if irrigated," 27.5 acres of "Farmland of Statewide Importance," and 0.9 acres of "Prime Farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60" to nonagricultural purposes within the Solar Project Area, rendering it no longer arable during the life of the Solar Project. Since it is estimated that within Weld County there are 675,343 acres of total Prime Farmland, the Solar Project is estimated to remove less than 0.001% from crop production within Weld County. Similarly, there are an estimated 65,343 acres of "Farmland of Statewide Importance" in Weld County and, therefore, the Solar Project is estimated to remove less than 0.001% of "Farmland of Statewide Importance" in Weld County.

Without the need for grading or vegetation removal to complete the Line Upgrade, and no change to the existing land use during operation, no long-term impacts to land use and farmland would be expected within the Line Upgrade Area. Temporary impacts to existing land uses, such as daily agricultural and landowner use of the right-of-way, may occur during the three-week construction period. Once the upgrades are complete, land use would be expected to return to prior conditions. Therefore, impacts to land use and farmland in the Line Upgrade Area would be negligible.

The Farmland Class data layer that derives Important Farmlands is maintained by the USDA NRCS and is based on the Soil Survey Geographic Database (SSURGO), which contains information about soils across the U.S. as collected by the National Cooperative Soil Survey over the course of a century from pedestrian surveys and soil samples analyzed in laboratories (USDA NRCS 2019). However, SSURGO does not reflect current land use. Therefore, the available Important Farmlands removed by the Solar Project relative to the available Important Farmlands within Weld County as assessed by the NRCS Farmland Class data layer may be greater than what is estimated here due to the ongoing conversion of land uses. Impacts due to the development of the Solar Project to Important Farmlands would exist for the life of the Solar Project. However, after Solar Project decommissioning and reclamation, which is anticipated to occur following approximately 40 years of operation, the land could be returned to agricultural use and, as such, this conversion of land use is temporary in nature. When the Solar Project's potential impacts to land use and farmland are viewed temporarily and in the context of the total impact to farmlands in Weld County, they would not be significant.

3.1.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, WAPA would deny the request for interconnection and Janus would evaluate other interconnection options for the Solar Project in the region. If no suitable interconnection alternative can be identified, Janus would not construct, operate, maintain, or decommission the Solar Project. In this scenario, land use in the Proposed Action Area would likely continue for crop production and there would be no impacts to land use and farmland from the Solar Project.

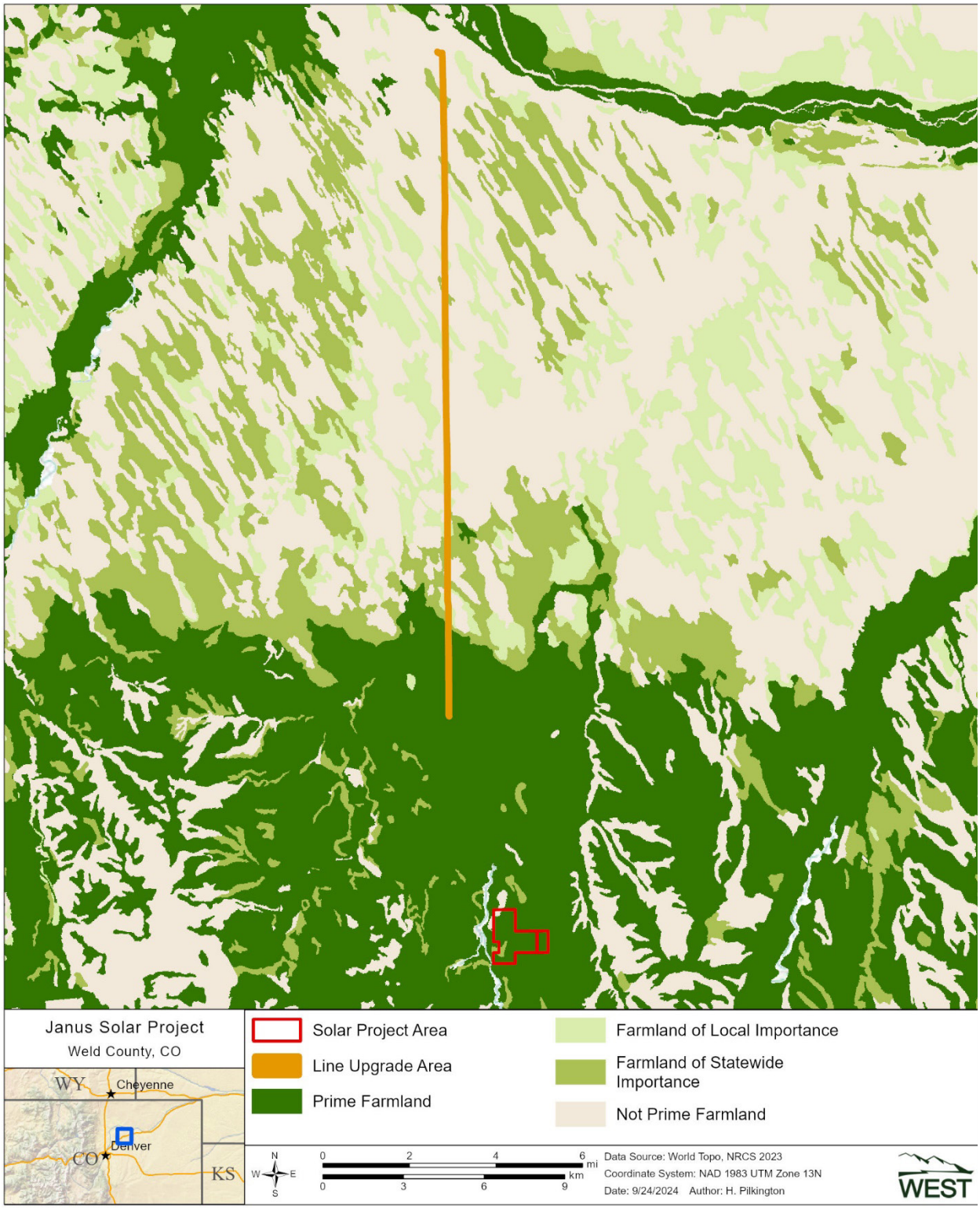

Figure 3-1. Important Farmlands within the Solar Project Area at the Janus Solar Project, Weld County, Colorado.

3.2 Socioeconomics

This section describes the existing socioeconomic conditions and the potential effects the Proposed Action could have on the socioeconomic conditions. Socioeconomic data are typically available at the county level, and it is assumed that economic activity associated with the Proposed Action would be within Weld County or adjacent counties, for the life of the Solar Project. Therefore, the analysis area for socioeconomic conditions includes Weld, Adams, and Morgan counties.

3.2.1 Existing Conditions

Economic development measures related to employment and housing in Weld, Adams, and Morgan counties and the state of Colorado are listed in Table 3-3. The 2022 unemployment rate in Weld and Adams counties were slightly higher than that for the state of Colorado, while Morgan County showed a lower percentage of unemployment (U.S. Census Bureau 2022e). In 2022, the percentage of population in the civilian labor force, based on the total population of individuals aged 16 years or older, was higher in Weld and Adams counties and lower in Morgan County when compared to Colorado (U.S. Census Bureau 2022c; Table 3-3). The number of vacant housing units for rent in each county in 2022 was highest in Adams County, followed by Weld County, and then Morgan County, which is much lower compared to the other two counties (U.S. Census Bureau 2022f; Table 3-3). Lastly, the median household income in 2022 was similar between Weld and Adam counties and Colorado, while Morgan County had lower median household incomes compared to Colorado (U.S. Census Bureau 2022c; Table 3-3).

The two largest employer industry in Weld County are construction and manufacturing, totaling approximately 18% of the workforce (Appendix F). Agriculture, which is the majority of land use currently within the Proposed Action Area (see Section 3.1), comprises approximately 4% of employment within Weld County. The communities within Weld County nearest to the Solar Project are Sloan, Roggen, Tampa, and Keenesburg, which have approximately 2,000 residents collectively.

3.2.2 Environmental Impacts: Proposed Action Alternative

3.2.2.1 Environmental Commitments

There are no direct socioeconomic-specific environmental commitments for the proposed Solar Project (Appendix I).

Table 3-3. Economic Development Measures Related to Employment and Housing at the Janus Solar Project, Weld County, Colorado.

Economic Development Measures	Weld County	Adams County	Morgan County	Colorado
Total employment (2018–2022)[a]	168,820	275,757	13,810	3,021,742
Unemployment rate (2018–2022)[a]	3.4%	3.3%	2.4%	3.1%
In civilian labor force, total percent of population age 16 years or older, 2018–2022[a]	69.5%	71.8%	64.4%	67.7%

Table 3-3. Economic Development Measures Related to Employment and Housing at the Janus Solar Project, Weld County, Colorado.

Economic Development Measures	Weld County	Adams County	Morgan County	Colorado
Median household income (in 2022 dollars), 2022[b]	$89,182	$86,297	$70,471	$87,598
Vacant housing units for rent (2018–2022)[c]	1,381 (±288)	2,053 (±380)	175 (±81)	46,459 (±1,829)
Housing units (July 1, 2023)[d]	134,493	200,115	11,947	2,638,724
Total accommodation and food services sales, 2017 ($1,000)[d]	405,976	1,018,988	66,142	19,455,751
Population (July 1, 2023)[d]	59,442	533,365	29,524	5,877,610

[a] U.S Census Bureau 2022e.
[b] U.S Census Bureau 2022c.
[c] U.S. Census Bureau 2022f.
[d] U.S. Census Bureau 2024.

3.2.2.2 Direct and Indirect Impacts

During the 12–14-month construction period, it is estimated that approximately 250–350 temporary full-time equivalent employees would be assigned to the proposed Solar Project, with as many of the positions as possible open to the local workforce. For the Line Upgrade, it is assumed that 8–10 temporary full-time equivalent employees would be contracted over a maximum of three weeks, which would be negligible in comparison to the labor required for the Solar Project over 14 months. Therefore, the analysis was conducted primarily using the estimated workforce numbers and associated socioeconomic impacts in the construction of the Solar Project.

Given that construction jobs account for a large proportion of the job industry within Weld, Adams, and Morgan counties, it is likely that current residents of these counties would account for a large percentage of the workforce in construction of the Solar Project and Line Upgrade (Employment Services of Weld County 2022, Appendix F, U.S. Census Bureau 2022e). There is potential that a portion of the jobs created by the Solar Project and Line Upgrade would come from a transient workforce outside the analysis area, though this is expected to be minor. This would lead to indirect benefits to local businesses in the communities nearest to the Proposed Action, such as restaurants, stores, gas stations, and hotels, due to the Proposed Action workforce's expenditures (Appendix F). There is also potential for the minor influx of transient labors to minimally increase demands on public services, such as police, emergency, and health services. An analysis of the Solar Project, conducted by Prosono (2023; Appendix F) using the Jobs and Economic Development Impact (JEDI) model, estimated that the Solar Project would generate a total economic output of nearly $172 million during construction and annual net new output of over $8.2 million (Appendix F). For this reason, the Solar Project is anticipated to have net beneficial economic effects on Weld County and the surrounding communities.

Though it is anticipated that local residents would account for a majority of the workforce, transient and some local workers may seek temporary housing near the Proposed Action and, as

a result, there would be a short-term benefit to the local short-term housing economy. Based on the predicted temporary employment numbers provided for the proposed Solar Project, it is assumed that a maximum of 350 short-term housing units could be needed to house temporary workers. Assuming that the number of vacant housing units for rent in counties are the same during the construction phase of the proposed Solar Project as during 2022, the demand created by the proposed Solar Project could require up to 9.7% of the available housing inventory across all counties. However, it should be noted that it is unlikely that all potential transitory workers for the proposed Solar Project would individually procure vacant housing units during the construction phase as housing could be shared amongst workers and some may seek other temporary accommodations, such as hotels or RV parks. For this reason, the actual required short-term housing units for the proposed Solar Project is likely much less than the 350 short-term housing unit maximum assessed here, and ultimately much less than 9.7% of the available inventory. Therefore, the proposed Solar Project is not expected to have a significant impact on the number of available short-term housing units in Weld, Adams, and Morgan counties, but could result in short-term impacts to housing unit availability. Additionally, the population of Weld, Adams, and Morgan counties are not expected to significantly change because of the proposed Solar Project due to the minimal amount of transitory workforce expected and temporary nature of the construction jobs.

Once the proposed Solar Project is constructed, it is expected to operate for up to 40 years. During normal operation, the facilities would generally be unmanned, and personnel would only be on-site during routine or emergency maintenance events. See Section 2.3.12 for further information on the expected frequency and duration of activities during typical operation. It is expected that these employees would have O&M-related expenditures, such as automotive repair, tires, gas, and general office supplies. However, due to the infrequent number of visits to the Solar Project and small number of employees needed during operation of the proposed Solar Project, there would likely be a negligible effect on local businesses, housing, and overall economic activity within the analysis area during operation of the Solar Project. Along with the creation of new job opportunities, landowners whose land is leased for the proposed Solar Project would see the benefit of annual lease payments. While these landowners would forgo their income from current land use (e.g., farming), the lease payments they would receive are anticipated to be greater than the income generated by their current land use. The Line Upgrades would not require any additional operational and maintenance activity beyond what is currently being done on the existing transmission line.

Limited studies have been conducted on the impacts of utility-scale solar development on nearby property values. Studies that have been completed have varying results, or inconclusive as to the impacts (Hao and Michaud 2024). A study conducted in 2018 evaluating 956 solar projects in the U.S. concluded that there is no real association between property values and nearby solar projects (Al-Hamoodah et al. 2018). A study by Lawrence Berkeley National Laboratory in 2023 showed that property values declined about 1.0% depending on proximity to nearby solar projects, after investigating over 1.5 million housing transactions among 2,000 solar projects in six states (Elmallah et al. 2023). The study noted that properties closer in proximity to utility-scale solar sites and those located in a more rural location showed slightly greater declines in property

values. A study completed in 2024 assessing the impacts of 70 large-scale solar projects built in the Midwest from 2009 to 2022 indicated that such projects increase nearby property values by roughly 0.5–2.0%. Results showed that smaller projects have more of a positive impact on nearby property values than projects that are 20 megawatts or larger (Hao and Michaud 2024). Generally studies have concluded that property value impacts are highly localized and varied, and can be based on the local environment, land use, and potential buyer's innate perception of solar as an industry as a whole (Elmallah et al. 2023). While correlation of property values and utility scale solar is still inconclusive, studies completed to date show relatively minor to moderate effects to property values, whether they are negative or beneficial.

Decommissioning activities at the end of the proposed Solar Project life would have similar short-term beneficial impacts to those described above for construction activities.

3.2.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, no new temporary and permanent employment opportunities or needs for temporary housing would be created as a result of the Proposed Action; therefore, there would be no additional economic benefit in the addition of new employment and economic activity surrounding such employment, nor additional demands on public services. Furthermore, landowners associated with the proposed Solar Project would not receive benefits from annual lease payments, and housing and employment trends for Weld County would likely continue as described in Section 3.2.1.

3.3 Air Quality and Emissions

This section analyzes impacts of the Proposed Action Alternative and the No Action Alternative on air quality issues, such as air pollutant emissions from vehicles, equipment, and fugitive dust. The analysis area for this section is Weld County.

3.3.1 Existing Conditions

Air quality is regulated in the U.S. by the federal Clean Air Act of 1970 (CAA) under the jurisdiction of the U.S. Environmental Protection Agency (USEPA; 40 CFR § 50 [1971]). The USEPA has set health-based standards for air quality, referred to as National Ambient Air Quality Standards (NAAQS; USEPA 2024i). The NAAQS sets attainment levels for six criteria air pollutants (CAPs): sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), ozone (O_3), particulate matter (including dust; $PM_{2.5}$ and PM_{10}), and lead (Pb; Table 3-4). The USEPA's Prevention of Significant Deterioration standard restricts increases in ambient levels of NO_2, SO_2, $PM_{2.5}$, and PM_{10} to established baseline levels. An area where the concentration of these pollutants meets both the primary and secondary standards of pollutant subject to NAAQS is classified as an attainment area, while an area where the concentration exceeds the NAAQS levels is classified as a nonattainment area. Areas that were in nonattainment but have improved air quality to meet the NAAQS are called maintenance areas.

Weld County, Colorado, is not within attainment for the O_3 criteria, but is within attainment for all other NAAQS (USEPA 2024j). The nearest active ambient air quality monitoring sites are located in Denver, Colorado, approximately 30 miles west-southwest of the Proposed Action (USEPA 2024h). These monitoring sites are maintained by the Colorado Department of Public Health and Environment and monitor NO_2, $PM_{2.5}$, PM_{10}, and O_3. The annual estimate of CAPs in Weld County from the USEPA's National Emissions Inventory (NEI) is found in Table 3-4 below.

States develop and submit state implementation plans (SIPs) to the USEPA that identify how the state will implement, maintain, and enforce the NAAQS and other requirements of the CAA. Colorado SIPS are implemented by the Department of Public Health and Environment (Colorado Department of Public Health and Environment 2024). Federal agencies are prohibited from taking actions in nonattainment and maintenance areas unless they can demonstrate that their actions conform to the SIP regarding the CAPs.

Table 3-4. National Ambient Air Quality Standards for Weld County, Colorado.

Pollutant	Averaging Time	National Primary Standards	National Secondary Standards	Colorado Standards
CO	1 hour[a] 8 hours[a]	35.0 ppm 9.0 ppm	– –	– –
Pb	3 month (rolling average)[b]	0.15 µg/m^3	Same as Primary	–
NO_2	1 hour Annual	0.100 ppm[c] 0.053 ppm[d]	– Same as Primary	– –
O_3	8 hours[e]	0.07 ppm	Same as Primary	–
PM_{10}	24 hours	150.0 µg/m^3 [f]	Same as Primary	–
$PM_{2.5}$	24 hours[g] Annual[h]	35.0 µg/m^3 9.0 µg/m^3	Same as Primary 15.0 µg/m^3	– –
SO_2	1 hour 3 hours[a]	0.075 ppm[i] –	– 0.5 ppm	– 0.267 ppm

Source: U.S. Environmental Protection Agency 2024i, 5 Code of Colorado Regulations 1001-14 (2024).

Notes: µg/m^3 = micrograms per cubic meter; ppm = parts per million.

CO = carbon monoxide; Pb = lead; NO_2 = nitrogen dioxide; O_3 = ozone; PM_{10}/$PM_{2.5}$ = particulate matter; SO_2 = sulfur dioxide.

[a] Not to be exceeded more than once per year.

[b] Not to be exceeded.

[c] The 3-year average of the 98th percentile of the 1-hour daily maximum concentration must not exceed this standard.

[d] Annual mean.

[e] The 3-year average of the fourth highest daily maximum 8-hour average O_3 concentration measured at each monitor within an area over each year must not exceed this standard.

[f] Not to be exceeded more than once per year on average over three years.

[g] The 3-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed this standard.

[h] The 3-year average of the annual arithmetic mean $PM_{2.5}$ concentrations from single or multiple community-oriented monitors must not exceed this standard.

[i] The 99th percentile of 1-hour daily maximum concentrations, averaged over three years.

The USEPA also regulates volatile organic compounds (VOCs) and hazardous air pollutants (HAPs) under the CAA. While VOCs aren't themselves regulated as a CAP or HAP, they participate in photochemical reactions, called off-gassing, that forms O_3 (USEPA 2024g). VOCs can be released during operation of gasoline- or diesel-powered construction equipment. HAPs are pollutants, such as benzene, methylene chloride, and asbestos, that are known or suspected to cause cancer and other serious health issues (USEPA 2023). HAPS are used or found in industrial facility construction, maintenance, and operations. The USEPA National Air Toxics Assessment (NATA) quantifies HAP emissions by county. In the vicinity of the Proposed Action, NATA shows the largest HAP risks are from formaldehyde and carbon tetrachloride (USEPA 2024d), which are likely a result of agricultural practices. The USEPA's NEI-estimated VOCs, CAPs, and HAPs for Weld County are in Table 3-5 (USEPA 2024a).

Based on the location of the Proposed Action in a rural area with low nearby population centers (Section 3.2), air pollutants are expected to be relatively low. In 2023, the USEPA reported 146 days in Weld County as "good" in terms of air quality, 214 as "moderate", four as "unhealthy for sensitive groups", and one as "unhealthy" (USEPA 2024c).

Table 3-5. 2017 Emissions Inventory in Tons per Year for Weld County, Colorado.

Source	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	VOC	HAPs	CO_2e[a]
Agriculture	–	–	–	11,750	2,408	903	114	–
Biogenics[b]	2,392	2,141	–	–	–	7,070	1,930	–
Dust	–	–	–	14,818	1,612	–	–	–
Fires	1,868	39	19	231	174	395	96	20,189
Fuel combustion	8,395	5,775	73	597	596	2,712	700	–
Industrial processes	15,546	16,172	230	889	444	78,015	5,021	3,439,007
Miscellaneous[c]	121	11	–	95	86	2,851	272	–
Mobile	32,983	5,936	27	621	308	2,709	738	2,191,527
Waste disposal	265	22	5	361	257	810	69	0
Total	**61,570**	**30,096**	**354**	**29,362**	**5,885**	**95,465**	**8,940**	**5,650,723**

Source: U.S. Environmental Protection Agency 2024b.

CO = carbon monoxide; NO_X = oxides of nitrogen; SO_X = sulfur oxides; $PM_{10}/PM_{2.5}$ = particulate matter; VOC = volatile organic compound; HAPs = hazardous air pollutants.

[a] CO_2e = carbon dioxide equivalent. Emissions are reported in metric tons.

[b] Biogenic emissions are those emissions derived from natural processes (such as vegetation and soil).

[c] Miscellaneous categories include bulk gasoline terminals, commercial cooking, gas stations, miscellaneous non-industrial (not elsewhere classified), and solvent use.

In order to represent emissions more accurately in an average year, this analysis uses 2017 data rather than 2020 data. This is because the COVID-19 pandemic resulted in reduced emissions that are unlikely to accurately reflect emissions in a normal year. According to the 2017 NEI, the major pollutants emitted in Weld County are GHGs (in CO_2 equivalent tons), VOCs, and CO

(USEPA 2024b). The major sources contributing to GHGs are industrial processes and mobile sources. The major sources contributing to VOC emissions are industrial processes. The major sources contributing to CO emissions are mobile sources and industrial processes.

Climate change has occurred throughout the planet's history, driven by volcanic eruptions, variations in solar energy received from the sun, and fluctuations in the Earth's orbit. GHGs include carbon dioxide, methane, O_3, nitrous oxide, chlorofluorocarbons, and water vapor. The USEPA tracks human emissions of GHGs and publishes data in accordance with the United Nations Framework Convention on Climate Change (USEPA 2024f). In the U.S., emissions are broken down by economic sector: transportation 28%, electric power 25%, industry 23%, commercial and residential 13%, and agriculture 10% (USEPA 2024f).

GHGs in the Proposed Action Area currently originate primarily from transportation (vehicles), commercial and residential (primarily power generation), and agricultural sectors (farm equipment and livestock emissions). As of 2022, the majority of Colorado's power generation came from nonhydroelectric renewables (43%), followed by natural gas-fired (34%), coal-fired (23%), and hydroelectric (less than 1%; U.S. Energy Information Administration 2024). There are at least 20 other solar-generating facilities in Weld County (ArcGIS 2024).

3.3.2 Environmental Impacts: Proposed Action

For the purposes of this analysis, impacts to air quality are discussed in terms of Proposed Action emissions of CAPs, HAPS, VOCs, and GHGs. Regulated pollutant emissions from the construction and operation of the Proposed Action have been estimated to characterize the potential emission increases. These emission estimates are compared to Weld County's emissions inventory as a percentage of the county's annual emissions.

3.3.2.1 Environmental Commitments

- The following environmental commitments would be implemented by Janus to reduce potential Solar Project impacts on air quality (Appendix I): Use dust abatement techniques on unpaved, un-vegetated surfaces to minimize air born dust. Water or chemical (non-petroleum) soil binders would be used to control dust within the Solar Project Area during construction, in accordance with federal, state, and local requirements. Use dust abatement or cover construction materials and stockpiled soils if they are a source of fugitive dust. Minimize potential environmental impacts from the use of dust palliatives by taking the necessary measures to keep the chemicals out of sensitive terrestrial habitats and streams. The application of dust palliatives must comply with federal, state, and local laws and regulations.
    - Dust control chemicals must be applied in such a manner that would not contaminate any waters of the United States.
    - Dust control chemicals shall not be applied to areas within 100 feet of a wetland or body of water.

- Use surface access roads, on-site roads, and parking lots with aggregates or that maintain soil conditions to reduce dust generation. Post and enforce speed limits (e.g., 10 miles per hour [mph]) to reduce air born fugitive dust. Comply with speed limits relative to wildlife protection measures.
- Vehicle tracking devices would be installed at truck exit drives. Vehicles operating on the site during the construction phase would limit their speed to five mph or less to minimize dust emissions.
- Soil disturbance activities and travel on unpaved roads would be suspended during periods of high winds. Site-specific wind speed thresholds would be set based in soil properties determined during site characterization.
- Stabilization activities, such as post-seeding mulch, would be used during reclamation at the discretion of landowners to mitigate and reduce potential for erosion and wind-blown dust. The stabilization would be performed as soon as it is possible or appropriate upon completion of Solar Project activities to minimize potential fugitive dust generation as revegetation occurs.
- Verify that all heavy equipment meets emission standards specified by the State Code of Regulations and conduct routine preventive maintenance, including tune-ups to manufacturer specification, for efficient combustion and minimum emissions. If possible, equipment with more stringent emission controls should be leased or purchased.
- Employ diesel fuel engines in facility construction and maintenance that use ultra-low sulfur diesel, with a maximum of 15 parts per million of sulfur content.
- Limit idling of diesel equipment to no more than 10 minutes at a time, unless necessary for proper operation.
- Stage construction activities to limit the area of disturbed soils exposed at any one time.
- Install wind fences around disturbed areas if windborne dust is likely to impact sensitive areas beyond the site boundaries.
- Spray stockpiles of soil with water, cover with tarpaulins, and/or treat with appropriate dust suppressants, especially when high wind or storm conditions are likely. Vegetative plantings may also be used to limit dust generation for stockpiles that would be inactive for relatively long periods.
- Train workers to comply with speed limits, use good engineering practices, minimize the drop height of excavated materials, and minimize disturbed areas.
- Cover vehicles transporting loose materials when traveling on public roads, and/or keep loads sufficiently wet and below the freeboard of the truck to minimize wind dispersal.
- Inspect and clean tires of vehicles, as necessary, so they are free of dirt prior to entering paved public roadways. Minimize visible track out or runoff dirt from the construction site from public roadways.
- Water unpaved roads, disturbed areas (e.g., scraped, excavated, backfilled, graded, and compacted), and loose materials generated during Solar Project activities as necessary to minimize fugitive dust generation.

Specific to the Line Upgrade, environmental commitments would be implemented to reduce potential emissions and air quality impacts. In addition, upgrades to the transmission line would be constructed in accordance with WAPA's construction standards, including the general adherence to ensure that construction activities and the operation of equipment are undertaken to reduce the emission of air pollutants (WAPA 2021; Appendix J; e.g., Section 13.14).

3.3.2.2 Direct and Indirect Impacts

Solar Project construction would contribute directly to air quality and climate change through temporary, short-term emissions of CAPs, HAPs, VOCs, and GHGs. Vehicles would be the primary source of emissions, including passenger and heavy-duty vehicles traveling to and from the Proposed Action Area, as well as construction vehicles and equipment used during construction, such as cranes and trucks. Table 3-6 presents the estimated pollutant emissions for on-road vehicles traveling to, from, and within the Proposed Action Area. The analysis assumed that, for each workday of construction over a 12-month period, there would be an average of 300 employees (passenger vehicles) traveling to and from the Proposed Action Area, plus an additional 30 medium- or heavy-duty vehicles making trips to and from the Solar Project. These vehicles were assumed to come from four different locations: Brighton (29 miles), Fort Lupton (24 miles), Greeley (43 miles), and Denver (47 miles). Brighton and Fort Lupton were each assumed to represent 35% of the traffic, while Greeley and Denver were assumed to represent 15%, each. In addition to traffic to and from the Proposed Action Area, it was assumed that 90–100 medium- to heavy-duty vehicles a day would be operating within the Proposed Action Area, and that each vehicle would travel approximately 10 miles per day for the duration of construction activities. A 12-month construction period was used in this analysis to compare directly to Weld County yearly emissions, though it should be noted that construction of the Solar Project may last up 14 months. As discussed in Section 2.3.8, for the Line Upgrade, it is expected that up to five medium- to heavy-duty vehicles or vehicle-equivalents (e.g., bucket trucks, pulling equipment) would be used during a 3-week construction period. Total estimated emissions from construction traffic per year were calculated by summing emissions for passenger vehicles, medium- and heavy-duty vehicles, and on-site construction traffic (Table 3-6). Traffic related to the Line Upgrade resulted in negligible pollutant emissions. None of the highest estimates for emissions from this Solar Project exceed 0.02% of the total yearly Weld County emissions; some are as low as 0.001%.

Table 3-6. Estimated Proposed Action Pollutant Emissions in Tons per Year for the Janus Solar Project, Weld County, Colorado.

Vehicle Type	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4 (CO_2e)*	Total CO_2e*
Passenger Vehicles[a]	11.45	619.48	0.03	0.31	0.20	3,545.73	3.37	4,180.57
On-Site Vehicles (Low)**	0.93	0.96	0	0.04	0.03	429.15	0.17	429.32
On-Site Vehicles (High)**	1.03	1.07	0	0.05	0.04	476.83	0.19	477.02
Medium- and Heavy-duty Trucks[b]	1.99	2.06	0.01	0.09	0.07	916.95	0.36	917.31
*Total (Low)****	*14.37*	*4.00*	*0.05*	*0.44*	*0.30*	*4,891.83*	*3.90*	*5,527.2*
*Total (High)****	*14.47*	*4.11*	*0.05*	*0.45*	*0.31*	*4,939.51*	*3.92*	*5,574.9*

Table 3-6. Estimated Proposed Action Pollutant Emissions in Tons per Year for the Janus Solar Project, Weld County, Colorado.

Vehicle Type	CO	NO_X	SO_X	PM_{10}	$PM_{2.5}$	CO_2	CH_4 (CO_2e)*	Total CO_2e*
Weld County Emissions Total	**61,570**	**30,096**	**354**	**29,362**	**5,885**	**–**	**–**	**5,650,723**
Proposed Action's Emissions as percent of Weld County's Emissions Total[c]	0.02%	0.01%	0.01%	0%	0%	–	–	0.09%

Sources: South Coast Air Quality Management District 2024, U.S. Environmental Protection Agency 2024b.

CO = carbon monoxide; NO_X = oxides of nitrogen; SO_X = sulfur oxides; $PM_{10}/PM_{2.5}$ = particulate matter; CO_2 = carbon dioxide.

[a] Vehicles less than 8,500 pounds (lbs).

[b] Vehicles greater than 8,500 lbs.

[c] Low and high values were the same for all percentages.

* CO_2e = CO_2 equivalents, in tons; Total CO_2e is the sum of CO_2 and CH_4.

** For on-site vehicles, Low = 90 vehicles per day and High = 100 vehicles per day.

*** Rounded to the nearest hundredth. Totals are the sum of Passenger Vehicles, On-Site Vehicles, and Medium- and Heavy-Duty Trucks. Total (Low) uses values in the "On-Site Vehicles (Low)" row, and Total (High) uses values in the On-Site Vehicles (High) row.

Solar Project construction would also contribute to production of fugitive dust, primarily during earth-moving activities and other ground disturbance. The *Western Regional Air Partnership (WRAP) Fugitive Dust Handbook* (Countess Environmental 2006) was used to estimate emissions of PM_{10} and $PM_{2.5}$ on a per year basis resulting from construction activities, assuming typical dust control measures operating at 50% effectiveness. In total, 645.50 acres would be disturbed, resulting in an average of 852.06 tons of PM_{10} and 85.21 tons of $PM_{2.5}$ emissions due to fugitive dust potentially generated during construction of the Proposed Action. This represents a worst-case scenario, as minimal site grading and soil exposure is anticipated at the Solar Project. The solar arrays, which account for the majority of the Solar Project Area, would be pile driven on original grade over the existing vegetation with grading and soil stripping only required to smooth out localized knolls and depressions or to facilitate appropriate stormwater runoff. No ground disturbance is expected for the Line Upgrade, so they were not considered as part of this analysis.

During operation of the Solar Project, emissions of air pollutants and GHGs are expected to result in a permanent but negligible reduction in air quality. The Solar Project Substation, inverters, and the Sand Creek Switching Station improvements would contain some amounts of sulfur hexafluoride (SF_6), which would be determined upon final design of the Solar Project. The Solar Project would not be manned and trips to the Solar Project are not expected to exceed 10 per month. Conversely, power generated by the facility is expected to have a net beneficial impact on air quality at the regional scale by reducing GHG emissions. During operation, the Solar Project is expected to generate about 216,351-MW hours per year, which would reduce regional GHG emissions by 151,141 tons of CO_2 equivalents per year and offset the approximately 5,527–5,575 tons of CO_2 equivalents expected to be generated by the Solar Project during construction and decommissioning. Over the expected Solar Project's 40-year lifetime, the estimated reduction in GHG emissions is 6,045,640 tons of CO_2 equivalents.

During decommissioning of the Solar Project, temporary impacts are expected to be similar to those that would occur during construction. Any benefits from reductions in pollutants and GHG emissions as a result of the Proposed Action would no longer occur after the Solar Project is decommissioned.

3.3.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, there would be continued minor to negligible increases to current levels of air pollutant and GHG emissions that come from pre-existing non-project-related agricultural activities, electricity generation, and vehicle traffic. Additionally, fossil fuel use would not be reduced through the construction of an alternative energy production facility; therefore, the net reduction in GHG emissions would not occur.

3.4 Noise

This section analyzes potential impacts of the Proposed Action Alternative and No Action Alternative on surrounding noise issues, such as construction noise, traffic noise, or Solar Project operation noise. This section describes the existing noise surrounding the Solar Project and the potential effects the Proposed Action Alternative and No Action Alternative would have on these resources.

3.4.1 Existing Conditions

A human's perception of sound can be measured in A-weighted decibels (dBA), which are representative of the human ear's response to sound. Unwanted or offensive sounds are often called noise. The sound pressure levels (in dBA) of some common sound sources are provided in Table 3-7.

Table 3-7. Typical Sound Pressure Levels Associated with Common Noise Sources at the Janus Solar Project, Weld County, Colorado.

Sound Pressure Level (dBA)	Subjective Evaluation	Environment	
		Outdoor	**Indoor**
140	Deafening	Jet aircraft at 75 feet (ft)	–
130	Pain threshold	Jet aircraft during takeoff at 300 ft	–
120	Feeling threshold	Elevated train	Hard rock band
110	–	Jet flyover at 1,000 feet [ft]	Inside propeller plane
100	Very loud	Power mower, motorcycle at 25 ft, automobile horn at 10 ft, crowd noise at football game	–
90	–	Propeller plane flyover at 1,000 ft, noisy urban street	Full symphony or band, food blender, noisy factory
80	Moderately loud	Diesel truck (40 miles per hour) at 50 ft	Inside an automobile at high speed, garbage disposal
70	Loud	B-757 aircraft cabin during flight	Close conversation, vacuum cleaner
60	Moderate	Air-conditioner condenser at 15 ft, near highway traffic	General office

Table 3-7. Typical Sound Pressure Levels Associated with Common Noise Sources at the Janus Solar Project, Weld County, Colorado.

Sound Pressure Level (dBA)	Subjective Evaluation	Environment	
		Outdoor	Indoor
50	Quiet	–	Private office
40	–	Farm field with light breeze, bird calls	Soft stereo music in residence
30	Very quiet	Quiet residential neighborhood	Bedroom, average residence (without television and stereo)
20	–	Rustling leaves	Quiet theater, whisper
10	Just audible	–	Human breathing
0	Hearing threshold	–	–

dBA = A-weighted decibels.
Sources: Adapted from Egan 1988, Ramsey et al. 1994.

Sensitive sound receptors generally include occupied residences and areas where people congregate, such as churches, schools, and community centers. Sensitive sound receptors are found in several communities located near the Proposed Action. Keenesburg is located approximately eight miles from the Solar Project and five miles from the Line Upgrade, and Roggen is approximately nine miles from the Solar Project and two miles from the Line Upgrade.

No baseline assessment of existing sound sources has been completed for the Proposed Action to date. Given the rural location and land use (Section 3.1), the largest contributors to existing sound sources within the Proposed Action Area are assumed to be agricultural activities, pass over airport traffic, vehicular traffic, and wind. Noise emissions from agricultural equipment ranges from 70 dBA up to 100 dBA, based on equipment type and whether it is operating at an idle speed or at full work speed (Fetzer et al. 2022, Smith 2009). Depending on the time of year, agricultural equipment could be operating more routinely throughout the vicinity of the Proposed Action Area, influencing ambient noise levels. Roadway traffic noise is dependent on the mix of vehicle types (e.g., cars, trucks, motorcycles, semi-trucks), the speed of traveling, and the number and frequency of vehicles traveling on the road. Movement of agricultural equipment along adjacent roadways also contributes to roadway traffic noise in rural areas. Roadway traffic noise along regional highways generally range between 50–80 dBA, whereas roadway traffic noise for rural roadways range from 40–60 dBA (Bureau of Transportation Statistics 2022). CR 73 and CR 6 run directly through the Solar Project Area and CR 71 runs adjacent on the west side. Depending on the time of day, these roads could have a greater influence on ambient noise levels as people travel to and from work during peak hours (i.e., morning and evening). I-76 runs directly through the Line Upgrade Area and likely contributes a significant amount of noise. State Highway 79 is also about one mile west of the Solar Project, though it would likely be a minor contributor of noise due to its distance.

Section 14-9.40 of Weld County's Zoning and Subdivision Regulations limits noise levels to a maximum of 80 dBA measured at the boundary of the property from which the noise complaint is made between the hours of 7:00 a.m. and 9:00 p.m., and 75 dBA between 9:00 p.m. and

7:00 a.m. (Weld County 2024). The Colorado Noise Statute similarly requires construction activity that may occur during the Proposed Action to maintain a volume of 80 dBA during times from 7:00 a.m. to 7:00 p.m., and 75 dBA from 7:00 p.m. to 7:00 a.m.

3.4.2 Environmental Impacts: Proposed Action

3.4.2.1 Environmental Commitments

The following environmental commitments would be implemented by Janus to reduce potential noise impacts from the Solar Project (Appendix I):

- Limit construction activities with higher noise levels to the least noise-sensitive times of day (i.e., daytime only between 6:00 a.m. and 10:00 p.m.) during weekdays.
- Construction equipment would have sound-control devices no less effective than those provided on the original equipment. All construction equipment used would be adequately muffled and maintained.
- All stationary construction equipment (i.e., compressors and generators) would be located as far as practicable from nearby residences.
- Nearby residents would be notified in advance if high-noise activities are required during the construction period.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential noise impacts. In addition, upgrades to the transmission line would be constructed in accordance with WAPA's construction standards (WAPA 2021; Appendix J, e.g., Section 13.20).

3.4.2.2 Direct and Indirect Impacts

Solar Project construction would result in short-term, temporary noise impacts for approximately 12–14 months. Construction of the Solar Project would occur in several stages and each stage would require the use of a specific equipment mix. Sound levels would vary depending on type and age of equipment, specific manufacturer and model, operations being performed, and condition of equipment and exhaust system mufflers. Table 3-8 presents accepted noise levels produced from a range of typical construction equipment (U.S. Federal Highway Administration 2006). These sound pressure levels are based on measured noise maximums (on average) at a 50-foot distance from the equipment.

Noise generated by Solar Project construction would occur intermittently, depending on the phase of construction, and equipment in use at a given time and location. Higher noise levels would be temporary in nature and are not anticipated to exceed the maximum levels outlined in the Weld County noise ordinance. Most construction activities would occur during the day, when higher background sounds (e.g., traffic, agricultural activity) can often mask construction-related noise.

Table 3-8. Average Maximum Sound Pressure Levels Associated with Common Construction Equipment	
Equipment Description	**Maximum Sound Pressure Levels at 50 feet (A-weighted decibels)**
Auger Drill Rig	84
Backhoe	78
Boring Jack Power Unit	83
Chain Saw	84
Clam Shovel (dropping)	87
Compactor (ground)	83
Compressor (air)	78
Concrete Mixer Truck	79
Concrete Pump Truck	81
Concrete Saw	90
Crane	81
Dozer	82
Drill Rig Truck	79
Drum Mixer	80
Dump Truck	76
Excavator	81
Flat Bed Truck	74
Front End Loader	79
Generator	81
Grapple (on backhoe)	87
Horizontal Boring Hydraulic Jack	82
Impact Pile Driver	101
Jackhammer	89
Mounted Impact Hammer (hoe ram)	90
Pavement Scarifier	90
Paver	77
Pickup Truck	75
Pneumatic Tools	85
Pumps	81
Rock Drill	81
Roller	80
Sand Blasting (single nozzle)	96
Scraper	84
Vacuum Excavator (Vac-truck)	85
Ventilation Fan	79
Vibrating Hopper	87
Vibratory Concrete Mixer	80
Vibratory Pile Driver	101

Table 3-8. Average Maximum Sound Pressure Levels Associated with Common Construction Equipment	
Equipment Description	**Maximum Sound Pressure Levels at 50 feet (A-weighted decibels)**
Welder/Torch	74

The loudest consistent construction noise at the Solar Project would likely occur during construction pile driving at the Solar Project, up to 100 dBA, and more temporarily during equipment backup beeping (reverse warning sounds) up to 112 dbA. References show that noise from a point source such as a construction site decrease by 6 dBA with every doubling of the distance away from the source (Truax 1999). The typical assumed ambient noise level for a rural setting is 40 dBa (see Table 3-7). Consistent construction noise levels from pile driving would be attenuated to approximately 58 dBA at a distance of 6,600 feet (similar to the noise of light automobile traffic at 50 feet) and attenuated to the assumed ambient level (no additional noise above the existing level) at approximately 9 miles. Noise levels would be temporarily higher and potentially heard from further distances during equipment backup. Two residences are located within 0.25 miles of the Solar Project Area and would likely be impacted the most with regard to noise. Construction noise is not anticipated to exceed maximum levels at the property boundary for construction activities outlined in Weld County Code (Weld County 2024).

Impacts associated with noise generated during the Line Upgrade are expected to be significantly lower than impacts from construction noise, since lower-noise equipment would be used, and construction activities would be limited and shorter in duration. If a helicopter is used, however, noise levels would be expected to be much higher. Depending on the type of helicopter used, sound levels of 100 dBA at 50 feet (Federal Aviation Administration [FAA] 2005, USDA U.S. Forest Service 2024) are likely, and would likely result similar noise impacts as pile driving at the Solar Project.

During operation, Solar Project facilities, such as BESS equipment, inverters, and the proposed substation, would be a long-term source of low-level audible sound. Noise levels for Solar Project facilities cannot be identified until final designs are complete and specific equipment is identified. However, in general, noise emission levels would likely range up to 80 dBA at 50 feet depending on the components selected (Csanyi 2016).

During decommissioning, sound levels would be similar to those used for construction, but on a more limited scale and for a shorter duration. It is expected that there would be minor-to-moderate impacts to noise levels during construction and minor impacts during operation, and that the Solar Project would meet any county noise standards.

3.4.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, WAPA would not provide an interconnection, and it is assumed the Solar Project would not be developed; therefore, there would be no direct or indirect impacts

on the existing sound levels from the Proposed Action. Ongoing land uses and existing activities (e.g., agricultural operations, local traffic) would likely continue to result in similar sound levels.

3.5 Visual Resources

This section describes the existing context of the visual environment and assesses the potential impacts from construction and operations of the Proposed Action Alternative and the No Action Alternative.

3.5.1 Existing Conditions

Visual resources refer to the human perception of natural beauty on the landscape and the scenic qualities of an area. In general, visual resources include basic terrain, geologic and hydrologic features, vegetative patterns, and human-built features that influence visual appeal of an environment but can be subjective and differs from person to person. Visual sensitivity groups near the Proposed Action include travelers on nearby roads, residents near the Proposed Action, potential recreational users, and airport traffic.

Data used to characterize the baseline and analyze the impacts to visual resources from the Solar Project include the following sources:

- USEPA: Level III and IV Ecoregions of Colorado (2012)
- Bureau of Land Management (BLM): Colorado Visual Resource Inventory (VRI) – Colorado, Royal Gorge Field Office (2024c)
- Bare earth digital elevation model (U.S. Geological Survey [USGS] 2024c)
- Google Earth Aerial Imagery (2024)

USEPA Level IV ecoregions of Colorado were used to develop a description of the existing landscape character within the analysis area. The Proposed Action is within the Flat to Rolling Plains Level IV Ecoregion within the High Plains Level III Ecoregion (USEPA 2012) and resides within flat to rolling plains in a highly developed agricultural area (Google Earth 2024, USEPA 2012). Vegetation within the analysis area is generally low in stature and generally allows for long-distance views. Ecoregions are derived based on elements similar to physiographic provinces that are used by the BLM's VRI process for comparatively assessing scenic quality (2024c).

The BLM has a VRI process for assessing and rating the intrinsic quality for land through a Scenic Quality Rating process, measuring public concern using a sensitivity level analysis and measuring distance from landscape distance zones (BLM 2024a). A subset of the VRI is the Scenic Quality Rating Unit (SQRU), which measures scenic or visual quality in terms of its distinctiveness (or memorability), scarcity, and variety of the landform, vegetation, water, color, adjacent scenery, and human-made features and how well these features fit together (BLM 2024a). SQRUs are evaluated on a point-scale in seven categories: landform, vegetation, water, color, influence of adjacent scenery, scarcity, and cultural modifications (BLM 2024a). The more diverse the

landscape, the higher the unit is evaluated then assigned a high (A), medium (B), or low (C) sensitivity score. The Solar Project resides entirely within one Class C SQRU, which includes expansive flat-to-rolling landforms with limited vegetation variety and sprawling views (Figure 3-2; BLM 2024c).

An analysis area of 3 miles was established based on Solar Project components and the existing landscape characteristics. Figure 3-3 presents the area in the surrounding landscape where visual effects from the operation of the Solar Project could potentially be discerned by the casual observer. Within the 3-mile analysis area, three distance zones were established: immediate foreground (0-0.25 mile), foreground (0.25-1 mile), and middle ground (1-3 miles). The analysis identified where Project components would be visible based solely on topographic variability and reflects the conservative scenario, or highest expected level of visibility, in determining sensitive viewing locations and potential visual impacts.

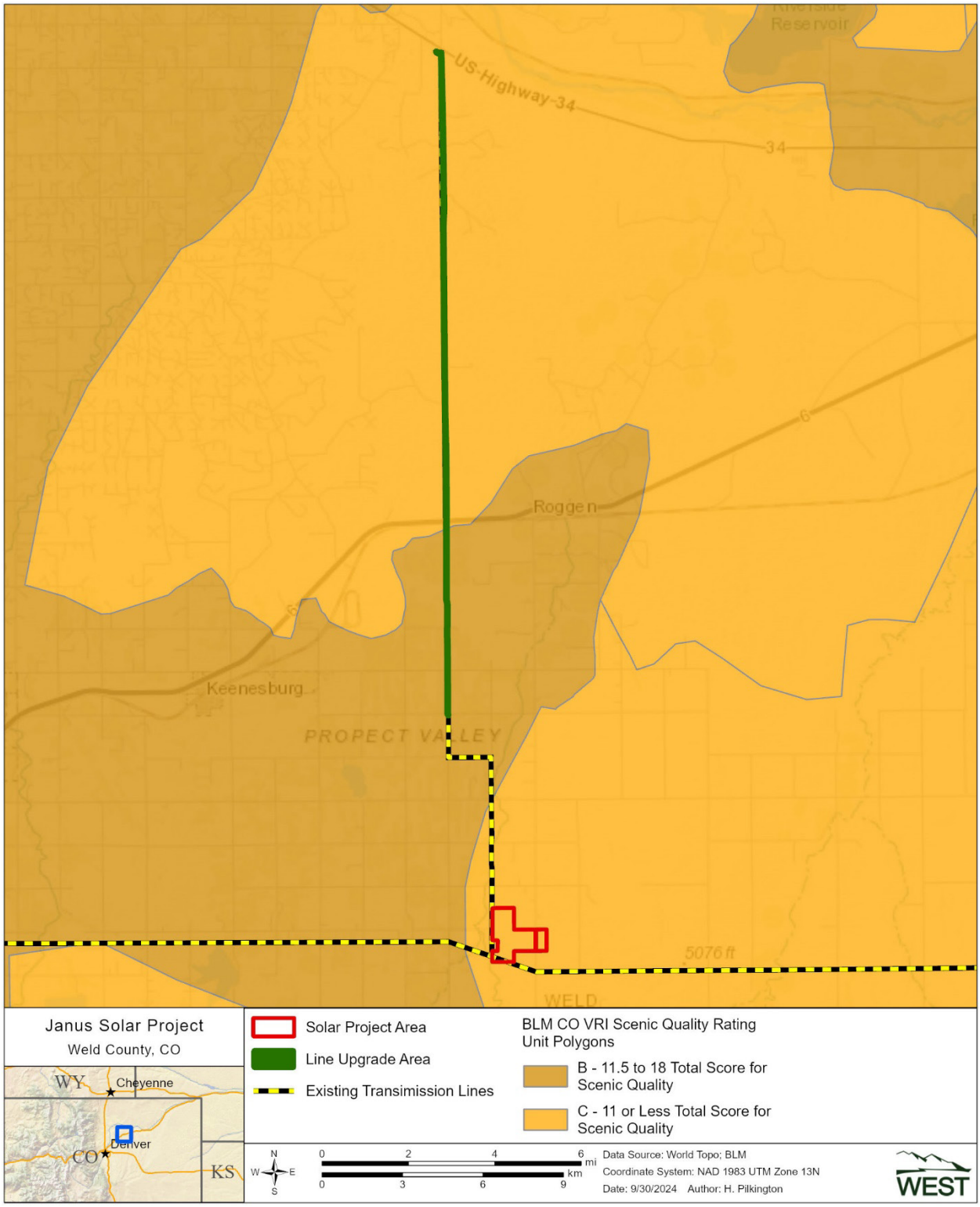

Figure 3-2. Scenic Quality Rating Unit Areas within the Solar Project Area and Line Upgrade Area at the Janus Solar Project, Weld County, Colorado.

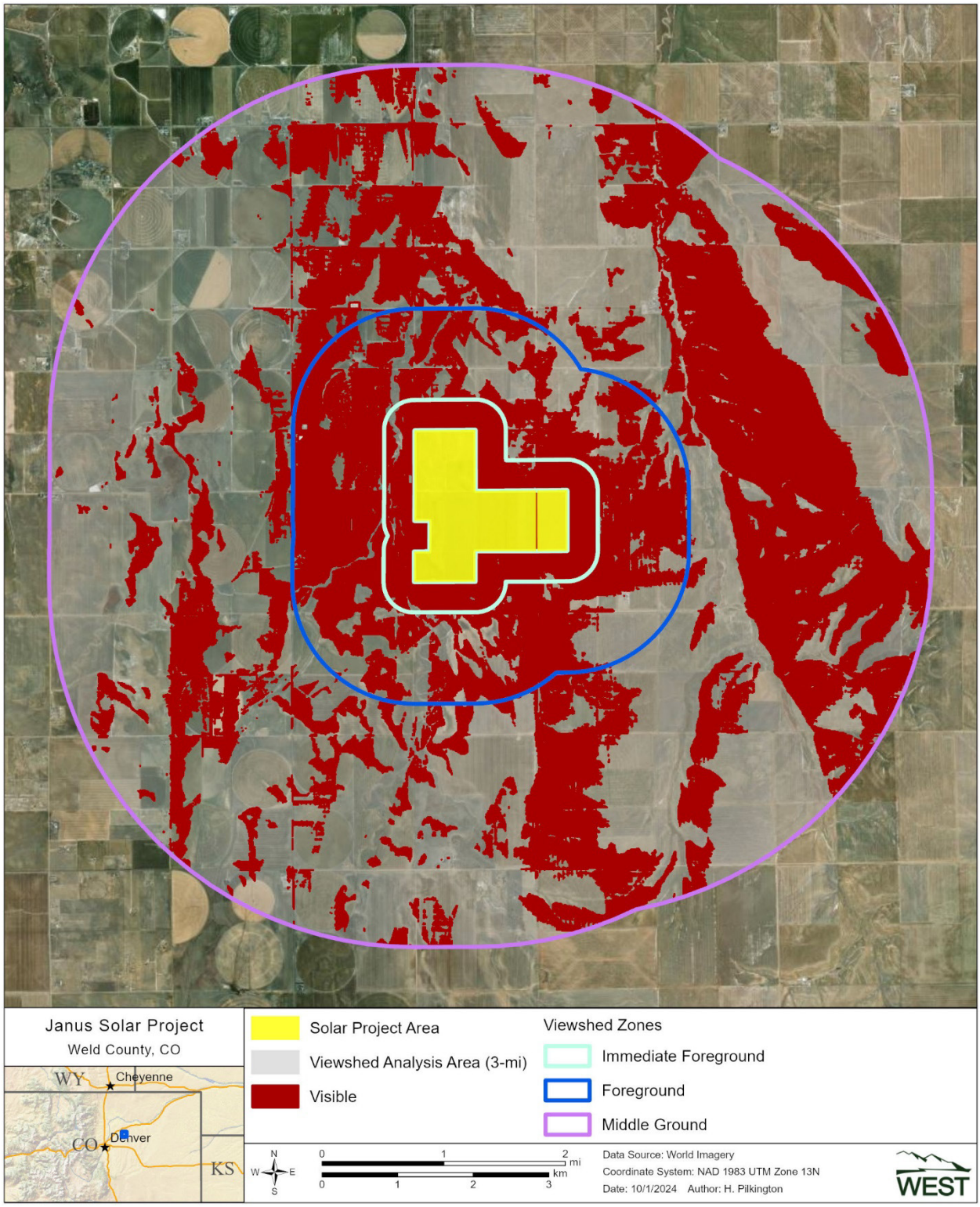

Figure 3-3. Viewshed Analysis of the Solar Project Area at the Janus Solar Project, Weld County, Colorado.

3.5.2 Environmental Impacts: Proposed Action

3.5.2.1 Environmental Commitments

The following environmental commitments would be implemented by Janus to reduce potential visual impacts from the Solar Project (Appendix I):

- Integrate the solar field's visual characteristics to reduce attention and design colors for visual uniformity (i.e., color of inverters or enclosures would be the same as panels).
- Reduce visual impacts during construction by minimizing areas of surface disturbance, controlling erosion, using dust suppression techniques, and restoring exposed soils as closely as possible to their original contour and vegetation. Existing rocks, vegetation, and drainage patterns would be preserved to the maximum extent possible.
- Offsite visibility of all commercial symbols and signs and associated lighting would be minimized. Necessary signs would be made of non-glare materials and utilize unobtrusive colors. The reverse sides of signs and mounts would be painted or coated using a suitable color to reduce contrasts with the existing landscape. Placement and design of any signs required by safety regulations must conform to regulatory requirements.
- Retro-reflective or luminescent markers would be used in lieu of permanent lighting where practical. Lighting for the substation, O&M building, and storage containers would be motion-activated, downward-directed, and shielded to minimize nighttime light pollution. Lighting for the inverters and transformer skids would be dark-sky compliant and motion-activated, if possible.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential impacts on visual resources. In addition, upgrades to the transmission line would be constructed in accordance with WAPA's construction standards, including landscape preservation (WAPA 2021; Appendix J, e.g., Section 13.4).

3.5.2.2 Direct and Indirect Impacts

The Proposed Action would change the aesthetics of the landscape within the analysis area with the introduction of the Solar Project, particularly due to the installation of solar arrays and accompanying aboveground facility infrastructure. Construction of the Solar Project and Line Upgrade would also result in short-term, temporary impacts to visual resources within the analysis area due to construction activities. Sensitive viewpoints for the Solar Project would be residences and vehicle traffic along CRs within the analysis area. Visual simulations were prepared to show views of the Solar Project from 10 key vantage points within the analysis area (Appendix G).

During construction, activities would result in minor-to-moderate temporary visual impacts to the landscape from vegetation clearing, grading, road building, stringing, construction and staging of parking areas, construction of facilities, dust, and construction vehicles. Construction vehicles would consist of passenger vehicles, medium- and heavy-duty trucks, and larger

equipment to assist with installation of proposed components. Construction activity and equipment would likely draw the attention of local residents and vehicle traffic in the immediate vicinity of the Solar Project and Line Upgrade. Construction activities would be temporary and last 14 months during normal daytime hours, while residents would likely be at their places of work and non-construction traffic would be lighter. Views from vehicle traffic would vary greatly depending on the driving route and construction phase at the time of travel but would generally be short-term while passing near the Proposed Action Area. These visual impacts would cease once the construction of the Solar Project and Line Upgrade are complete.

The primary visual impact during operation would be the development and operation of the Solar Project. The 10-foot-tall ground-mounted, tracker panel solar collectors, 8-foot-tall fences, and proposed substation would be visible to residences close to the Solar Project and vehicular traffic passing by. The horizontal, dark-colored solar arrays would result in visual contrast from the natural landscape and cropland in the analysis area. The Solar Project would be noticeable in the flat, panoramic landscape; however, the Solar Project has been designed to be low to the ground to reduce visual impacts.

A glint and glare analysis was conducted using the Sandia National Laboratory's Solar Glare Hazard Analysis Tools by Forge Solar to assess potential glare impacts resulting from the Solar Project (Appendix H). Specifically, this analysis focused on potential glare on businesses, residences, and roads, evaluating 28 observation points and 20 route (road) receptors. The results of the analysis, with the solar tracker panel system set to a 35-degree resting angle and maximum tracking angle of 60-degrees with a mid-point axis of six feet high, was that no glare would be observed from any of the observation points or route receptors (Colliers Engineering & Design, Inc., 2023; Appendix H). An FAA-level glare analysis was conducted for operational flight paths within the vicinity of the Solar Project Area, as well as a nearby local landing strip, as the Solar Project was found to be outside the FAA Denver area restricted airspace and outside military training route areas (Appendix H). The Solar Project was found to pass the most recent FAA policy regarding solar facility glare near airports.

Visual simulations of the Solar Project were conducted to aid with visual mitigation for nearby residences and traffic (Appendix G). Simulations showed that from the intersection of Highway 79 and CR 8 and the intersection of Highway 79 and CR 6, the Solar Project would have minimal obstruction to the surrounding visual landscape. The closest residential property is directly west, abutting the Solar Project Area. Landscape screening, composed of juniper (*Juniperus* spp.) tree plantings, would also be developed along the west side of Solar Project to reduce visual impacts to this property. The landscape screening is not expected to provide additional visual impact mitigation beyond this property. To comply with county regulations and reduce visual impacts to nearby residences, there would be a 500-foot setback from non-participating landowners in the north, 500-foot setback from residential buildings in the west, 30-foot setback from current roads and constructed roads, 20-foot setback from property lines to the west, and 35-foot setback of Solar Project gates from current roads.

Impacts on visual resources due to Solar Project construction and operation activities would be localized and spread throughout the Solar Project Area. Impacts would be minor in overall severity and would be mitigated to the greatest extent possible through setbacks and landscape screening.

3.5.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, there would be no impacts to visual resources from the Proposed Action, and existing conditions in the analysis area would continue as described in Section 3.5.1.

3.6 Cultural Resources

Cultural resources are aspects of the physical environment that relate to human activity, culture, and society identified through historic documentation and field investigations. Cultural resources include expressions of human culture and history, such as prehistoric or historic archaeological sites, buildings, structures, objects, districts, or other places. These are considered traditional cultural properties (TCPs) and are important to a culture, subculture, or community, including Native American tribes. Cultural resources also include traditional practices, community values, and institutions. Cultural resources that are listed in or meet the eligibility criteria for listing in the National Register of Historic Places (NRHP) are considered "historic properties" under the NHPA.

A cultural resource must meet one or more of the following criteria to be considered eligible for the NHPA: "a) are associated with events that have significantly contributed to the broad patterns of our history; b) are associated with the lives of persons significant in our past; c) embody distinctive characteristics of the type, period, or method of construction, or represents the work of a master, or possesses high artistic value, or represent a significant and distinguishable entity whose components may lack individual distinction; or d) have yielded, or may be likely to yield, information that is important in a pre-history or history" (36 CFR § 60 [1981]). The resource does not have to be included on the NRHP to receive protection under the law, but it must meet the requirements of eligibility.

Section 106 of the NHPA (54 USC § 300101 *et seq.* [2014]) and its implementing regulations requires federal agencies to consider the effects of their actions on cultural resources during NEPA analysis. Effects may include reasonably foreseeable effects caused by an undertaking that may occur later in time, be farther removed in distance, or be cumulative. The Section 106 consultation process typically occurs in parallel with EA preparation but is a separate process. Section 101(b)(3) of the NHPA directs that federal actions may occur on lands under state jurisdiction, with advisement and assistance from the Colorado SHPO. The Colorado SHPO is responsible for ensuring the effects of proposed actions on lands under state jurisdiction are considered under applicable state laws. In addition to the NHPA, other applicable federal and state regulations for the Solar Project include the following:

- American Antiquities Act of 1906 (54 USC § 320301 *et seq.* [2015])

- Archaeological Resources Protection Act of 1979 (16 USC § 470aa *et seq.* [1979])
- Native American Graves Protection and Repatriation Act of 1990 (25 USC § 3001 *et seq.* [1990])
- Executive Order (EO) 13007, Indian Sacred Sites (1996)
- EO 11593, Protection and Enhancement of the Cultural Environment (1971)
- EO 13175, Consultation and Coordination with Indian Tribal Governments (2000)
- Historical, Prehistorical, and Archaeological Resources Act of 1973 (8 Code of Colorado Regulations § 1504-7 [1973])
- Unmarked Human Graves (CRS § 24-80-1301-1305 [2023])

The Area of Potential Effect (APE) is a geographic area within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties if they exist. The APE is typically defined as areas to be directly disturbed and areas in immediate proximity to the area of disturbance. WAPA determined the APE in coordination with the Colorado SHPO and regional Native American tribes, as is consistent with Section 106 of the NHPA. An introductory letter was sent to the SHPO and the tribes on October 31, 2024, initiating Section 106 consultation and requesting concurrence on the APE. Consultation letters were sent to six tribes, which included: Apache Tribe of Oklahoma; Cheyenne and Arapaho Tribes; Comanche Nation; Northern Arapaho Tribe of the Wind River Reservation; and Northern Cheyenne of the Northern Cheyenne Indian Reservation. Consultation under Section 106 of the NHPA was completed on November 29, 2024.

3.6.1 Existing Conditions

The analysis area for cultural resources corresponds with the Solar Project APE and is defined as the proposed Solar Project Area (620 acres) with no buffers and the Prospect Valley-Willoby 115-kV transmission line upgrade route (140.4 acres) corresponding with the WAPA ROW, measuring 75 feet wide with no buffer, for a total of 759.8 acres. Cultural resources within the APE for the Proposed Action were identified through a Class I file search of the Colorado Historical Society – Office of Archaeology and Historic Preservation records for known cultural resources in the area, a review of historic General Land Office records, and an archaeological Class III level pedestrian survey. A Class III report will be submitted to the Colorado SHPO by WAPA once completed, and the SHPO determinations regarding the eligibility of documented resources as well as the environmental commitments will be updated.

A file search conducted on April 4, 2024, revealed five previously recorded resources. The Class III field inventory conducted in April and May 2024, documented 13 total resources within the APE, including re-evaluation of previously recorded resources (Centennial Archaeology [Centennial] 2024). Of the documented resources, five were considered or recommended to be eligible to the National Register (Table 3-9): three historic resources, including a section of the Kiowa Creek to Weld transmission line (5WL3155.13), a segment of the Burlington Northern Santa Fe Railroad (5WL1423.59), and a section of a canal linked to the Prospect Valley irrigation system (5WL5670.2); and two prehistoric sites, which include separate areas of lithic scatter

(5WL9749 and 5WL9750). The other six sites and two isolated finds were evaluated as ineligible for the NRHP (Table 3-9).

Table 3-9. Cultural Resources Identified within the Area of Potential Effect at the Janus Solar Project, Weld County, Colorado.

Site Number	Site Type	Eligibility Criteria	Solar Project Effect	Management Recommendation
5WL1423.59	BNSF Railroad segment	Determined eligible under Criterion A with SHPO concurrence (1993)	No adverse effect	No Action
5WL3160	Transmission substation	Not eligible (1998)	No historic property affected	No action
5WL5670.2	Canal section	Recommended not eligible (current project)	No adverse effect	No Action
5WL7413.1	Ditch	Not eligible (2013)	No historic property affected	No action
5WL7414.1	Ditch	Not eligible (2013)	No historic property affected	No action
5WL9746	Farmstead	Recommended not eligible (current project)	No historic property affected	No action
5WL9747	Farmstead	Recommended not eligible (current project)	No historic property affected	No action
5WL9748	Farmstead	Recommended not eligible (current project)	No historic property affected	No action
5WL9744	Isolated find	Recommended not eligible (current project)	No historic property affected	No action
5WL9745	Isolated find	Recommended not eligible (current project)	No historic property affected	No action
5WL9749	Lithic scatter	Recommended eligible under Criterion D (current project)	No adverse effect if avoided	Avoidance
5WL9750	Lithic scatter	Recommended eligible under Criterion D (current project)	No adverse effect if avoided	Avoidance
5WL9777	Transmission line segment	Recommended not eligible (current project)	No historic property affected	No action

BNSF = Burlington Northern Santa Fe; SHPO = State Historic Preservation Office.

3.6.2 Environmental Impacts: Proposed Action

Following are the Solar Project's environmental commitments and analysis of the direct and indirect impacts of the Proposed Action.

3.6.2.1 Environmental Commitments

The following environmental commitments would be implemented by Janus to reduce potential Solar Project impacts on cultural resources (Appendix I):

- Prior to construction, cultural resource surveys would be completed for any changes to the proposed Solar Project layout or design, if warranted.

- Sites that meet the criteria of eligibility for listing on the NRHP would be avoided with fencing for the life of the Solar Project or mitigated SHPO-approved data recovery plans.
- If there are construction and maintenance activities within 50 feet of sites 5WL9749 and 5WL9750, additional consultation with SHPO would be required to determine the appropriate level of mitigation required. It is recommended that an archaeological monitor be present to ensure work does not impact sensitive areas.
- If cultural resources are present at the site, or if areas with a high potential to contain cultural material have been identified, a cultural resources management plan would be prepared. This plan would address mitigation activities to be taken for cultural resources found at the site. Resources would be avoided to the extent practicable.
- An Unanticipated Discoveries Plan for cultural resources would be developed for the Solar Project that would be included in construction worker and operations staff training. It would include the protocols for unanticipated discoveries and the consequences of unauthorized collection and destruction of cultural artifacts or paleontological fossils. A strict policy that prohibits collection of these resources would be implemented.
- Cultural resources discovered during construction would immediately be brought to the attention of WAPA and the SHPO. Work would immediately halt in the vicinity of the find to avoid further disturbance and WAPA and SHPO would be contacted to determine the need for further testing and/or data recovery. Work would commence once the find has been evaluated and appropriate mitigation plans developed.
- In the event human remains are found within the Solar Project APE, work would cease immediately within 300 feet of the find and WAPA and SHPO would be contacted.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential impacts on cultural resources. As discussed in Section 3.6.1, two environmental resource areas within the Line Upgrade Area were identified and commitments would be followed to avoid impacts on cultural resources. In addition, upgrades to the transmission line would be constructed in accordance with WAPA's construction standards (WAPA 2021; Appendix J, e.g., Section 13.5).

3.6.2.2 Direct and Indirect Impacts

The Proposed Action has the potential to impact cultural resources directly and indirectly in the analysis area. Ground disturbing activities during Solar Project construction, operation, maintenance, and decommissioning, described in Section 2.3, could directly impact known and unknown cultural resources. Visual impacts from Solar Project infrastructure could directly impact the setting of eligible resources. Indirectly, impacts to cultural resources could include higher levels of traffic, resulting in erosion and sedimentation near access roads, potentially unearthing resources. The Proposed Action includes fencing the facility perimeter, thereby restricting public access, and indirectly preventing potential illegal collection of cultural artifacts. Implementation of the environmental commitments would reduce the direct effects of the Proposed Action.

The field investigation completed for the Solar Project documented 13 cultural resources within the APE; eleven sites and two isolated finds (Centennial 2024). The Class III Cultural Resources Inventory report for the Solar Project recommended sites 5WL9749 and 5WL9750 as eligible and sites 5WL9670.2, 5 WSL9746, 5WL9747, 5WL9748, and 5WL9777 as not eligible to the NHPA. Both Isolated finds, 5WL9744 and 5WL9745, were recommended not eligible. The SHPO previously determined site 5WL1423.59 eligible and sites 5WL3160, 5WL7413.1, and 5WL7414.1 not eligible to the NHPA (Table 3-9). No TCPs were identified and no historic properties where setting is considered character-defining are present.

The Class III report concluded a finding of no historic properties with implementation of mitigation measures. Section 106 consultation was completed on November 29, 2024. The Northern Cheyenne of the Northern Cheyenne Indian Reservation have also agreed with the finding of no historic properties affected. With the implementation of mitigation measures the Proposed Action would not result in an effect on cultural resources.

3.6.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, no disturbance beyond what currently exists would occur. Current land use would continue to be dictated by landowners that may result in ground disturbance, which would impact cultural resources that may be located in the shallow soil.

3.7 Paleontology

This section describes the existing paleontological resources and the potential effects the Proposed Action Alternative and No Action Alternative would have on these resources. Paleontological resources are any fossilized remains, traces, or imprints of organisms preserved in or on the Earth's crust that are of paleontological interest and that provide information about the history of life on Earth. These include mineralized, partially mineralized, or unmineralized bones and teeth, soft tissues, shells, wood, leaf impressions, footprints, burrows, and microscopic remains. Paleontological resources are considered nonrenewable resources because the organisms they represent no longer exist.

The BLM has mapped geologic units in the western U.S. and assigned each unit a Potential Fossil Yield Classification (PFYC) that corresponds to the likelihood of the unit yielding significant paleontological resources. These yield classes range from Class 1 (very low) to Class 5 (very high) and include guidance for management and potential for surface-disturbing activities to negatively impact paleontological resources (BLM 2016).

3.7.1 Existing Conditions

The Solar Project is located in southeastern Weld County in the South Roggen and Prospect Valley Quadrangles. The geology within the proposed Solar Project Area, including the proposed Line Upgrade, is primarily Holocene and Pleistocene eolian (windborne) deposits. These deposits are primarily composed of dune sand and silt, as well as Peoria Loess, a yellowy loess layer of silt and clay (Tweto 1979). The far western portion of the Solar Project Area is underlain by Holocene

alluvium that overlays older Pleistocene gravels and alluviums. Alluvium is composed of loose, unconsolidated material that is deposited as a result of flooding or transportation in a stream or river. They are often deposited in the beds of flowing water bodies, on flood plains, in deltas, or at the base of a mountain. On the far eastern portion of the site, the Solar Project overlays the Laramie Formation, which in turn overlays Fox Hill Sandstone, both of which are Upper Cretaceous in origin (Tweto 1979). The Laramie Formation is found throughout the Denver Basin in north-eastern Colorado. It is a sedimentary formation containing sandstone, siltstone, claystone, and coal. The Laramie Formation in the general area of the site has been interpreted as having been similar to the modern-day Mississippi Delta, with channels, streams, and swamps, as well as freshwater bays (Carpenter 1979). Fossils found within the Laramie Formation include dinosaurs, plants, insects, and aquatic organisms. Fossils are also frequently found in alluvial sediments, such as those underlying the rest of the Solar Project Area, though fossils have not been reported in these sediments specifically.

The portion of the Solar Project Area that overlays alluvium is classified as Class 2 (low) within the PFYC system (Figure 3-4). Class 2 includes geologic units that are not likely to contain paleontological resources. Units assigned to Class 2 typically have one or more of the following characteristics:

- Field surveys have verified that significant paleontological resources are not present or are very rare
- Units are generally younger than 10,000 years before present
- Recent aeolian deposits
- Sediments exhibit significant physical and chemical changes (i.e., diagenetic alteration) that make fossil preservation unlikely

The far eastern portion of the proposed Solar Project Area overlays the Laramie formation, which is considered Class 5 (very high; Figure 3-4). Class 5 includes highly fossiliferous geologic units that consistently and predictably produce significant paleontological resources. Units assigned to Class 5 have some or all of the following characteristics:

- Significant paleontological resources have been documented and occur consistently
- Paleontological resources are highly susceptible to adverse impacts from surface disturbing activities
- Unit is frequently the focus of illegal collecting activities

The proposed Line Upgrade partially overlay an area considered Class U (unknown potential; Figure 3-4). Geologic units in this class cannot receive an informed PFYC assignment. Units assigned to Class U have some or all of the following characteristics:

- Geological units exhibit features or preservational conditions that indicate significant paleontological resources could be present, but little information about the actual paleontological resources of the unit or area is known

- Geological units represented on a map are based on lithologic character or basis of origin but have not been studied in detail
- Scientific literature does not exist or does not reveal the nature of paleontological resources
- Reports of paleontological resources are anecdotal or have not been verified
- Area or geologic unit is poorly or under-studied
- BLM staff has not yet been able to assess the nature of the geologic unit

Important vertebrate fossils have been encountered in Weld County, including other Cretaceous-era fossils and more recent Paleogenic fossils. However, no fossils or other paleo resources have been publicly documented in the immediate area, with the nearest documented paleobiological find reported approximately 20 miles away, in Brighton, Colorado (Paleobiology Database 2024). In addition, the soils within the Solar Project Area are all currently being used for cultivated agriculture, so it is likely that any paleontological resources have already been affected if they were within cultivation depth.

3.7.2 Environmental Impacts: Proposed Action

3.7.2.1 Environmental Commitments

Environmental commitments Janus would implement to reduce the impacts of the Solar Project on paleontological resources include (Appendix I):

- Determining whether paleontological resources exist in the Solar Project Area based on the sedimentary context of the area, a records search for past paleontological finds in the area, and/or, depending on the extent of existing information, a paleontological survey.
- If paleontological resources are present at the site or if areas with a high potential to contain paleontological material have been identified, developing a Paleontological Resources Management Plan and an Unanticipated Paleontological Discoveries Plan. This plan would include a mitigation plan for collection of fossils. Avoid paleontological resources to the extent practicable.
- Including construction worker training and operations staff training, all staff would be trained in the protocols for unanticipated discoveries and the consequences of unauthorized collection and destruction of fossils. A strict policy that prohibits collection of these resources would be implemented.
- If unanticipated paleontological resources are discovered during construction, all work would stop in the area of the discovery and the procedures identified in the Unanticipated Paleontological Discoveries Plan would be followed.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential impacts on paleontological resources. As discussed in Section 3.6.1, two environmental resource areas within the Line Upgrade Area were identified and commitments would be followed to avoid impacts on cultural resources. In addition, upgrades to the

transmission line would be constructed in accordance with WAPA's construction standards (WAPA 2021; Appendix J, e.g., Section 13.5).

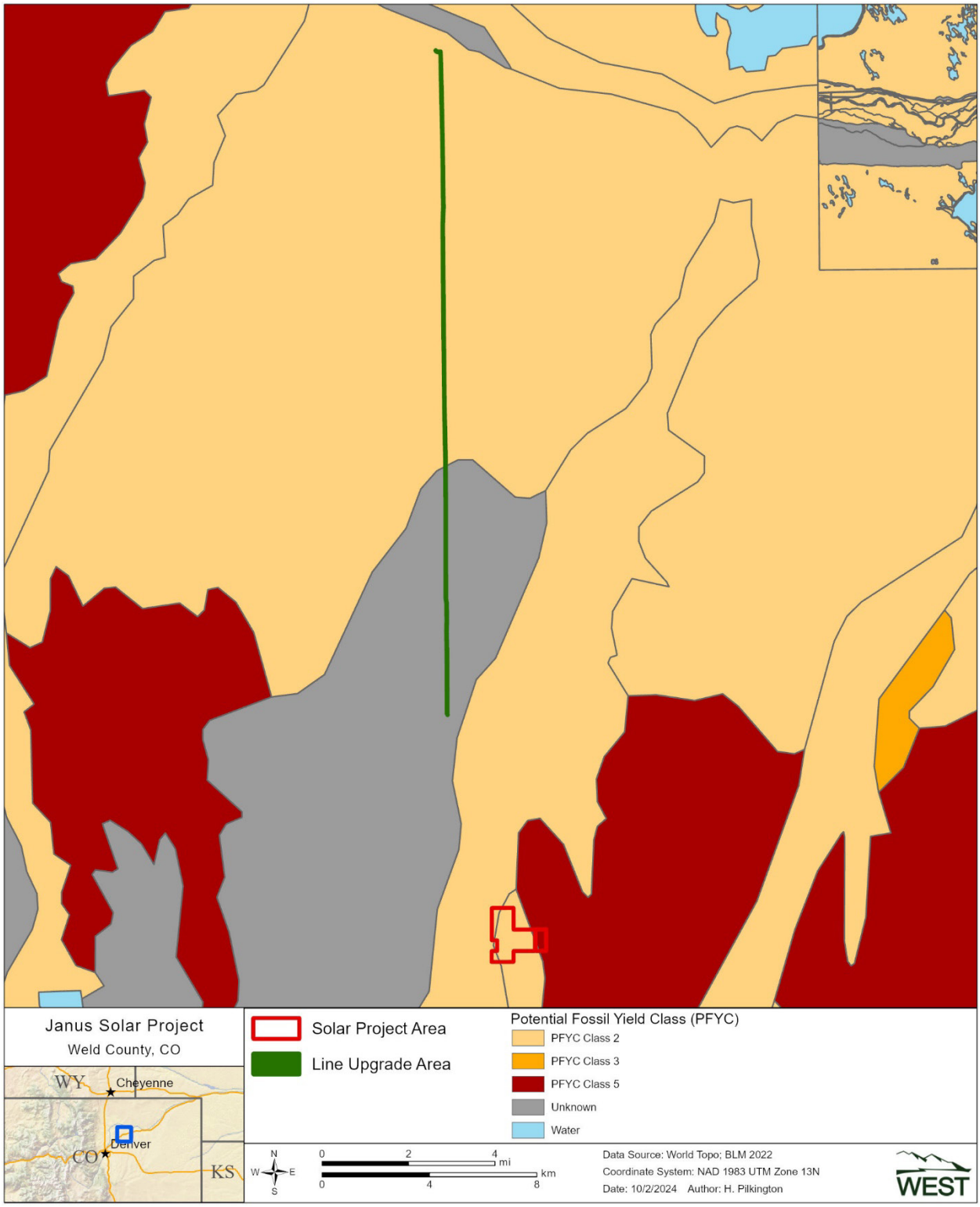

Figure 3-4. Potential Fossil Yield Classification (PFYC) in the Solar Project Vicinity at the Janus Solar Project, Weld County, Colorado.

3.7.2.2 Direct and Indirect Impacts

Direct impacts to paleontological resources primarily exist during construction, when ground disturbance from solar component installation, as well as building of other infrastructure, could result in resources being broken, crushed, or displaced. While grading is expected to be minimal at the site, soil stripping would be required for inverters, the substation, laydowns, and yards and may impact resources potentially located in those areas. Cultivation and other farming activities have likely already damaged or displaced any resources that were located within shallow soil depths, however any excavations from the Proposed Action below the shallow surface in agricultural areas has the potential to impact paleontological resources. No grading is expected to occur for the Line Upgrade, and therefore impacts to paleontological resources are not expected within the Line Upgrade Area. Decommissioning of the Solar Project would likely have similar direct and indirect impacts as construction.

The majority of the Solar Project Area and proposed components are located in alluvium deposits (Class 2 PFYC), and thus unlikely to encounter paleontological resources. Localities containing important paleontological resources may exist but are occasional and should be managed on a case-by-case basis.

Soil stripping, grading, and other land disturbing activities during construction within the Laramie Formation (Class 5 PFYC) have a high likelihood to encounter and impact paleontological resources. In these areas' avoidance or resource preservation through controlled access, designation of areas of avoidance, or special management designations should be considered (BLM 2016).

Indirect impacts to paleontological resources include threats posed by increased erosion, which can uncover resources that were previously buried, or move them entirely. However, this would be minimized with the implementation of environmental commitments to reduce soil loss and erosion (Appendix I). This includes construction-related erosion and sedimentation controls that would be applied and regularly inspected during the construction phase of the Solar Project. Furthermore, the installation of a native grass seed mix is anticipated to reduce erosion across the Solar Project Area by increasing infiltration into the soil. Training of Solar Project staff in the potential for uncovering paleontological resources, and the development of an Unanticipated Paleontological Discoveries Plan would reduce the potential for both direct and indirect impacts.

Given the limited acres of these geologic units within the Solar Project Area and environmental commitments, impacts to paleontological resources may occur as a result of the Proposed Action, but would not be significant.

3.7.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, disturbances associated with the proposed Solar Project would not occur. However, land use would continue to be managed by landowners that could choose to continue agricultural operations, including any necessary cultivation. In this case, disturbance from cultivation would continue to impact any paleontological resources located in shallow soil.

3.8 Wildlife Resources

This section describes the existing conditions and the effects that the Proposed Action could have on wildlife resources, specifically big game, and migratory birds. The analysis area for big game species includes CPW Game Management Unit 99. The analysis area for migratory birds includes a 1-mile buffer around the Proposed Action Area. These analysis areas were selected as they provide a baseline of existing habitat conditions within and around the Proposed Action Area and, in the case of big game, account for state-designated big game management boundaries.

3.8.1 Existing Conditions

The analysis areas contain suitable habitat for an array of wildlife species, including birds, reptiles, and mammals. Land cover types for the Solar Project Area, big game, and migratory bird analysis areas and are provided in Table 3-10. The primary land cover types in the migratory bird analysis area include Western Great Plains Shortgrass Prairie (52.6% of the migratory bird analysis area), followed by cultivated or fallow cropland (approximately 38% of the migratory bird analysis area), which includes Western Cool Temperate Fallow/Idle Cropland (11.6%), Western Cool Temperate Wheat (8.9%), Western Cool Temperate Row Crop (8.3%), Western Cool Temperate Close Grown Crop (6.1%), Western Cool Temperate Pasture and Hayland (1.9%), Western Cool Temperate Row Crop - Close Grown Crop (1.1%), among others (Table 3-10). Areas that are not developed or cropland comprise approximately 8% of the migratory bird analysis area, with Northern and Central Plains Ruderal and Planted Grassland (5.6%) comprising the predominant cover class within this category (Table 3-10). These areas may provide habitat (e.g., foraging, breeding, and/or sheltering areas) for big game and migratory bird species. Land cover types in the analysis area associated with anthropogenic disturbances, such as cultivated cropland, may provide wildlife habitat for some species (e.g., white-tailed deer [*Odocoileus virginianus*] and coyote [*Canis latrans*]).

Table 3-10. LANDFIRE Land Cover Types within the Solar Project Area, Game Management Unit (GMU) 99, and Migratory Bird Analysis Area at the Janus Solar Project, Weld County, Colorado.

LANDFIRE Cover Class	Solar Project Area (Acres)	GMU 99 Analysis Area[a] (Acres)	Migratory Bird Analysis Area[b] (Acres)	Percent of Solar Project Area (%)	
				GMU 99 Analysis Area[a]	Migratory Bird Analysis Area[b]
Western Cool Temperate Fallow/Idle Cropland	339	278,374	3,195	0.1	
Western Great Plains Shortgrass Prairie	–	257,710	14,489	–	–
Western Cool Temperate Wheat	140	168,411	2,460	<0.1	5.7
Western Cool Temperate Row Crop	121	75,805	2,275	0.2	5.3
Northern and Central Plains Ruderal and Planted Grassland	–	68,122	1,543	–	–
Western Great Plains Sandhill Steppe	–	42,015	16	–	–
Western Cool Temperate Close Grown Crop	–	30,050	1,682	–	–
Western Cool Temperate Pasture and Hayland	<1	29,978	534	<0.1	0.1
Western Cool Temperate Row Crop - Close Grown Crop	12	24,889	301	<0.1	4.0
Developed-Roads	7	22,918	418	<0.1	1.7
Western Great Plains Sand Prairie	–	11,704	147	–	–
Northern & Central Plains Ruderal & Planted Shrubland	–	11,116	132	–	–
Western Cool Temperate Urban Herbaceous	–	10,044	123	–	–
Western Cool Temperate Urban Shrubland	–	5,856	87	–	–
Open Water	–	3,158	4	–	–
Developed-Low Intensity	–	3,142	35	–	–
Western Great Plains Riparian Herbaceous	–	2,023	55	–	–
Developed-Medium Intensity	–	1,941	8	–	–
Western Great Plains Foothill and Piedmont Grassland	–	1,868	–	–	–
Western Great Plains Riparian Woodland	–	1,739	–	–	–
Central Mixed-grass Prairie Grassland	–	1,705	20	–	–
Developed-High Intensity	–	946	2	–	–
Western Cool Temperate Developed Herbaceous	–	539	4	–	–
Western Great Plains Tallgrass Prairie	–	492	2	–	–
Inter-Mountain Basins Mixed Salt Desert Scrub	–	367	1	–	–

Table 3-10. LANDFIRE Land Cover Types within the Solar Project Area, Game Management Unit (GMU) 99, and Migratory Bird Analysis Area at the Janus Solar Project, Weld County, Colorado.

LANDFIRE Cover Class	Solar Project Area (Acres)	GMU 99 Analysis Area[a] (Acres)	Migratory Bird Analysis Area[b] (Acres)	Percent of Solar Project Area (%)	
				GMU 99 Analysis Area[a]	Migratory Bird Analysis Area[b]
Western Great Plains Closed Depression Wetland	–	300	17	–	–
Rocky Mountain Foothill Limber Pine-Juniper Woodland	–	253	2	–	–
Western Cool Temperate Developed Shrubland	–	192	3	–	–
Western Great Plains Riparian Shrubland	–	165	1	–	–
Southern Rocky Mountain Ponderosa Pine Woodland	–	134	–	–	–
Western Cool Temperate Urban Deciduous Forest	–	115	1	–	–
Great Plains Wooded Draw and Ravine Woodland	–	106	<1	–	–
North American Arid West Emergent Marsh	–	102	<1	–	–
Western Great Plains Saline Depression Wetland	–	82	<1	–	–
Inter-Mountain Basins Shale Badland	–	52	1	–	–
Western Cool Temperate Urban Mixed Forest	–	46	<1	–	–
Western Great Plains Cliff and Outcrop	–	45	–	–	–
Western Cool Temperate Urban Evergreen Forest	–	45	1	–	–
Western Cool Temperate Developed Evergreen Forest	–	24	<1	–	–
Southern Rocky Mountain Pinyon-Juniper Woodland	–	23	–	–	–
Rocky Mountain Lower Montane-Foothill Shrubland	–	20	–	–	–
Western Great Plains Floodplain Forest and Woodland	–	19	–	–	–
Central Mixed-grass Prairie Shrubland	–	18	<1	–	–
Western Cool Temperate Developed Mixed Forest	–	12	–	–	–
Western Great Plains Floodplain Herbaceous	–	6	1	–	–
Western Cool Temperate Developed Deciduous Forest	–	4	–	–	–
Western Great Plains Floodplain Shrubland	–	0.2	–	–	–
Western Great Plains Badlands	–	0.2	–	–	–
Rocky Mountain Gambel Oak-Mixed Montane Shrubland	–	0.2	–	–	–
Quarries-Strip Mines-Gravel Pits-Well and Wind Pads	–	–	7	–	–

Table 3-10. LANDFIRE Land Cover Types within the Solar Project Area, Game Management Unit (GMU) 99, and Migratory Bird Analysis Area at the Janus Solar Project, Weld County, Colorado.

LANDFIRE Cover Class	Solar Project Area (Acres)	GMU 99 Analysis Area[a] (Acres)	Migratory Bird Analysis Area[b] (Acres)	Percent of Solar Project Area (%)	
				GMU 99 Analysis Area[a]	Migratory Bird Analysis Area[b]
Total[c]	**620**	**1,056,674**	**27,570**	**0.1**	**2.2**

Source: LANDFIRE 2023.

[a] The analysis area for big game species includes CPW Game Management Unit 99.

[b] The analysis area for migratory birds includes a 1-mile buffer around the Proposed Action Area.

[c] Discrepancies due to rounding.

The State of Colorado has an established statutory responsibility for CPW to manage all wildlife species in in the state, including big game. While not state-listed, big game are sensitive wildlife species specifically identified in *Colorado Parks and Wildlife Best Management Practices for Solar Energy Development* (CPW 2021a). CPW provides recommendations on ways to avoid, minimize, and mitigate impacts from development and land use changes to big game and other wildlife, with the goal of providing for the long-term conservation of wildlife and wildlife habitats.

Most avian species are protected under the USFWS Migratory Bird Treaty Act of 1918 (MBTA; Section 3.9). The MBTA makes it illegal for anyone to take, possess, import, export, transport, sell, purchase, barter, or offer for sale any migratory bird or the parts, nests, or eggs of such a bird, except under the terms of a valid permit issued by the USFWS. The Bald and Golden Eagle Protection Act of 1940 (BGEPA) prohibits anyone without a permit from "taking" eagles, their parts, eggs, or nests," as described in Section 3.9.

3.8.1.1 Big Game

Big game species that may use grassland habitat within the Proposed Action Area were identified based on CPW-mapped overall range and include mule deer (*Odocoileus hemionus*), pronghorn (*Antilocapra americana*), and white-tailed deer (Colorado Natural Heritage Program [CNHP] 2024; Figures 3-5a, b, and c). Within the Solar Project Area, CPW has modeled mule deer winter range and resident population areas (areas identified providing year-round habitat), and pronghorn resident population areas (Figures 3-5a and b). Along the Line Upgrade, CPW has modeled mule deer winter range, severe winter range, and resident population areas; CPW also modeled pronghorn severe winter range, winter concentration areas, and resident population areas (Figures 3-5a and b). CPW has modeled mule deer and white-tailed deer highway crossings at the northern end of the Line Upgrade (Figures 3-5a and c).

CPW has identified winter habitat quality and availability as a primary limiting factor for big game populations in Colorado (Cooley et al. 2020). On the eastern plains, winter range is defined as areas that provide thermal cover for deer, such as riparian areas dominated by trees and shrubs; areas of pinyon (*Pinus* spp.) and juniper; topographic cover, such as gullies, draws, canyons, and shelter belts; and Conservation Reserve Program[1] fields that provide adequate forage and cover. No big game species were observed during biological survey work for the Solar Project; however, evidence of their presence was observed in the form of ungulate tracks observed in the Sand Creek streambed (Appendix B; Brunner and Knierim 2022). Table 3-11 summarizes big game modeled habitat within the Solar Project Area and within Game Management Unit 99 (CPW 2021a, 2023b).

[1] The Conservation Reserve Program (CRP) allows for payment to farmers to convert previously farmed lands to grasslands, which could provide habitat for wildlife. The CRP is a voluntary program that provides technical and financial assistance to farmers and ranchers to address soil, water, and related natural resource concerns on their lands. The CRP is administered by the Farm Service Agency, with the Natural Resources Conservation Service providing technical land eligibility determinations, conservation planning, and practice implementation (U.S. Department of Agriculture 2024).

Table 3-11. Big Game Ranges and Acreage within the Solar Project and Game Management Unit (GMU) 99 at the Janus Solar Project, Weld County, Colorado.

Species	Range	Solar Project Area (Acres)	GMU 99 (Acres)	Percent of Solar Project Area (%)
mule deer *Odocoileus hemionus*	Overall Range Resident Population Area Winter Range	620 493 620	1,056,674 142,482 414,765	0.1 0.3 0.1
pronghorn *Antilocapra americana*	Overall Range Resident Population Area Winter Range	79 <1 <1	899,514 115,678 235,849	<0.1 <0.1 <0.1
white-tailed deer *Odocoileus virginianus*	Overall Range	620	532,015	0.1
Total[a]		**620**	–	–

Source: Colorado Natural Heritage Program 2024.

[a] Discrepancies due to rounding.

3.8.1.2 Migratory Birds

BirdLife International developed the Important Bird Areas (IBAs) program to identify sites that are globally important for the conservation of bird populations using an internationally agreed set of criteria. In the U.S., the IBA program is administered by the National Audubon Society (Audubon). No IBAs occur within 1-mile of the Solar Project Area. The nearest IBA is Jackson Lake State Park, approximately 17 miles east-northeast of the Solar Project (Audubon 2024).

Migratory bird species that are likely to occur in the Solar Project Area for breeding, foraging, or during migration include raptors, such as Swainson's hawk (*Buteo swainsoni*), red-tailed hawk (*B. jamaicensis*), ferruginous hawk (*B. regalis*), prairie falcon (*Falco mexicanus*), American kestrel (*F. sparverius*), northern harrier (*Circus hudsonius*), great horned owl (*Bubo virginianus*), and bald eagle (*Haliaeetus leucocephalus*); game birds, such as pheasant (*Phasianus colchicus*) and quail (*Callipepla* spp.); and numerous species of resident and migratory songbirds. No raptor nests have been recorded in the Solar Project Area or on any transmission line infrastructure; however, one great horned owl and seven Swainson's hawk nests were observed within 0.5 miles of the Solar Project Area and Line Upgrade in trees growing along Sand Creek, located immediately west of the Solar Project Area (Appendix B). In addition, burrowing owls (*Athene cunicularia*) were observed within 0.5 miles of the Solar Project Area (Appendix B; Sullivan et al. 2024a). Burrowing owl surveys and results are further discussed in Section 3.9.1.2.

Due to the dominant cultivated crop land cover, the Solar Project Area largely lacks suitable nesting habitat. Common bird species associated with agriculture and open grasslands may utilize field margins, power poles, and farm structures for nesting, such as killdeer (*Charadrius vociferus*), horned lark (*Eremophila alpestris*), mourning dove (*Zenaida macroura*), thick-billed longspur (*Rhynchophanes mccownii*), and lark bunting. These species may also use emergent marsh, shortgrass prairie, and tallgrass prairie habitats in the analysis area. The nesting season for the majority of breeding birds in Colorado is approximately April 1 to August 31 (CPW 2021a).

In addition, open habitats along Sand Creek may provide nesting and foraging habitat for a variety of common raptors, passerines, and other birds. Species that use open habitats near the Solar Project Area for nesting and foraging habitat may transit over the Solar Project Area or use the Solar Project Area for foraging and/or shelter, particularly during winter and migration. Canada goose (*Branta canadensis*) and other migrating waterfowl could also forage in agricultural fields within the Solar Project Area during migration and winter.

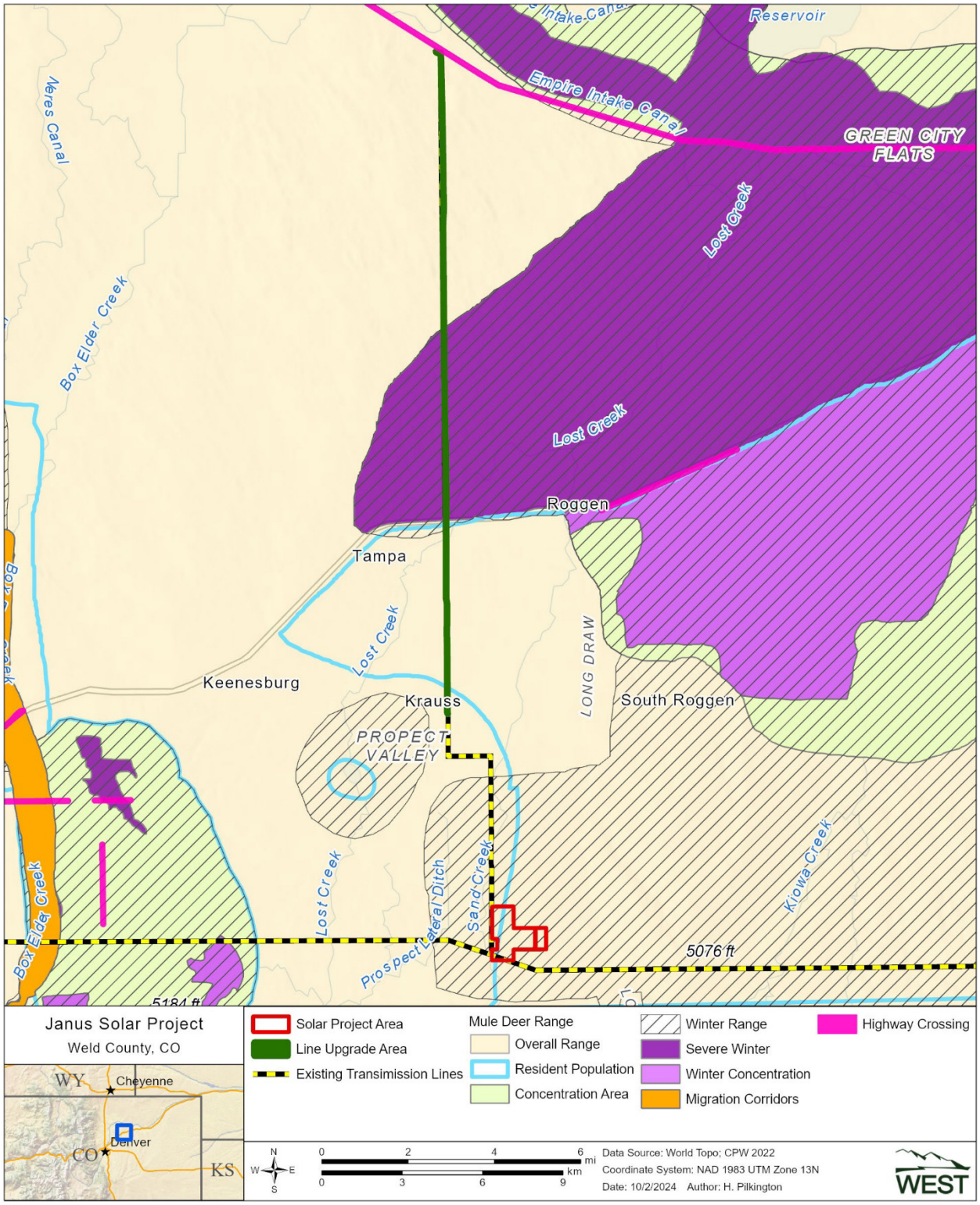

Figure 3-5a. Mule Deer Modeled Habitat within the Solar Project Area and Vicinity of the Janus Solar Project, Weld County, Colorado.

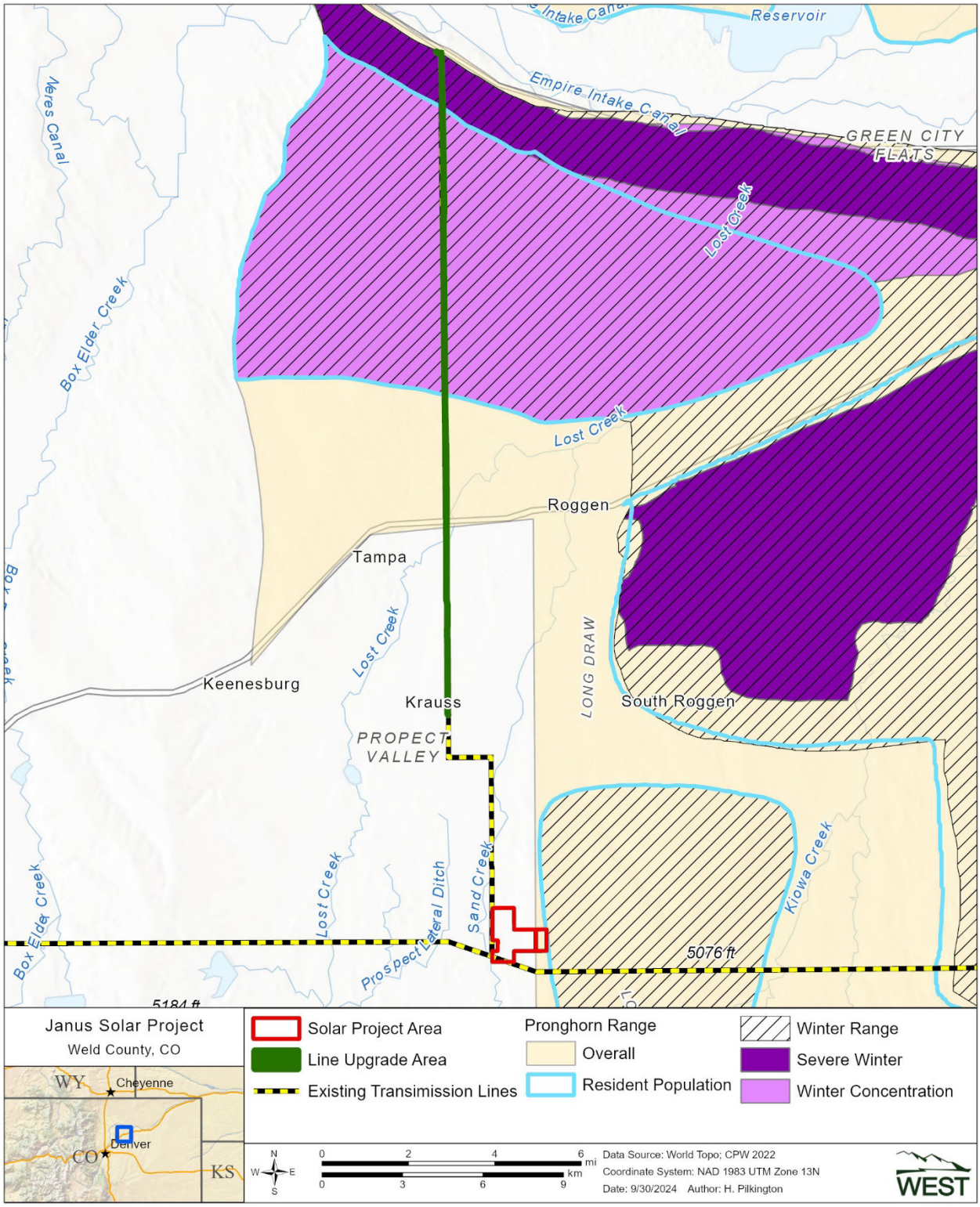

Figure 3-5b. Pronghorn Modeled Habitat within the Solar Project Area and Vicinity of the Janus Solar Project, Weld County, Colorado.

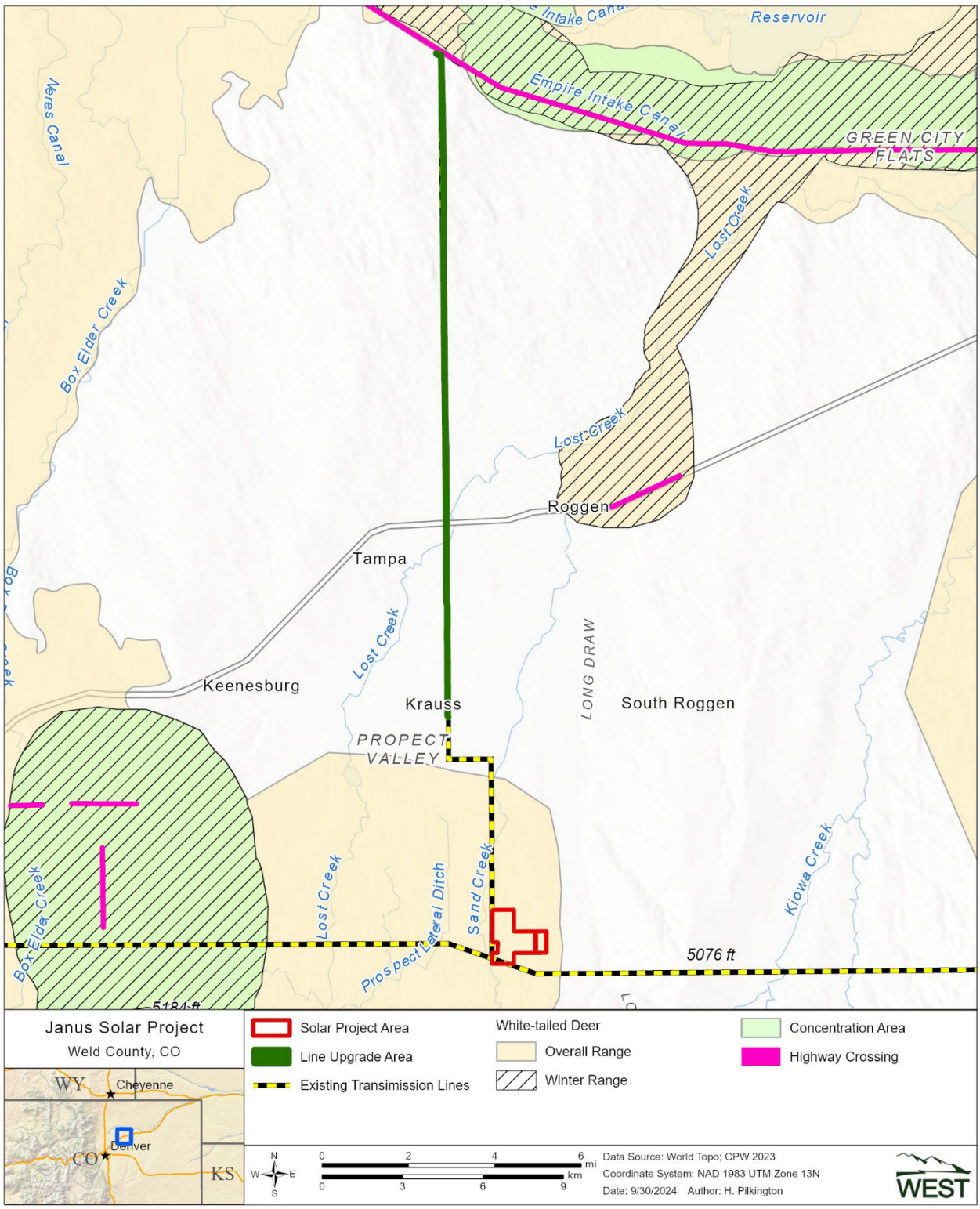

Figure 3-5c. White-tailed Deer Modeled Habitat within the Solar Project Area and Vicinity of the Janus Solar Project, Weld County, Colorado.

The USFWS Information for Planning and Consultation (IPaC) report identified 12 Birds of Conservation Concern (BCC) with potential to occur in the Solar Project Area (Table 3-12; Appendix B; USFWS 2024e). Raptor BCC may forage in the Solar Project Area, particularly in winter or when fields are fallow, and may nest in the analysis area where grasslands and/or trees are present. The remaining species have a low potential to occur as foragers or migrants in the Solar Project Area but are not expected to nest in the Solar Project Area due to a lack of suitable breeding habitat within cultivated fields. All 12 BCC have some potential to forage or shelter in the Solar Project Area, particularly during winter and migration (Table 3-12).

Table 3-12. Migratory Birds of Conservation Concern Potential to Occur in the Analysis Area[a] at the Janus Solar Project, Weld County, Colorado.

Common Name	***Scientific Name***	**Breeding Season**	**Potential to Occur[b]**
bald eagle	*Haliaeetus leucocephalus*	Oct 15 – Jul 31	Confirmed
broad-tailed hummingbird	*Selasphorus platycercus*	May 25 – Aug 21	Low
chestnut-collared longspur	*Calcarius ornatus*	May 1 – Aug 10	Moderate
Clark's grebe	*Aechmophorus clarkii*	Jun 1 – Aug 31	Low
ferruginous hawk	*Buteo regalis*	Mar 15 – Aug 15	High
golden eagle	*Aquila chrysaetos*	Dec 1 – Aug 31	High
grasshopper sparrow	*Ammodramus savannarum*	Jun 1 – Aug 20	Low
lesser yellowlegs	*Tringa flavipes*	Not Applicable	Low
northern harrier	*Circus hudsonius*	Apr 1 – Sep 15	Moderate
pectoral sandpiper	*Calidris melanotos*	breeds elsewhere	Low
red-headed woodpecker	*Melanerpes erythrocephalus*	May 10 – Sep 10	Low
whimbrel	*Numenius phaeopus*	breeds elsewhere	Low

[a] The analysis area includes a 1-mile buffer around the Proposed Action Area.

[b] Low = Proposed Action Area is outside the species' known range, or within the species' known range but suitable habitat appears absent in the Proposed Action Area; however, species may occur during dispersal, migration, or annual movements; Moderate = Proposed Action Area is within the species' known range and contains marginal habitat; species is highly mobile and/or may occur year-round; High = Proposed Action Area is within the species' known range and contains suitable habitat; Confirmed = Documented species occurrences in or adjacent to the Proposed Action Area in public data or during the field visit (Section 3.9.1).

Source: Colorado Natural Heritage Program 2024, U.S. Fish and Wildlife Service 2024e.

3.8.2 Environmental Impacts: Proposed Action

3.8.2.1 Environmental Commitments

The following environmental commitments would be implemented by Janus to reduce potential Solar Project impacts on wildlife resources (Appendix I):

- Coordinate with CPW, throughout the planning, preconstruction, construction, operation, and decommissioning of the Solar Project, as needed, to minimize impacts to wildlife species. Identify important, sensitive, or unique habitats in the vicinity of the Solar Project and design the Solar Project to avoid (if possible), minimize, or mitigate impacts to these resources and habitats.
- The Solar Project has been designed to address CPW concerns regarding big game movement and potential travel corridors along Sand Creek. Specifically, the Solar Project Area excludes Sand Creek and non-cultivated habitats along Sand Creek.
- Perimeter fencing would be designed, constructed, and maintained in accordance with Solar Project security requirements and CPW (Hanophy 2009) recommendations. For specific wildlife exclusion fencing specifications around the Solar Project Area, CPW recommends that any installed fencing should be eight feet in height, have round-capped posts, and smooth top wire to the fence and, if two top strands are needed, ensure they are at least six inches apart.
- Design the Solar Project to discourage use of facility structures as perching or nesting substrates by birds to the extent practicable. These structures primarily include transmission structures, substation, and switchyard components.
- A Property Management Plan and an Erosion Control Plan would be developed to avoid (if possible), minimize, or mitigate negative impacts on vulnerable wildlife while maintaining or enhancing habitat values for other species. The plans would identify revegetation, soil stabilization, and erosion reduction measures that would be implemented to ensure that all temporary use areas are restored. The plans would require that restoration occur as soon as possible after completion of activities to reduce the amount of habitat converted at any one time and to hasten the recovery to natural habitats.
- If construction is anticipated during the migratory bird nesting season, pre-construction clearance surveys would be conducted within five days prior to any ground disturbing activity and active nests would be avoided during construction activities. Construction activities would be suspended within a 300-foot radius around nests protected under the MBTA. Raptor nests would be buffered in coordination with CPW and/or the USFWS and in accordance with the *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (CPW 2020).

- Educate/instruct all employees, contractors, and site visitors to avoid harassment and disturbance of wildlife, especially during reproductive (e.g., courtship and nesting) seasons. Prior to construction, the contractor would be instructed regarding areas of environmental sensitivity within the Solar Project Area and those areas where a wildlife or cultural resources monitor must be present during construction. No dogs/pets would be allowed in the Solar Project Area. Establish and implement wildlife protection policies that would prohibit hunting, feeding, or harassment of wildlife.
- During construction and operations, vehicle movement outside the Solar Project Area and existing land authorizations would be restricted to pre-designated access, contractor-acquired access, or public roads.
- To reduce the potential for wildlife collisions, speed limits would be posted along construction roads and Solar Project personnel and contractors would be required to adhere to speed limits.
- The Solar Project Area would be maintained free of construction-related, non-biodegradable debris.
- Deep structure foundation holes and trenches would not be left open overnight and would be covered. Covers would be secured in place and would be strong enough to prevent wildlife from falling in. Trenches left open overnight would be checked for wildlife prior to work commencing. No open posts or poles would be left on site. All posts and poles would be capped or filled with sand to prevent entrapment of wildlife.
- The Solar Project would develop and implement a Property Management Plan for the control of noxious weeds and invasive species, which could occur because of new surface disturbance activities at the site. Integrated weed management techniques (e.g., mechanical weed control) would be used instead of herbicides where possible; if used, only non-persistent, immobile herbicides would be applied. No pesticides would be used.
- Restore ecological resources in accordance with the Property Management Plan and Erosion Control Plan as soon as possible after completion of construction activities to reduce the amount of habitat converted at any one time and to hasten the recovery to natural habitats.
- Temporarily disturbed areas would be revegetated using native seed mixtures (e.g., grasses, shrubs, forbs).
- Electrical component locations and all aboveground electrical facilities would be designed to provide raptor and migratory bird protection in compliance with Avian Power Line Interaction Committee (APLIC) guidance to avoid and minimize impacts to avian species (2006, 2012).

- A post-construction Wildlife Monitoring Plan would be prepared in coordination with CPW. Maintenance staff would regularly (at least monthly) inspect the solar facility for birds and entrapped mammals. For each species of bird or mammal found dead on or at the facility, maintenance staff would photograph it and keep a running mortality list of such birds and/or mammals. This list would be submitted to CPW and Weld County once a year for three years. The purpose of this list is to understand what wildlife species may be negatively impacted and better managed by the Solar Project. Discuss corrective measures with CPW. If the maintenance staff finds injured birds or mammals on the site that may be candidates for rehabilitation, they would notify the CPW's Fort Collins Office at (970) 472-4300 (Monday – Friday 8 a.m. – 5 p.m. MST) or Colorado State Patrol (CSP) on the weekend to locate the on-call wildlife officer. For after-hours emergencies they would call CSP at (303) 239-4501.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential impacts on wildlife resources. In addition, upgrades to the transmission line would be constructed in accordance with APLIC guidance and WAPA's construction standards (WAPA 2021; Appendix J, e.g., Section 13.20).

3.8.2.2 Direct and Indirect Impacts

3.8.2.2.1 Big Game

Mule deer, pronghorn, and white-tailed deer that may occur in the Solar Project Area may be indirectly impacted by the conversion of cultivated fields to a solar infrastructure and by disturbance associated with human activity. Conversion of cultivated fields to a fenced solar facility would reduce habitat for big game within the Solar Project Area. In addition, Solar Project presence and operation has the potential to displace big game from parts of their resident population areas and winter ranges. As discussed above, winter habitat quality and availability are a limiting factor for Colorado big game populations. Construction of the Solar Project would remove 620 acres of winter range for mule deer (0.1% of available winter range in the analysis area). The Solar Project would remove less than one acre of winter range for pronghorn (less than 0.1% of available winter range in the analysis area). Construction of the Solar Project would not remove winter range for white-tailed deer but would result in the removal of 620 acres of overall range (0.1% of available overall range in the analysis area). Through the life of the Solar Project, big game movement would be restricted in areas where fencing is installed. Impacts on big game movement have been minimized through Solar Project design, by avoiding the movement corridor along Sand Creek and preserving non-cultivated habitats along Sand Creek. Additional direct impacts to big game species could occur from potential vehicle collisions during construction and operation of the Solar Project.

The response of big game to habitat loss, human activity, and vehicle traffic would vary with the individual and species, and may depend on the distance, type, intensity, and duration of the disturbance. Disturbance would be restricted to pre-defined areas for construction and vehicular access, which would contribute to reducing potential impacts to big game individuals and their habitat (Section 3.8.2.1). Construction and operation of the Solar Project would have minimal

impacts to big game habitat, including seasonal ranges (1% or less of the respective CPW-mapped range in the analysis area [Table 3-11]), and impacts are not anticipated to be significant.

3.8.2.2.2 Migratory Birds

Impacts to migratory birds from the proposed Solar Project include loss of open habitat, displacement and disturbance, and potential for direct mortality. The impacts of developing the Solar Project Area would temporarily remove habitat for burrowing and ground-nesting species. During construction and decommissioning, wildlife that occupied or used the Solar Project Area would likely be displaced.

A native mix of grasses and forbs would be established within the Solar Project Area after construction, which may provide habitat for migratory birds and some breeding birds. However, some bird species may avoid the Solar Project Area after development. For example, solar panels would prevent most raptor species from hunting within the Solar Project Area, as panels would limit their ability to see or capture prey on the ground. However, some raptors, such as red-tailed hawks and American kestrels, may utilize Solar Project fences and panels as perches for hunting areas adjacent to the Solar Project Area. Restored areas within the solar array may provide new nesting habitat for some habitat generalist species and is expected to provide higher quality foraging habitat than cultivated crops during the breeding season.

As a result of changes in habitat type, quantity, and quality, the abundance of some species may decline. Species dependent on open grassland habitat and those sensitive to human disturbance may avoid the Solar Project Area. In contrast, some generalist species, such as mourning dove and horned lark, may be attracted to habitat within the Solar Project Area. Response to the presence of solar panels has been found to be species specific, with some species (e.g., mourning dove) having higher abundance in solar facilities, while other species (e.g., barn swallow [*Hirundo rustica*]) have lower abundance in solar facilities. Overall, bird species diversity has been found to be lower in solar arrays than in nearby grasslands, although avian abundance (total number of individuals) may be higher in solar arrays (DeVault et al. 2014).

Migratory birds could be directly impacted through collisions with construction equipment, the gen-tie line, solar panels, and other proposed Solar Project infrastructure. Some individuals that are unable to avoid construction equipment could be harmed or killed, although such impacts are expected to be minimal since most individuals are likely to avoid construction equipment. The risk of collision with the gen-tie line, solar panels, and other structures, including the proposed Line Upgrade, is highest during times of poor visibility and near areas where high numbers of birds either take off or land, such as roost sites, ponds, or concentrated food sources. The Solar Project Area does not have features that might attract high numbers of birds, such as aquatic resources or high-quality native habitat. Electrical components can create an electrocution risk to birds. Impacts on migratory birds from the installation of upgraded overhead transmission lines would be minimal, with most transmission occurring along the existing Prospect Valley-Willoby transmission line. If the clearance between energized and grounded components on the gen-tie line is greater than the wingspan of birds, the potential for electrocution is greatly reduced (APLIC 2006, 2012). As discussed in Section 3.8.2.1, electrical

component locations and all aboveground electrical facilities associated with the gen-tie line would be designed to provide raptor and migratory bird protection in compliance with APLIC guidance to avoid and minimize impacts to avian species (APLIC 2006, 2012).The potential impacts on migratory birds related to collision risk would likely be negligible as a result of existing electrical infrastructure in the vicinity.

The concern over injuries and deaths of birds at solar facilities is centered on the theory that some migratory bird species may mistake the solar arrays for water features. Some species, particularly waterbirds and waterfowl, may attempt to land on these solar arrays, resulting in collisions with panels. For water obligate species (those that require water to take flight), landing within a solar array can result in stranding. The theory that avian species may mistake arrays for water bodies and be attracted to them has been coined the "lake effect hypothesis." If attraction of water-dependent species to solar facilities occurs, it is likely species and context dependent and difficult to separate from attraction to other anthropogenic features (e.g., irrigated agricultural fields; Kosciuch et al. 2021). Further, it is difficult to determine what portion of avian mortality risk within an agricultural landscape is due to the solar facility or to other factors, such as predation (Kosciuch et al. 2021). Nevertheless, the number of water obligate species that may be attracted to the Solar Project is expected to be low compared to those occurring in suitable aquatic habitat in the vicinity. Therefore, even if there is a potential for lake effect hypothesis impacts to occur at the Solar Project, the Solar Project would pose a low risk to birds.

In total, the Solar Project could result in approximately 620 acres of surface disturbance (Table 2-1) within agricultural habitat, including cultivated or fallow cropland, which could contain suitable nesting and foraging habitat for migratory bird species (Table 3-10; Section 3.8.1). Considering this is approximately 11% of suitable grassland and agricultural habitat in the analysis area for migratory birds, that cropland provides marginal nesting habitat, and that foraging habitat for most bird species is marginal in the growing season, impacts to migratory birds are not anticipated to be significant. Individuals disturbed or displaced from the Solar Project Area could use higher quality suitable habitat adjacent to the Solar Project, and species tolerant of the panels could use the Solar Project Area once construction is completed.

3.8.3 Environmental Impacts: No Action Alternative

The No Action Alternative would result in the proposed Solar Project not being constructed. Therefore, the impacts on wildlife associated with the Proposed Action and proposed Solar Project as described above would not occur.

3.9 Special-status Species

Certain species at risk of extinction are protected under the ESA, which provides for the listing, conservation, and recovery of endangered species. The ESA defines and lists species as "threatened" or "endangered" and provides regulatory protection for the listed species. Section 9 of the ESA prohibits the "take" of any species of fish or wildlife listed under the ESA as endangered. By regulation, the USFWS has extended this take prohibition to most species listed as threatened (50 CFR § 17.31 [1978]). Under the ESA, the term "take" is defined as "…to harass,

harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect" species listed as endangered or threatened, or to attempt to engage in any such conduct. The ESA authorizes the USFWS to issue permits for "incidental take" of wildlife species. Applicants must consult with the USFWS to assess the effects of a Proposed Action on listed species or their habitats.

The MBTA prohibits actions to pursue, capture, kill, or possess any migratory bird or part, nest, or egg of any such bird listed in wildlife protection treaties between the US, Great Britain, Mexico, Japan, and Russia (and other countries of the former Soviet Union). Most birds (except for introduced species and non-migratory game birds) within the U.S. and the Proposed Action Area are protected under the MBTA. The birds, occupied nests, and the contents of the nests (eggs or chicks) within the Proposed Action Area are afforded protection pursuant to the MBTA. Due to the potential for resident and migratory birds within the Proposed Action Area, compliance with the MBTA has been considered in the development of this EA.

Under authority of the BGEPA, bald and golden eagles (*Aquila chrysaetos*) are afforded additional legal protection. The BGEPA prohibits the take, sale, purchase, barter, offer of sale, transport, export, or import, at any time or in any manner, of any bald or golden eagle, alive or dead, or any part, nest, or egg thereof. The BGEPA also defines take to include "pursue, shoot, shoot at, poison, wound, kill, capture, trap, collect, molest, or disturb," and includes criminal and civil penalties for violating the statute. The term "disturb" is defined as agitating or bothering an eagle to a degree that causes, or is likely to cause, injury to an eagle, or either a decrease in productivity or nest abandonment by substantially interfering with normal breeding, feeding, or sheltering behavior (50 CFR § 22.3 [1974]). In February 2024, the USFWS promulgated a final rule on new permit regulations for incidental take of eagles under 50 CFR § 22 (USFWS 2024i).

Colorado State law (CRS § 33-2-102-106 [1985]), requires that the state maintain a list of species that have been determined to be endangered or threatened within the state. Colorado State Statute 33 authorizes CPW to regulate and protect the state's listed wildlife species. Colorado State law (CRS § 33-5-101-107 [1963], 1973 as amended) requires any state agency to obtain a wildlife certificate from CPW if the agency plans construction or maintenance activities that may impact the bed or banks of a stream or its tributaries.

This section describes the existing conditions within the Proposed Action Area for species listed by the ESA or CPW as threatened or endangered. Colorado state special concern (SC) species are also addressed, though they are not a statutory category. Subsequently, the effects that the Proposed Action could have on these special-status species are analyzed.

3.9.1 Existing Conditions

The analysis area for special-status species extends approximately one mile beyond the Proposed Action Area. The analysis area provides a baseline of existing habitat conditions within and around the Proposed Action Area and accounts for connecting habitat located between dispersed facilities that could be used by special-status species.

The special-status species analysis area lies within the High Plains Level III Ecoregion and Flat to Rolling Plains and Rolling Sand Plains Level IV ecoregions (USEPA 2012). Land cover types for the analysis area and the Proposed Action Area are provided in Section 3.8.1 (Table 3-10). Vegetation cover was further derived from the GAP/LANDFIRE National Terrestrial Ecosystems data set, which includes detailed vegetation and land cover patterns for the continental U.S. (USGS GAP 2019). As discussed in Section 3.8.1, the primary land cover types in the analysis area include cultivated or fallow cropland (85.0% of the analysis area), and areas that are not developed or cropland comprise 6.5% of the analysis area (Table 3-10). These areas may provide habitat (e.g., foraging, breeding, and/or sheltering areas) for special-status species. While Solar Project disturbance is assessed within the entirety of the Solar Project Area to allow for flexibility in Solar Project siting and design, it is not anticipated that the entire Solar Project Area would be developed.

Special-status species for this analysis were reviewed using the IPaC tool on July 22, 2024 (Appendix B; USFWS 2024e). On this date, a report of special-status species' occurrences that are recorded in Colorado's Conservation Data Explorer was requested (Appendix B; CNHP 2024a).

The likelihood of a special-status species occurring in the Proposed Action Area was determined during desktop review by considering the species' range, habitat requirements, mobility, population size, and records of occurrence. The likelihood of occurrence was classified as:

- None – Proposed Action Area is outside the species' known range and/or no suitable habitat occurs within the Proposed Action Area; species has restricted mobility and/or small population size.
- Low – Proposed Action Area is outside the species' known range, or within the species' known range but suitable habitat appears absent in the Proposed Action Area; however, species may occur during dispersal, migration, or annual movements.
- Moderate – Proposed Action Area is within the species' known range and contains marginal habitat; species is highly mobile and/or may occur year-round.
- High – Proposed Action Area is within the species' known range and contains suitable habitat.
- Confirmed – Documented species occurrences in or adjacent to the Proposed Action Area in public data or during the field visit.

Special-status species, including federally listed or candidate species and state-listed and state special concern species for Weld County, Colorado, with potential for occurrence in the Proposed Action Area, are shown in Table 3-13. Species that were classified as having high likelihood for occurrence or were confirmed in or adjacent to the Proposed Action Area are further described below (Sections 3.9.1.1, 3.9.1.2, 3.9.1.3, 3.9.1.4, 3.9.1.5, and 3.9.1.6).

3.9.1.1 Black-tailed prairie dog

The black-tailed prairie dog (*Cynomys ludovicianus*) is a medium-sized, diurnal, colonial ground squirrel and is a state special concern species in Colorado (Table 3-13). Of the three species of

prairie dogs found in Colorado, the black-tailed prairie dog is the most common. Black-tailed prairie dogs occur on the grasslands of the eastern plains and prefer low, sparse vegetation which allows for better visibility of potential predators (CPW 2024). As discussed in Section 3.9.1.4, black-tailed prairie dogs are an important prey source for raptors, and other mammals including badgers (*Taxidea* spp.). Black-tailed prairie dogs additionally create habitat conditions necessary for associated species such as burrowing owls (City of Boulder 2024). The CNHP has identified the Proposed Project Area as being within the overall range and potential occurrence range of the black-tailed prairie dog colony (Table 3-13; CNHP 2024a,b). As further detailed in Section 3.9.1.3, burrowing owl surveys were conducted in July 2024, and nesting burrowing owls were observed at one prairie dog colony 0.3 miles south of the Solar Project Area (Table 3-13; Appendix B; Sullivan et al. 2024a). No additional prairie dog colonies (active or inactive) were observed within the Proposed Project Area during the 2024 burrowing owl survey effort.

3.9.1.2 Bald Eagle

In addition to the MBTA and as described above, the BGEPA provides additional protection to bald and golden eagles (Table 3-13). Bald eagles are often found close to rivers, lakes, and reservoirs year-round in Colorado. Their large stick nests are often found in dead limbs high in the tree canopy. Their diet consists primarily of fish, carrion, and small mammals, such as prairie dogs (*Cynomys* spp.; CPW 2024, USFWS 2024a). The CNHP has identified an area of bald eagle winter concentration, as well as nesting and roosting bald eagles along the South Platte River, within one mile north of the Line Upgrade Area (Table 3-13; CNHP 2024a,b). Bald eagles were not observed within or near the Solar Project Area during the 2022 site visit or near the Line Upgrade or Solar Project Areas during 2024 Raptor Nest and Burrowing Owl Surveys (Appendix B; Brunner and Knierim 2022; Sullivan et al. 2024a). In April 2024, a Raptor Nest Survey (RNS) was completed; No bald eagles or their nests were observed within the Proposed Action Area or within a 0.5-mile buffer surrounding the Proposed Action Area (Appendix B; Sullivan et al. 2024b). No suitable lake or aquatic foraging areas are present in the Proposed Action Area. While bald eagles may occasionally move through the Proposed Action Area, the absence of suitable nesting habitat and lack of high quality foraging habitat make it unlikely for the species to occur within or adjacent to the Proposed Action Area except as a rare migrant or when transiting between nearby breeding habitat (e.g., between the South Platte River to the north and reservoirs to the south and southwest of the Proposed Action Area) (Table 3-13).

3.9.1.3 Burrowing Owl

In addition to protections provided by the MBTA, the borrowing owl is state-listed as threatened in Colorado (Table 3-13). Nesting and foraging habitat for burrowing owls consists of open, level terrain with low vegetation and a high percentage of bare ground. Suitable habitats include deserts, grasslands, and shrub-steppe. Unlike most owl species, burrowing owls are a diurnal migratory species. They prey on insects and small mammals and utilize pre-excavated burrows dug by prairie dogs, ground squirrels (*Spermophilus* spp.), and badgers (Table 3-13; CPW 2024, USFWS 2024m). In July 2024, a Burrowing Owl Survey was completed; no burrowing owls were observed in the Proposed Action Area. However, burrowing owls were present within the

surveyed 0.5-mile buffer surrounding the Solar Project Area. Specifically, nesting burrowing owls were observed at one prairie dog colony 0.3 miles south of the Solar Project Area (Table 3-13; Appendix B; Sullivan et al. 2024a).

Table 3-13. Special-status Species for the Janus Solar Project, Weld County, Colorado.			
Species (*scientific name*)	**Status[a]**	**Range or Habitat Requirement**	**Potential for Occurrence in the Proposed Action Area**
Mammals			
black-footed ferret *(Mustela nigripes)*	USFWS E, State E	Inhabits grasslands and shrublands that support species of prairie dogs (*Cynomys* spp.). Prairie dog obligate species, requiring large, contiguous colonies to maintain population (CPW 2024).	None. A reintroduced population is located over 22 miles southwest of the Proposed Action Area; no potential for dispersing individuals to occur (USFWS 2023).
Black-tailed prairie dog (*Cynomys ludovicianus*)	SC	Inhabits grasslands of the eastern plains, with low, relatively sparse vegetation, including areas overgrazed by cattle. Preferred habitat for burrowing includes fine to medium textured soils.	High. CPW potential occurrence within the Proposed Action Area (Colorado Natural Heritage Program [CNHP] 2024).
gray wolf *(Canis lupus)*	USFWS E, State E	Habitat generalist; occurs in Colorado west of the Rocky Mountains.	None. No known occurrences in eastern Colorado; outside range of reintroduced populations. State statute requires that wolves be released only west of the Continental Divide (Colorado Code 33-2-105.8 [2022]), so potential for future occurrence would remain very low. The Solar Project does not include a predator management plan.
Preble's meadow jumping mouse *(Zapus hudsonius preblei)*	USFWS T, State T	Inhabits heavily vegetated riparian habitat with adjacent, undisturbed grassland communities with grasses, forbs, and shrubs (USFWS 2024j).	Low. No known occurrences in Colorado's Conservation Data Explorer (CODEX) within one mile of the Proposed Action Area. The Proposed Action Area is within the species' range and, while not present within the Proposed Action Area, suitable habitat may be nearby.
swift fox *(Vulpes velox)*	SC	Occurs in the eastern plains in shortgrass prairie and sagebrush steppe, and agricultural areas. Den sites may include burrows of other mammals (prairie dogs, American badger [*Taxidea* taxus], and ground squirrels [*Spermophilus* spp.]) in areas with scant vegetation and low slopes. Breeding season occurs from approximately December 15 – April 14 (Stephens and Anderson 2005).	Low. The Proposed Action Area is not within the species' estimated range in eastern Colorado (CPW 2023f). Swift foxes are highly dependent on short-grass prairie (Stratman et al. 2022).
tricolored bat *(Perimyotis subflavus)*	USFWS PE, SC	Roosts in tree cavities, caves, mines, rock crevices, culverts, and buildings (USFWS 2024k).	Low. No known occurrences in CODEX within one mile of the Proposed Action Area. The Proposed Action Area is within the species' range (Colorado Parks and Wildlife [CPW] 2023g), but suitable habitat is not present.

Table 3-13. Special-status Species for the Janus Solar Project, Weld County, Colorado.			
Species (*scientific name*)	**Status[a]**	**Range or Habitat Requirement**	**Potential for Occurrence in the Proposed Action Area**
Birds			
bald eagle (*Haliaeetus leucocephalus*)	BGEPA, SC, MBTA	Usually associated with large bodies of water and riparian areas. Uses tall trees near water's edge for perching, looking for prey, and nesting (CPW 2024).	High. Proposed Action Area is not within CPW-mapped winter forage range (CPW 2023a); however, marginal foraging habitat is present within the Proposed Action Area. At least one documented occurrence in CODEX within one mile of the Proposed Action Area along the South Platte River. No bald eagles or their nests were observed during the 2024 RNS (Appendix B; Sullivan et al. 2024b).
burrowing owl *(Athene cunicularia)*	State T, MBTA	Dry, open areas with short grasses and no trees; uses underground burrows created by prairie dogs, ground squirrels, and badgers (*Taxidea* spp.; CPW 2024). Occurs during spring through summer months for breeding.	High. Burrowing owls were recorded south of the Solar Project Area during 2024 surveys (Appendix B; Sullivan et al. 2024a). Cultivated fields provide limited habitat due to regular disturbance and an overall lack of burrows. Field margins and open grasslands along the Line Upgrade Area provide suitable habitat where burrows are present.
eastern black rail *(Laterallus jamaicensis* ssp. *jamaicensis)*	USFWS T, MBTA	Wetlands with dense herbaceous cover that provide a mosaic of moist ground interspersed with or adjacent to shallow water (USFWS 2024c).	Low. Habitat in the Proposed Action Area is unsuitable. No known occurrences in CODEX within one mile of the Proposed Action Area. Proposed Action Area is on the edge of the northern range for Colorado (USFWS 2024c).
ferruginous hawk *(Buteo regalis)*	SC, MBTA	Occurs in open grasslands, shrub-steppe, croplands, western pinyon (*Pinus edulis*.) and juniper (*Juniperus* spp.) woodlands; nest in trees and shrubs (e.g., juniper, pine [*Pinus* spp.], willow [*Salix* spp.], cottonwood [*Populus* spp.], and sagebrush), cliffs, utility structures, ground and outcrops, haystacks, and buildings (USFWS 2024d).	High. Proposed Action Area is near the western edge of the breeding range (CPW 2023c). Suitable foraging and nesting habitat may be present. No ferruginous hawks or their nests were observed during the 2024 RNS (Appendix B; Sullivan et al. 2024b).

Table 3-13. Special-status Species for the Janus Solar Project, Weld County, Colorado.			
Species (*scientific name*)	**Status[a]**	**Range or Habitat Requirement**	**Potential for Occurrence in the Proposed Action Area**
golden eagle *(Aquila chrysaetos)*	BGEPA, MBTA	Nests on cliffs and mountainous terrain, forages in a variety of habitats, including shrub (NatureServe 2024).	High (wintering), None (Nesting). No known occurrences in CODEX within one mile of the Proposed Action Area, and suitable cliff nesting habitat is absent from the Solar Project Area (CNHP 2024a,b). Suitable winter foraging habitat is present in the Proposed Action Area and the species may occur during migration and winter, particularly in areas supporting suitable prey species (e.g., prairie dogs). No golden eagles or their nests were observed during the 2024 RNS (Appendix B; Sullivan et al. 2024b).
long-billed curlew *(Numenius americanus)*	SC, MBTA	Inhabits short- or mixed-grass prairies with mostly flat topography during breeding. Overwinters in tidal estuaries and sandy beaches in California, Texas, and Mexico (USFWS 2024f).	Low. Proposed Action Area is on the western edge of the main breeding range in Colorado (CPW 2023d), but suitable habitat is not present.
mountain plover *(Charadrius montanus)*	State T, SC, MBTA	Nests in high plains and shortgrass prairie and desert tablelands with a history of heavy grazing or low shrub semi deserts. Associated with prairie dog colonies (CPW 2024).	Low. No known occurrences in CODEX within one mile of the Proposed Action Area. Has potential to occur based on range, but suitable nesting habitat is not present.
piping plover *(Charadrius melodus)*	USFWS T, State T, MBTA	Usually migrates through in April and May. Some nest in Colorado in the summer along open, sandy shores but most continue further north (CPW 2024).	None. The Proposed Action does not include any water usage from the North Platte, South Platte, or Laramie River Basins; therefore, the Proposed Action would not affect the species.
whooping crane *(Grus americana)*	USFWS E, MBTA	During migration, whooping cranes are typically found in shallow wetlands and marshes, edges and sandbars of shallow rivers, and agricultural fields near a water source (USFWS 2024o).	None. No known occurrences in CODEX within one mile of the Proposed Action Area; not within species' current breeding or migratory range. Last known occurrence in the state was 2010 (CPW 2024).
Fish and mollusks			
cylindrical papershell *(Anodontoides ferussacianus)*	SC	This mussel inhabits small muddy or sandy streams and requires a fish host (CPW 2024).	None. The Proposed Action Area does not provide suitable riverine habitat.
Iowa darter *(Etheostoma exile)*	SC	Occurs in streams and smaller rivers that are clear and well-vegetated (U.S. Geological Survey 2024a).	None. Occurs in waters within one mile of the Proposed Action Area (CNHP 2024a), but the Proposed Action Area does not provide suitable riverine habitat.

Table 3-13. Special-status Species for the Janus Solar Project, Weld County, Colorado.			
Species (*scientific name*)	**Status[a]**	**Range or Habitat Requirement**	**Potential for Occurrence in the Proposed Action Area**
northern redbelly dace *(Phoxinus eos)*	State E	Inhabits stream channels and wetlands. Known populations are isolated to West Plum Creek, Spottlewood Creek, and Lonetree Creek (CPW 2016d).	None. Not in range and the Proposed Action Area does not provide suitable riverine habitat.
pallid sturgeon *(Scaphirhynchus albus)*	USFWS E	Bottom-dwell in large rivers (USFWS 2024h).	None. The Proposed Action does not include any water usage from the North Platte, South Platte, or Laramie River Basins; therefore, the Proposed Action would not affect the species.
Amphibians			
northern leopard frog *(Lithobates pipiens)*	SC	Wet meadows and the banks and shallows of waterbodies. May be found far from water during wet, mild weather (CPW 2016b).	Low. Occurs in waters within one mile east of the north-central portion of the Line Upgrade Area (CNHP 2024a, CPW 2023e), however suitable habitat is not present in the Proposed Action Area.
Snakes			
common garter snake *(Thamnophis sirtalis)*	SC	Inhabits riparian habitats in northeastern Colorado (CPW 2016c).	Low. Proposed Action Area does not include riparian habitat. However, the species range and nearby South Platte River make a rare occurrence possible.
Insects			
monarch butterfly *(Danaus plexippus)*	USFWS C	Monarch butterflies prefer open habitats and lay their eggs exclusively on milkweed (*Asclepias* spp.) and larvae feed on milkweed leaves until pupation. Adult monarch butterflies require a diversity of blooming nectar resources during breeding and migration (USFWS 2024g).	High. No known occurrences in CODEX within one mile of the Proposed Action Area; however, stands of milkweed adjacent to the Proposed Action Area, were identified during the 2022 site visit (Appendix B; Brunner and Knierim 2022).
Plants			
Ute lady's-tresses *(Spiranthes diluvialis)*	USFWS T	Requires moist meadows associated with perennial streams, floodplains, and oxbows at elevations between 4,300 and 6,850 feet. Ute lady's-tresses have been found along irrigation canals and irrigated meadows and other human-modified wetlands (USFWS 2024l).	None. No known occurrences in CODEX within one mile of the Proposed Action Area. Suitable habitat is not present within the Proposed Action Area.
western prairie fringed orchid *(Platanthera praeclara)*	USFWS T	Found in unplowed prairies and sedge meadows (USFWS 2024n).	None. No known occurrences in CODEX within one mile of the Proposed Action Area. Suitable habitat is not present within the Proposed Action Area.

Table 3-13. Special-status Species for the Janus Solar Project, Weld County, Colorado.			
Species (*scientific name*)	**Status[a]**	**Range or Habitat Requirement**	**Potential for Occurrence in the Proposed Action Area**
[a] BGEPA = Bald and Golden Eagle Protection Act of 1940; MBTA = Migratory Bird Treaty Act of 1918; ESA = Endangered Species Act of 1973; USFWS = U.S. Fish and Wildlife Service; USFWS E = ESA-listed as endangered; USFWS T = ESA-listed as threatened; USFWS C = ESA candidate for listing; USFWS PE = ESA-listing proposed as endangered; State E = state-listed endangered; ST = state-listed threatened; SC = state special concern (not a statutory category); RNS = Raptor Nest Survey.			

3.9.1.4 Ferruginous Hawk

Ferruginous hawks are provided protection under the MBTA and is a state special concern species in Colorado (Table 3-13). Ferruginous hawks prefer open grasslands, shrub-steppe, croplands, and western pinyon (*Pinus edulis*) and juniper woodlands. They nest in trees and shrubs (e.g., juniper, pine [*Pinus* spp.], willow [*Salix* spp.], cottonwood [*Populus* spp.], and sagebrush [*Artemisia* spp.]), cliffs, utility structures, ground and outcrops, haystacks, and buildings (Table 3-13). Ferruginous hawks can be seen in Colorado year-round and prey on small mammals, such as prairie dogs (USFWS 2024d). Black-tailed prairie dogs are an important prey item for ferruginous hawks. In Colorado, researchers have documented that black-tailed prairie dogs influence ferruginous hawk habitat selection and serve as their most important prey item (Colorado Division of Wildlife and Colorado Grassland Species Working Group 2003). In April 2024, a RNS was completed; no ferruginous hawks were present in the Proposed Action Area or within a 0.5-mile buffer surrounding the Proposed Action Area (Appendix B; Sullivan et al. 2024b). However, there is potential for ferruginous hawks to forage and nest within or adjacent to the Proposed Action Area (Table 3-13).

3.9.1.5 Golden Eagle

Golden eagles are provided protection under the BGEPA and MBTA (Table 3-13). This species typically nests along cliffs, in large live trees, and on anthropogenic structures, such as nesting platforms, which can bear the weight of an eagle nest (Katzner et al. 2020). Golden eagle nests are composed of a few large, several medium, and an abundance of small sticks (Katzner et al. 2020, Watson 2010). They prey on carrion and small mammals, such as rabbits, squirrels, and prairie dogs. Unlike bald eagles, fish is not a main food source for golden eagles. In April 2024, a RNS was completed; no golden eagle nests were present in the Proposed Action Area or within a 0.5-mile buffer surrounding the Proposed Action Area (Appendix B; Sullivan et al. 2024b). No suitable nesting habitat is present within the Proposed Action Area, and the species is not expected to nest within 1-mile of the Proposed Action Area. While there were no nests and no state records of occurrence within one mile of the Proposed Action Area, suitable winter foraging habitat is present and golden eagles may occur as winter residents, and may fly through and forage within or adjacent to the Proposed Action Area during the non-breeding season (Table 3-13; CNHP 2024a,b).

3.9.1.6 Monarch Butterfly

The monarch butterfly (*Danaus plexippus*) is a candidate species under the ESA and not yet listed or proposed for listing (Table 3-13). Candidate species are plants and animals for which the USFWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the ESA, but for which development of a proposed listing regulation is precluded by other higher priority listing activities. Candidate species receive no statutory protection under the ESA (USFWS 2024b).

The monarch butterfly is an obligate specialist that relies on milkweed (*Asclepias* spp.) species as an egg host, dietary staple, and source of toxin for predator defense. They also rely on diverse

nectar resources for migration and breeding (USFWS 2024g). In October 2022, a preliminary site visit for the Solar Project was completed, and suitable habitat for the monarch butterfly was observed (Table 3-13). During the 2022 site visit, stands of milkweed were documented growing along a dry channel of West Sand Creek (Appendix B; Brunner and Knierim 2022). Since the time of the 2022 site visit, the boundary of the Solar Project Area has changed and no longer includes the area where milkweed was observed. Suitable breeding habitat was not observed within the Proposed Action Area during biological surveys (Appendix B); however, transient or migrating monarch butterflies may occur within the Proposed Action Area.

3.9.2 Environmental Impacts: Proposed Action

3.9.2.1 Environmental Commitments

Environmental commitments would be implemented to reduce potential Solar Project impacts on special-status species and suitable habitat, most of which are presented in Section 3.8.2.1, including those pertinent to migratory birds (i.e., bald eagle, burrowing owl, and ferruginous hawk).

The following species-specific environmental commitments would be implemented by Janus to reduce potential Solar Project impacts on species and suitable habitat, if present (Appendix I):

- Conduct surveys for federally and/or state-protected species, and other state special concern species (including special-status plant and wildlife species), within the Solar Project Area and design the Solar Project and construction activities to avoid (if possible), minimize, or mitigate impacts to these resources and habitats (e.g., locate the solar arrays and access roads in the least environmentally sensitive areas [i.e., away from wetlands, drainages, or critical wildlife habitats]).
- Comply with the ESA and consult with the USFWS, as needed, on the effects of the Solar Project on listed species and migratory birds. Develop procedures to mitigate potential impacts to special-status species. Such measures could include avoidance of Solar Project structures or seasonal and spatial restrictions during construction.
- Pre-construction wildlife surveys would be conducted and species-specific avoidance and minimization measures would be implemented, as appropriate, and in accordance with CPW's *Best Management Practices for Solar Energy Development* (2021a), *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (2020), and *Recommendations to Avoid and Minimize Impacts to Wildlife from Land Use Development in Colorado* (2023b). No human encroachment, surface disturbance, or construction activity would occur:
  - Within 0.25 miles of an active maternal swift fox (*Vulpes velox*) den site from March 15 through June 15
  - Within and over black-tailed prairie dog colonies from February 1 through July 31
  - Within a 0.50-mile buffer around an active or alternate ferruginous hawk nest from February 1 through July 15

  - Within a 0.50-mile buffer around an active golden eagle nest from December 15 through July 15
  - Within a 0.50-mile buffer around an active prairie falcon nest from March 15 through July 15
  - Within a 0.25-mile buffer around an active Swainson's hawk nest from April 1 through July 31
  - Within a 660-foot buffer around an active burrowing owl nest from March 15 through August 15
- If a bald eagle nest is identified near the Proposed Action Area, measures described in the USFWS's *National Bald Eagle Management Guidelines* (2007) would be implemented to avoid and minimize impacts on nesting bald eagles.
- Minimize impacts within 300 feet of a rare plant occurrence. Pre-construction surveys in suitable habitat would be required to establish presence or absence of rare plant species.

Specific to the Line Upgrade, environmental commitments would be implemented by WAPA to reduce potential impacts on special-status species and/or their habitat. For example, upgrades to the transmission line would be constructed in accordance with APLIC guidance and WAPA's construction standards (WAPA 2021; Appendix J, e.g., Section 13.20).

3.9.2.2 Direct and Indirect Impacts

3.9.2.2.1 Black-tailed prairie dog

The Proposed Action Area occurs within suitable black-tailed prairie dog habitat. During construction, black-tailed prairie dogs may be displaced and less likely to utilize the area surrounding the proposed Solar Project Area due to noise and general disturbance occurring as a result of equipment operation and ground disturbance (e.g., excavation). In addition, individuals may become temporarily displaced resulting from ground disturbance and a temporary reduction in food sources (e.g., grasses, leafy vegetation, forbs and weeds). As discussed in Section 3.9.2.2.3, prior to construction and in accordance with CPW's *Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls* guidance (2021b), additional burrowing owl surveys would occur to identify active burrowing owl nesting habitat, including prairie dog colonies, within or near the Proposed Action Area. If burrowing owls are documented, and any associated active black-tailed prairie dog colonies, then additional measures following CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (2020) would be followed as well as coordination with CPW, as needed. Impacts on black-tailed prairie dogs as a result of the Solar Project would likely be temporary and short-term in nature.

3.9.2.2.2 Bald Eagle

While no bald eagles were observed within or near the Solar Project Area or Proposed Action Area during the 2022 site visit or 2024 RNS, respectively (Appendix B; Sullivan et al. 2024b), individual transient bald eagles could be present within the Proposed Action Area. Potential direct impacts on bald eagles from construction and operation of the Solar Project are similar to

those described for migratory birds in Section 3.8.2.2.2. During construction, bald eagles may be displaced and less likely to utilize the area surrounding the proposed Solar Project Area due to noise and general disturbance occurring as a result of equipment operation and ground disturbance (e.g., excavation). It is anticipated that any bald eagles in the immediate area would relocate foraging activities to nearby, suitable habitat for the duration of construction activities. Prior to construction, additional RNSs would occur to identify any nests within or near the Proposed Action Area that warrant permitting. Impacts on bald eagles as a result of the Solar Project would likely be temporary and short-term in nature.

3.9.2.2.3 Burrowing Owl

The Proposed Action Area occurs within suitable burrowing owl habitat. As discussed in Section 3.1.1, the Solar Project Area consists primarily of dryland agricultural row crops, which provide limited habitat for burrowing owls due to regular disturbance from cultivation and an overall lack of burrows (Appendix B; Sullivan et al. 2024a). However, field margins and open grasslands along the Line Upgrade Area provide suitable habitat for burrowing owls where prairie dog burrows are present. Potential direct impacts on burrowing owls from construction and operation of the Solar Project are similar to those described for migratory birds in Section 3.8.2.2.2. Direct impacts on burrowing owls include potential fatalities associated with vehicle collisions during Solar Project construction and operation. In addition, individual burrowing owls and/or their prey may become temporarily displaced and less likely to utilize the area surrounding the proposed Solar Project Area due to noise and ground disturbance. Prior to construction and in accordance with CPW's *Recommended Survey Protocol and Actions to Protect Nesting Burrowing Owls* guidance (2021b), additional burrowing owl surveys would occur to identify active burrowing owl nesting habitat within or near the Proposed Action Area. If burrowing owls are documented, additional measures following CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (2020) would be followed. Impacts on burrowing owls as a result of the Solar Project would likely be temporary and short-term in nature.

3.9.2.2.4 Ferruginous Hawk

While no ferruginous hawks were observed within or near the Solar Project Area or Proposed Action Area during the 2022 site visit or 2024 RNS, respectively (Appendix B; Brunner and Knierim 2022; Sullivan et al. 2024b), individual transient ferruginous hawks could be present within the Proposed Action Area. The Proposed Action Area is near the western edge of the breeding range and some suitable nesting and foraging habitat may be present (CPW 2023c). Potential direct impacts on ferruginous hawks from construction and operation of the Solar Project are similar to those described for migratory birds in Section 3.8.2.2.2. Direct impacts on ferruginous hawks include potential fatalities associated with vehicle collisions during Solar Project construction and operation. In addition, ferruginous hawks may be temporarily displaced and less likely to utilize the area surrounding the proposed Solar Project Area due to noise and general disturbance. Nesting ferruginous hawks are particularly sensitive to disturbance and may abandon their nests (CPW 2020). Prior to construction, additional RNSs would occur to identify active ferruginous

hawk nesting habitat within or near the Proposed Action Area. If ferruginous hawk nests are documented, additional measures following CPW's *Recommended Buffer Zones and Seasonal Restrictions for Colorado Raptors* (2020) would be followed. Impacts on ferruginous hawks as a result of the Solar Project would likely be temporary and short-term in nature.

3.9.2.2.5 Golden Eagle

While no golden eagles were observed within or near the Solar Project Area or Proposed Action Area during the 2022 site visit or 2024 RNS, respectively (Appendix B; Brunner and Knierim 2022; Sullivan et al. 2024b), individual transient golden eagles could be present within the Proposed Action Area. Potential direct impacts on golden eagles from construction and operation of the Solar Project are similar to those described for migratory birds and bald eagles in Sections 3.8.2.2.2 and 3.9.2.2.1, respectively. During construction, golden eagles may be displaced and less likely to utilize the area surrounding the proposed Solar Project Area due to noise and general disturbance occurring as a result of equipment operation and any ground disturbance (e.g., excavation). It is anticipated that any golden eagles in the immediate area would relocate foraging activities to nearby, suitable habitat for the duration of construction activities. Prior to construction, additional RNSs would occur to identify any nests within or near the Proposed Action Area that warrant permitting. Impacts on golden eagles as a result of the Solar Project would likely be temporary and short-term in nature.

3.9.2.2.6 Monarch Butterfly

As discussed in Section 3.9.1.5, stands of milkweed were documented growing along a dry channel of West Sand Creek, which is no longer within the Proposed Action Area. In addition, suitable breeding habitat was not observed within the Proposed Action Area during biological surveys (Appendix B); however, transient or migrating monarch butterflies may occur within the Proposed Action Area. Direct and indirect effects on the monarch butterfly would be visual or physical disturbances from physical presence of people, development activities, and moving vehicles. The disturbance could cause individuals to move from resting/nectaring locations or alter the flight paths of adults. Solar Project construction activities create an opportunity for introducing and spreading noxious weeds and invasive plant species within the Proposed Action Area. Noxious weeds and invasive plants can outcompete native forbs that provide food and/or sources for egg laying for the monarch butterfly. Weed control measures, as described in Section 3.8.2, and treatment methods have been incorporated into the Solar Project to reduce the threat of introducing or spreading noxious weeds and invasive plant species within the Proposed Action Area. In addition, as discussed in Sections 2.3.2 and 3.1.2, restoring vegetation using a native weed-free seed mix (e.g., grasses and forbs) could provide suitable habitat for pollinators, including monarch butterflies. Therefore, due to the overall lack of suitable monarch butterfly habitat within the Proposed Action Area and the implementation of the proposed mitigation measures, Solar Project impacts to the monarch butterfly are anticipated to be minor.

3.9.3 Environmental Impacts: No Action Alternative

Under the No Action Alternative, WAPA would deny the interconnection request and Janus would evaluate alternative interconnection options for the Solar Project. If suitable interconnections were not identified, then Janus would not construct, operate, maintain, or decommission the Solar Project. As a result, the impacts on special-status species associated with the Proposed Action and proposed Solar Project, as described above, would not occur.

3.10 Cumulative Effects

Cumulative effects on the environment are those resulting from the incremental impacts or benefits of the Proposed Action when added to other past, present, and reasonably foreseeable future actions. This includes actions by federal, non-federal, and private agencies. This section analyzes the potential cumulative impacts of the Proposed Action by resource and considers the direct and indirect impacts based on the analysis area specific to each resource. Cumulative impacts were also considered on a temporal scale, as most impacts during construction of the Proposed Action would no longer be present during operation, whereas operational impacts would potentially be persistent throughout the 40-year lifespan of the Solar Project.

A 3-mile area around the Solar Project was used to consider past, present, and reasonably foreseeable future actions. This geographic area generally includes the analysis area of direct and indirect impacts considered for each resource. The 3-week time period anticipated for the Line Upgrade (Section 2.3.7) and minimal impacts to the existing transmission line would be negligible in the context of cumulative effects and were therefore not included in considering actions within a 3-mile area. Table 3-14 summarizes the actions evaluated for cumulative effects.

Table 3-14. Specific Past, Present and Reasonably Foreseeable Future Actions Considered in the Cumulative Effects Analysis for the Janus Solar Project, Weld County, Colorado.

Action	General Description	Activities Evaluated	Temporal Status
Prospect Solar Project, Prospect Solar, LLC	199-MW solar energy facility on 1,500 acres, a 100-MW BESS, a step-up substation, transformer and maintenance facilities, and a 230-kilovolt interconnecting transmission line to connect to a new Tri-State Switching Station	Construction of a solar facility, assumed impacts would be similar to the Solar Project	Reasonably foreseeable future action. The Solar Project is expected to begin construction in 2025 and has a 40-year lifespan
Roggen Peaks Ranch	Outdoor Shooting Range	Impacts associated with gunfire and visitor traffic	Past, present, and future

In addition to the specific actions described above, past, and present actions within the 3-mile area around the Solar Project include a diverse array of actions that cannot be individually listed. These actions generally consist of residential development; grazing and ranching activities; crop production; private recreational opportunities; electric utility O&M, transmission lines, electrical distribution lines, telephone lines, communication towers, oil and gas operations; and roadway operation and maintenance.

Cumulative Impacts by Resource

3.10.1 Land Use and Farmland

The Solar Project and other past, present, and reasonably foreseeable future actions would result in the removal of lands available for other uses, including agricultural, herbaceous land cover, and potential grazing lands. This would also include the removal of Prime Farmlands. As described in Section 3.1, although these actions would contribute incrementally to the conversion of rural land to more developed uses, the amount of land removed would minor given the relatively small amount area converted within the context of the 3-mile analysis area and Weld County, and could be returned to existing land uses after the lifespan of each action.

3.10.2 Socioeconomics

Due to the wide scope of the analysis area that the socioeconomic analysis covers (Weld, Adams, and Morgan counties), cumulative effects for this resource is discussed as trends on the rather than individual actions. The Proposed Action and the Prospect Solar Project, assuming construction periods would overlap, would both contribute to short-term beneficial impacts to the local economy through increased employment, income, and expenditures at local businesses. The cumulative impacts to public service providers and housing within the three-county area would be minor given the relatively small size of cumulative construction crews compared to the populations within the analysis area and economies.

Operation of the Solar Project and Prospect Solar Project would contribute to minor long-term beneficial cumulative impacts from employment staff, procurement of supplies and services for maintenance, compensation to landowners from lease and easement agreements, and increased tax bases.

Any cumulative negative impacts or benefits from the construction of the two solar facilities to property values would be minor. Additionally, the number of properties with changes to property values would be reduced since both solar projects are sited adjacent to one another.

3.10.3 Air Quality and Emissions

During construction, the Proposed Action and Prospect Solar Project would contribute to short-term air pollutant emissions and minor impacts to air quality at a local level. Considering the mitigation measures and best practices for this Solar Project discussed in Section 3.3, and an assumption that the Prospect Solar Project would follow similar measures, cumulative construction impacts to air quality would be minimized. Construction of the Proposed Action and Prospect Solar Project would add GHGs to the atmosphere, but it would emit less than if the equivalent amount of electricity was generated by fossil-fuel combustion, and therefore result cumulative net decrease in GHGs.

3.10.4 Noise

Construction and operation of the Proposed Action and Prospect Solar Project would contribute incrementally to increased noise at sensitive noise receptors, particularly during construction occupied residences, along with ongoing farming activities, the nearby outdoor gun range, local development, and traffic. Contributions to cumulative impacts would be temporary and minor with implementation of proposed conservation measures.

3.10.5 Visual Resources

Construction of the Proposed Action would contribute incrementally to visual impacts in the rural setting of the analysis area both during construction and operation. Solar Project operation and the Prospect Solar Project would contribute to long-term visual impacts within the analysis area. Cumulative impacts to nearby sensitive receptors, such as residences, would be higher depending on the proximity to the actions.

3.10.6 Cultural Resources

Cultural and Tribal Resources identified during the Class III inventory were not within the Proposed Action or are expected to be avoided/mitigated through adjustment of infrastructure, fencing, and monitoring. WAPA has consulted with the tribes and SHPO to ensure significant impacts to cultural resources would not occur, such that potential cumulative impacts would be insignificant.

3.10.7 Paleontology

Construction and decommissioning of the Solar Project and Prospect Solar Project may incrementally contribute cumulative impacts to paleontological resources. Assuming the Prospect Solar Project would implement similar commitments to paleontological resources, impacts would be minimized with use of staff training and an Unanticipated Paleontological Discovery Plan. Ongoing activities within the analysis area, such as residential development and agricultural activities, are also likely contributing to loss of paleontological resources at a minor level.

3.10.8 Wildlife

Proposed Action construction would contribute incrementally to disturbance, displacement, and potential mortality of common wildlife particularly with regard to big game and migratory bird species. Contributions to cumulative impacts would be temporary and minor with implementation of proposed conservation measures. Operation of the Solar Project and the Prospect Solar Project would contribute incrementally to long-term displacement, and potential mortality of wildlife, particularly associated with avian collision with solar panels. As described above in Section 3.8, these direct impacts are expected to be low risk. With implementation of proposed conservation measures, which is assumed for the Prospect Solar Project as well, cumulative impacts would be minor.

3.10.9 Special-status Species

Construction of the Solar Project could result in minor, direct impacts to several special-status bird species and the monarch butterfly. This includes contributing incrementally to the loss of foraging and grassland habitats for these species. With implementation of the proposed conservation measures, which are similarly assumed for the Prospect Solar Project, and the availability of habitat within the analysis area, cumulative impacts would be minor.

3.11 Resources Dismissed from Detailed Analysis

3.11.1 Environmental Justice

Under EO 12898 (1994), federal agencies are required to address environmental justice issues that can disproportionately impact minority and low-income populations. For this reason, the Proposed Action Area were screened for the presence of minority and/or low-income communities using U.S. Census Bureau data organized at the block group level and the Environmental Justice Screening and Mapping (EJScreen) tool (USEPA 2024e). The entirety of the Proposed Action Area is in Weld County, Colorado, in census block groups 081230025023 (Solar Project Area and a portion of the Line Upgrade Area) and 081230025022 (remaining Line Upgrade Area). Based on U.S. Census Bureau data, these block groups are not an environmental justice community, nor is it likely that language barriers would adversely and disproportionately affect the ability of residents to participate in the permitting process (U.S. Census Bureau 2022a, USEPA 2024e). To analyze minority populations, values were calculated by adding the populations for all non-white races and the population for white-Hispanic races. The proportion of the population identified as a minority group within census block groups 081230025023 and 081230025022 were 21.8% and 41.7%, respectively (U.S. Census Bureau 2022b). Census block group 081230025023 had a lower percentage of minority populations when compared to Weld County (36.3%) and Colorado (33.8%; U.S. Census Bureau 2022b). While census block group 081230025022 had a higher percentage of minority population compared to Weld County (36.3%) and Colorado (33.8%), the difference does not exceed 50.0% (CEQ 1997). Looking at the percentage of the population below the poverty line, census block groups 081230025022 and 081230025023 were 14.2% and 20.6%, respectively (U.S. Census Bureau 2022d). While the percentage of the census blocks below poverty was greater than that of the county (9.1%) and state (9.6%), the difference was not greater than 50.0% (U.S. Census Bureau 2022d).

The EJScreen tool (Version 2.3) was used to determine the presence of communities at risk of environmental justice issues within and around the Proposed Action Area (USEPA 2024e). When looking at the demographic index (based on the average of two socioeconomic indicators: people of color and low-income), the Proposed Action Area were within an area that was below the 50th percentile compared to the national percentile. The EJScreen tool was also used to identify additional communities that could face environmental justice issues based on other socioeconomic indicators not specified under EO 12898, such as education level, age, and unemployment rate. The only groups that were above the 80th percentile were those with education less than high school and under the age of five, which were within the 83rd percentile and the 98th percentile, respectively (USEPA 2024e).

It should be noted that expected environmental impacts under the Proposed Action would be short-term and associated with the construction of the Solar Project (e.g., noise, dust, and air emissions). These impacts would be most prominent near the proposed Solar Project Area and Line Upgrade Area and would attenuate quickly only a short distance from the Proposed Action Area. After construction, there would be long-term impacts to the nearby viewshed. However, as mentioned above, these impacts are not expected to disproportionately impact low-income or minority communities. Therefore, environmental justice was dismissed from detailed analysis.

3.11.2 Human Health and Safety

Electromagnetic fields (EMFs) are often a consideration related to human health and safety and electrical generation or transmission. Natural and manufactured sources produce EMFs, which are categorized by their frequency as either non-ionizing, which includes low-level radiation generally perceived as harmless to humans (e.g., radios and televisions), or ionizing, which includes high-level radiation with the potential for cellular and deoxyribonucleic acid (DNA) damage (e.g., sunlight, X-rays). AC voltage on any wire that acts as a conductor produces an electric field, the intensity of which is proportional to the voltage of the transmission line. The flow of electrical current on a wire produces a magnetic field which is relative to the current flow through the electrical device. As a result, the strength of EMFs decreases dramatically with increasing distance from the source. EMFs from transmission lines would be similar to typical background levels at a distance of 300 feet (National Institute of Environmental Health Sciences 2002, 2024).

Construction and operation of the Solar Project and Line Upgrade would be subject to physical safety hazards typical of a rural agricultural area, such as storms and vehicle accidents. As discussed in Section 2.3.8, between 100–250 full-time workers would be on-site at any one-time during construction, using approximately 90–100 vehicles per day and taking approximately 390 daily round trips (Appendix D). Vehicles would be split into three separate constructions sites. Workers would be instructed and required to adhere to speed limits and traffic control signage, including speed limits and travel restrictions that would be posted along construction roads, as detailed in the Environmental Conservation Measures (Appendix I). Temporary construction traffic would be accommodated by the existing roadway system (Appendix D). Therefore, an increase in vehicular accidents due to temporary construction traffic is not anticipated. During operation of the Solar Project, the facility would primarily be unmanned, requiring a negligible number of trips by lightweight trucks or cars for inspections and/or maintenance, which would not cause an increase in the likelihood of vehicular accidents.

Hazardous materials from construction and operation activities would not be drained onto the ground or into streams or drainage areas and would be handled in accordance with the Solar Project SPCC Plan and Environmental Conservation Measures (Appendix I), as well as WAPA's construction standards (WAPA 2021; Appendix J). Totally enclosed containment would be provided for trash. All construction waste, including trash and litter, garbage, other solid waste, petroleum products, and other potentially hazardous materials, would be collected/contained

and removed to a disposal facility authorized to accept such materials. No hazardous materials are expected to be produced or stored at the proposed Solar Project Area.

Wildfires could occur in the area and fire intensity could be moderate based on fuels. However, the fuels are largely fine (e.g., grass and cultivated fields) and the area is accessible by several roads, so fire response would be relatively fast, and the road network and fire type (surface fires with low flame lengths) make rapid containment more likely. According to the Colorado Forest Atlas data, the overall risk to values at the Solar Project is also low (Colorado State Forest Service 2024). Fire protection and prevention including BESS fire response are discussed in the Solar Project's Emergency Response Plan (Appendix K). Additionally, a Health and Safety Plan for workers and the general public as well as a Fire Prevention Plan would be developed for the Solar Project, as identified in the Environmental Conservation Measures (Appendix I).

Due to the lack of anticipated impacts from EMFs beyond 300 feet, temporary increase of 90–100 vehicles on existing roadways with the implementation of the proposed measures for workers and public safety, hazardous materials, and fires in the Solar Project Area a detailed analysis of impacts to human health and safety from the Solar Project is not warranted.

3.11.3 Livestock Grazing

This resource was dismissed from detailed analysis based on current and planned land use. The primary land use within the Solar Project Area is crop production. Since there is no current or planned livestock grazing or production, this resource was dismissed from detailed analysis.

3.11.4 Soils and Geology

Potential impacts to soil from surface disturbance during construction and operation of the Solar Project include soil loss, soil compaction, and an increased potential for erosion, both by wind and precipitation. The Solar Project Area would require minimum grading, and soil stripping is not anticipated under panels or at pile locations. Where topsoil must be stripped, it would be stockpiled on site and used to form a berm located on the Solar Project Area. Exposed soils would be restored as close as possible to their original contour and slope, and creation of steep slopes as a result of construction activities would be avoided to the fullest extent possible. To prevent erosion, areas that are not needed for long-term O&M would be reclaimed with native vegetation as soon as construction is complete, and restoration efforts would continue until at least 70% of pre-construction vegetation cover is attained and the site is stabilized. Generally, ground not occupied by aboveground development, access roads, or structural foundations, including the ground under solar panels, would be planted to a native seed mix (e.g., grasses and forbs) to better manage stormwater erosion and reduce the potential for soil runoff. Upon decommissioning, reclamation would be completed as soon as possible and until a similar 70% vegetation cover threshold and site stability are reached.

As discussed in Section 2.3.7, no grading or vegetative clearing would be required to complete upgrades to 15.4 miles of the Prospect Valley-Willoby 115-kV transmission line. Potential impacts on soil from surface disturbance during the line upgrade would primarily include soil compaction;

however, existing WAPA ROW would be used to conduct upgrades, which would minimize extended soil disturbance and compaction. In addition, due to the anticipated short timeframe (up to three weeks) for construction activities along the Line Upgrade, the potential impacts on soil would be temporary.

The Proposed Action is in an area of low hazard risk for earthquake activity and there is low potential for any earthquake activity to exceed the peak ground acceleration at which structures are damaged (USGS 2018, 2024b). There are no known landslides in the area (USGS 2024d). One active gravel pit permit issued in 1982 exists within the Solar Project Area, and another active borrow material pit permit from 2016 exists near the Line Upgrade, but neither pit is currently being used (Colorado Division of Reclamation, Mining and Safety 2024).

Given the proposed mitigation measures for soils identified in the Environmental Conservation Measures (Appendix I) and the Solar Project Area's geologic stability, a detailed analysis of the impacts to soil or geological resources is not warranted.

3.11.5 Transportation

Construction of the Solar Project would result in temporary increases in traffic within the vicinity of the Solar Project and nearby communities from construction personnel commuting to the Solar Project, as well as equipment and material deliveries. During construction of the Solar Project, Janus anticipates five heavy-duty vehicles, five water trucks, and 100 passenger vehicles per day. Whereas, during operation of the Solar Project, Janus anticipates 10 passenger vehicles a month and no heavy-duty vehicles are expected to remain within the Solar Project Area. As described in Section 2.3.8, the preferred access routes to the Solar Project Area would be from I-76 and Interstate-70. Additional discussion of preferred access routes, including heavy-vehicle routes to the Solar Project Area, are discussed in Janus's Traffic Study Letter (Appendix D).

Though a temporary increase in traffic would occur, the existing roadways would be expected to accommodate the additional construction traffic (Appendix D). Rural roadways, such as those found within the vicinity of the Solar Project, are also designed to accommodate large agricultural equipment and, therefore, would likely also accommodate large construction equipment. It is not anticipated that the increase in traffic resulting from Solar Project construction would near or surpass the established capacities of the existing roadways. Janus would complete road use agreements with Weld County as part of the county permitting process, which would include BMPs and mitigation for potential impacts to county roadways. Traffic increases during O&M would be negligible, with few vehicles (approximately one or two) accessing the Solar Project on any given day. Commitments related to transportation during construction and operation are detailed in the Environmental Conservation Measures (Appendix I).

As discussed in Section 2.3.8, for the Line Upgrade, up to five medium- to heavy-duty vehicles or vehicle-equivalents (e.g., bucket trucks, pulling equipment) would be used during a three-week construction period temporarily increasing the traffic within the vicinity of the Line Upgrade Area. Therefore, impacts on transportation are expected to be minor as a result temporary construction activities associated with the Line Upgrade.

A Glint and Glare Analysis was completed for the Solar Project, which included an evaluation of potential impacts to pilots and air transportation. The analysis included operational flight paths and landing strips within two miles of the Solar Project Area to account for pilot's visibility from the aircraft cockpit. Following policies established for federally obligated airports, it was determined that the Solar Project would not create a glare that poses a safety hazard for pilots nor air traffic controllers. Additionally, the Solar Project is outside the FAA Denver area restricted airspace and outside military training route areas (Appendix H).

Therefore, due to the negligible level of impact anticipated, detailed analysis of impacts to transportation from the Solar Project and Line Upgrade are not warranted.

3.11.6 Vegetation

Vegetation, including naturally occurring plants and crop type vegetation, would be removed, or disturbed during construction and operation of the Solar Project. In the Solar Project Area, existing vegetation occurs primarily as cultivated crop land, with sorghum and winter wheat being the most common crops; however, there are also small areas of herbaceous cover with species, such as smooth brome (*Bromus inermis*), western wheatgrass (*Pascopyrum smithii*), and burningbush (*Bassia scoparia*), a common agricultural weed (Section 3.1.1; Appendix B; Brunner and Knierim 2022). Within the Line Upgrade Area, existing vegetation occurs primarily as herbaceous cover (Section 3.1.1; Appendix B; Hoeing and Gerringer 2024). However, environmental conservation measures planned during construction, operation, and decommissioning, as detailed in the Environmental Conservation Measures (Appendix I), would be employed to maintain, or improve original vegetative conditions. Planned environmental conservation measures for temporary and long-term disturbed areas include utilization of reclaimed excavated topsoil, limiting vegetation clearing to the minimum amount required for construction and operation, use of pile driving to install solar panel racks, grading to original land conditions and soil decompaction during decommissioning, and revegetation using county approved weed-free native plant seed mixes to improve species composition and deter noxious weed growth.

Vegetation is anticipated to establish underneath panels and in areas of temporary disturbance after construction activities are complete and during operations of the Solar Project. As noxious weeds may be present with the Proposed Action Area and surface disturbance could increase the spread of weeds, noxious weed management activities identified in the Environmental Conservation Measures (Appendix I) include procedures to prevent noxious weed spread during construction and operation activities (e.g., prevention and control measures, use of weed-free materials, washing of equipment), as well as ongoing monitoring and control of noxious weed establishment during operations (Appendices D and H). Due to the planned environmental conservation measures, vegetation would be restored to the current conditions or improved by soil reclamation, noxious weed management, and revegetation using native weed-free seed mixes. Therefore, considering that vegetation would reestablish underneath panels and that weed management would occur during construction and operations, detailed analysis of impacts to vegetation resources from the Solar Project are not warranted.

3.11.7 Water

Following a desktop assessment and field delineation for the Solar Project in 2022, only Sand Creek, an intermittent stream, was delineated. No wetland features were identified. Following the delineation, the Solar Project footprint was reduced to avoid the Sand Creek corridor. A desktop assessment of potential water resources was conducted for the Line Upgrade Area (Appendix B; Brunner and Welsh 2022), in which no aquatic features were identified.

Water use for the Solar Project would include dust control during construction, fire control, landscape screen watering, and washing/maintenance. Once operational, the Solar project would have relatively minimal water needs, projected at roughly 0.007-acre feet (2,280.96 gallons) per acre per year. Water would be sourced through several options, including delivery via water trucks, storage in a proposed aboveground water tank, and through an existing, on-site well. Section 2.3.11 above describes the proposed water use for the Solar Project in greater detail. Commercial water use for construction and operation of the Line Upgrade is not expected. The use of water resources by Solar Project would not be expected to interfere with agriculture or community needs in the area, and water use for panel washing would be minimized by dust abatement agents on surrounding roads (Appendix I). Therefore, considering the lack of water resources within the Project area and thus the potential for disturbance to water resources, as well as the minimal water use per year, a detailed analysis of impacts to water resources from the Project are not warranted.

4 LIST OF PREPARERS

Table 4-1 identifies the personnel responsible for the preparation of this EA.

Table 4-1. List of Environmental Assessment preparers.

Agency/Firm and Staff Name	Title
Western Area Power Administration	
Mark Suchy	Project Manager
James Wood	Regional Environmental Manager
William Ankele	Archaeologist
Western EcoSystems Technology, Inc.	
Andrew Sullivan	Project Manager
Leslie Rodman-Jaramillo	Deputy Project Manager
Kristi Aarsby-Kail	NEPA Specialist
Bridget Sousa	Wildlife Biologist
Lea Selby	Endangered Species Act Compliance Specialist
Cait Rottler	Soil Scientist, Climate Change Specialist
Sarah LiCari	NEPA Specialist
Moira Snuffer	Wetland Biologist, NEPA Specialist
Julie Dickey	Cultural Resource Specialist
Carmen Boyd	NEPA Specialist

Table 4-1. List of Environmental Assessment preparers.	
Agency/Firm and Staff Name	**Title**
Evan Hewitt	Wetland Biologist
Davey Young	NEPA Specialist

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Appendix A. Draft Environmental Assessment Public Comments and Western Area Power Administration Responses for the Janus Solar Project, Weld County, Colorado

Appendix B. Biological Resources Technical Report for the Janus Solar Project, Weld County, Colorado

Appendix C. Battery Energy Storage System Specifications for the Janus Solar Project, Weld County, Colorado

Appendix D. Traffic Study Letter for the Prospect and Janus Solar Projects, Weld County, Colorado

Appendix E. Dust and Weed Mitigation Plan for the Janus Solar Project, Weld County, Colorado

Appendix F. Socioeconomic Impact and Community Benefit Report Prepared for the Janus Solar Project, Weld County, Colorado

Appendix G. Visual Simulations Developed for the Janus Solar Project, Weld County, Colorado

Appendix H. Glare Study Prepared for the Janus Solar Project, Weld County, Colorado

Appendix I. Environmental Conservation Measures for the Janus Solar Project, Weld County, Colorado

Appendix J. Western Area Power Administration Construction Standards, Standard 13 Environmental Quality Protection – for the Line Upgrade at the Janus Solar Project, Weld County, Colorado

Appendix K. Emergency Response Plan Prepared for the Janus Solar Project, Weld County, Colorado